
TECHNOLOGY WARS AND THE MILITARY FUTURE OF AI

¹Dra Roser Martínez Quirante, ²Dr. Joaquín Rodríguez Álvarez

¹Professor of Administrative Law

Autonomous University of Barcelona

²Professors of Risk Analysis and Technology

Autonomous University of Barcelona

ABSTRACT

This article aims to explore the relations between society and technology, through the risks and side effects that some technological sets have over our system. Through the case of Lethal Autonomous systems, we will analyze some social and legal challenges that not only could condition future developments of AI, but also alert us about the lack of regulation of an area of development that can be critical for the future of our species. In a world where technology has the ability to shape our perception of reality, it is necessary to open debates about its future, and the future of humanity itself. The rise of non-human intelligent actors can be critical for the comprehension of the human, but also of the pillars of our system.

KEY WORD: Lethal autonomous systems, Artificial Intelligence, Space Force

INTRODUCTION

The world is changing, and sometimes we have the sensation of being in a science-fiction movie, especially when the president of the United States talks about the creation of a Space Force. Something, that in fact, is not so new, and can be understood as logical evolution of the current technological trends and the development of the military industrial complex.

Our society is living a deep restructuration process that is leading us to new scenarios. From the deregulation of the 2000, to the financial crisis of 2008 we observe some trends as the rise of uncertainty, complexity, chaos, contradictions and risk that have a tremendous erosive power over some of the most basic institutions of our society, deeply affecting citizen trust in those who are responsible of managing the common wealth. A set of patterns that can explain the rise of populist movement all along the world, the growing international instability or the erosion of democracy

Some of these changes have been identified since the nineties by a broad group of scholars who developed different theories about the impact they would have over our society. But from the late capitalism of Frederick Jameson, to the Risk society of Ulrich Beck, passing through the post normality approach of Sardar, the Liquid modernity of Bauman, the Post-normal Science of Silvio Funtcowicz and Jerome Ravetz, or the Desert of the Real of Slavoj Zizek. All of them agree in the rising of uncertainty as one of the biggest challenges to take into account. Basically, because, we are operating extremely complex systems whose consequences can be dramatic to our society, but also to the planet. As the fruits of our ingenuity, nuclear technology, genetic manipulation, Artificial Intelligence, can represent risk for the future of our ecosystems.

Our world is very different from some decades ago, and at the root of this transformation we find the role played by technology, as one of the key factors that can determine the future development of our societies, and species. Because technology is nowadays inherent to the rise of uncertainty, in a way that was even difficult to predict some years ago.

The penetration of personal mobile devices has changed the way we communicate, but also learned and get informed. The rise of Facebook and other social networks has been a critical in order to understand how we consume information, and how it can be used to manufacture consent, as the case of Cambridge Analytics has shown to all of us. Nowadays technology has the ability to generate new geographies, as

well as complex systems of simulacra and simulations, being also related to complex social phenomena as the post-truth in politics.

But this is not at all a new phenomenon. We cannot forget that all along history, technology has been a key factor, not only related with the rise and fall of empires. But also to some of the biggest transformations that we have lived as species, like the Agricultural Revolution in the Neolithic or the Industrial Revolution in the XIX century. Also being responsible for the rise and fall of systems of interpretation of reality; like magic, religion, science...

The main difference, it's that now days we are adding new players to the equation. The rise of the Artificial Intelligence represents one of the biggest challenges that we are facing front as species. Because for the first time we will be dealing with non-human actors taking critical decision without any kind of meaningful human control. And one of the most alarming cases is the one of the Lethal Autonomous Systems. Weaponry sets able to select and eliminate targets without human control in all their critical phases.

A transformation that can have critical implications for the humanitarian law, war law, as well as for the very pillars of the system, where the notions of responsibility has been never delegate to non-human players. A system that is rising and need excuses to be tested and deploy, and nothing better than an Space Force, to be in charge of the new AI gadgets. Project Maven, maybe was simply the begging of a new comprehension of security in a time that is going to be determined by the presence of non-human intelligences.

The present article will explore the challenges that represent the Lethal Autonomous system as a paradigmatic risk associated with the technological revolution that we are living. A case that has been selected due to the gravity of its possible consequences, as is the delegation of lethal capacities to non-human actors. But without losing the fact that we need to create new tools in order to govern the time that is to come, and we are just providing a small example of the consequences of the current state of technology development.

"the old world is dying, and the new world struggles to be born: now is the time of monsters"

DETERMINED BY TECHNOLOGY

Technology, and especially artificial intelligence and its potential applications, configure a new holistic experience of life after the fourth industrial revolution. In it, spaces and times converge in a way that erodes the traditional separation between material and digital reality. The consolidation of the understanding of the post-human transports us to a happy world in which desires, aspirations and even happiness are transferred from the land of social construction to that of digital reproduction; and technological sets such as the Internet of Things (concept that refers to the network of interconnected everyday objects) have a very important role to play in being able to share a connected experience between the real and the digital.

Therefore, Tegmark points out that *"the fruitful collaboration between humans and machines seems promising in many areas including science, where AI could help humans to reach a deeper understanding and realize our full potential"*, following the same line as Putnam. But we must bear in mind that, although the industry can promote many developments in this area, the academy will play an essential role by providing new technical ideas and bringing together researchers from all disciplines (social and legal sciences, cognitive sciences and humanities, sciences of computing and statistics, etc.). In the end, in Jordan's words, a new branch of knowledge is being created that combines all of this, so *"we have a real opportunity to conceive something historically new: an engineering discipline focused on the human being"*.

We are heading towards a programmable world in which those of us who have the privilege to ride this wave of progress have the responsibility to develop a system that can give each of us the possibility to

live without fear, guaranteeing integral security and that human dignity be recovered as a right and fundamental value of social and ecological progress. To draw a new horizon "*for a world in which we are socially equal, humanly different and totally free*", as Rosa Luxemburg claimed. However, the path is not easy at all, and the first step is a better understanding of our context and technological substrate.

THE TECHNOLOGICAL SUBSTRATE

Until more than two million years ago, the human being was just one more species among many; a contender like any other in the daily struggle for survival; but everything changed when our remote ancestors managed to dominate the fire and develop the first lithic industries. Propelled by those early technologies, that weak species suddenly climbed to a dominant position: it was capable, as no other was, of taming the natural environment, which until then had represented an arbitrary and unpredictable threat. And as it could not be otherwise, such a material transformation brought with it others of a more spiritual nature. It radically changed our concept of the world and of ourselves and new forms of approach to the invisible rules of our context appeared.

The millennia continued to run and in the Neolithic period -between the years 10 200 and 2000 b.c According to the ASPRO chronology, our material culture was profoundly transformed again thanks to the agricultural revolution, which allowed us to abandon our nomadic life, take root and take possession of the territory both physically and symbolically. We went on to link not only with the animals we drew on the walls of the caves to encourage hunting through sympathetic magic (probably our first belief system or cognitive methodology), but also with the rivers, mountains and trees of our environment , to which we also grant a magical meaning and we erect as symbols and borders of a new system.

This new agricultural system was unleashing various parallel phenomena. On the one hand, the novel capacity to transfer the fruits of today's work to tomorrow through the storage of agricultural products made us acquire a new sense of time. On the other hand, the production of surpluses thanks to the improvement of agricultural technology gave birth to trade. And on the other, a new landscape was generated: the urban one, which is the one in which today most of humanity works. The first cities (Uruk, Jericho, Çatalhöyük ...) sprouted in the Fertile Crescent around 4500 a. of C., and in its bosom it was gestating a new distribution of the work. Thus, some people were necessary for agricultural work, while others were necessary for the development of incipient industrial activities, others for trade, and so on.

On the other hand, new needs arose in these flourishing cities, such as security in front of the invaders and also internal tools to promote order or the accounting of surplus inflows and outflows; and that made it necessary to develop other technologies, and singularly writing. This new and capital invention offered the Mesopotamians the possibility of transmitting and storing information, compiling legal codes such as that of Hammurabi, centralizing the control of goods or crystallizing legitimizing myths of the social order. The bureaucracy arose and, coupled with it, the figure of the scribe, easily identifiable as what Thorstein Veblen called a technological class: a group of holders and protectors of a knowledge closely linked to power as fundamental to sustaining the social fabric. Pharaoh needed the scribes to maintain control of the empire, the Mayan emperor needed his high priest and the European kings needed the pope.

And this generated a new power structure for whose extension, cities were a key element. It was in the city where the temple stood from whose peak the high priests monopolized the relationship with the gods and acquired a power that became immense. They too were a technological class that gained its power through knowledge; knowledge that could be scientific: think of the Mayan rulers who went to the top of a pyramid and threatened their people with a solar eclipse and in the fear that those people must experience at the moment when the Sun disappeared.

That knowledge can provide such power also explains the gimmicky ways and barriers of access that almost all societies in history have used to seek in order to protect the holders of this fundamental knowledge from the threat that a generalization could represent for them. your position The complexity of the Egyptian and Mayan hieroglyphics offers a good example of this purpose of structuring knowledge in such a way that it would be difficult for ordinary people to access.

From Antiquity to today, the role of technology has never diminished in importance; and this importance is easily traceable throughout history, manifested in the emergence of certain inventions that had the ability to profoundly transform the societies that created them. Lin White explains, for example, how the new war machine that was the stirrup gave birth to feudalism. The combination of a man, a horse and a sword gave rise to a new hegemony on the battlefield and the training needs of these new elite soldiers forced them to abandon their traditional ways of life (agriculture, crafts, etc.) and being full-time knights, becoming a third technical class between the Monarchy and the Church and the common people and weaving around them the feudal relationships typical of this system that runs through the Middle Ages. It is just one example: the industrial revolution, the communications revolution, etc., all of them reproduced the same mechanism later. Any new technology can provoke a drastic reversal of the internal equilibrium of a system: let us also think about what the invention of the Gutenberg printing press, closely linked to Luther's Protestant revolution, meant for the power of the Catholic Church. ideological monopoly of the Vatican on Europe proposing a relationship with God without intermediaries and a direct and wider access to religious arcana. Dynamics of power and technology, that were behind all kind of conflicts and violence.

Any given community needs constant technological progress to perpetuate itself in a context of competition with others, but also a strong control over the technological system in order to preserve the internal status quo; as well as a belief system that gives a collective meaning to the community while justifying the social order. In relation to all this, we can affirm that a more complex technological system needs more complex tools of government, and that a more complex system of government in turn requires one of beliefs that is also complex. Everything is interrelated and Marx affirmed that *"the hand mill will give us society with the feudal lord; the steam mill, with the industrial capitalist »*.

We could talk about a tragedy in three acts that is repeated again and again. First act: a new technology appears and, linked to it, a new technical class associated with the knowledge necessary to implement it. Second act: those who hold power *stricto sensu* open the decision-making process to the technological class in response to an operational need of the system. Over time, knowledge can be extended to a large part of the community because it is necessary for the evolution and perpetuation of the system, bringing it closer to democratic participation and the provision of quality of life, security and order to broad sectors of society.

But the situation may also arise that scientific progress begins to develop outside the margins of state control and a new technology can destabilize the fragile equilibrium established between the technical class and the dominant class appears on the horizon, generating a shock like the described by philosophers such as Gramsci, Pareto or Mosca.

This situation can lead to two different main scenarios: a new democratic opening of the decision-making process or an authoritarian reconcentration of the control of the material and symbolic means of production in a more closed group of people, which does not necessarily end democracy but it erodes it or limits it. In relation to democracy, we must understand that we are, as Nietzsche said, slaves of our own words, and also of this that neither in theory nor in practice designates a one-way system. Democracy must be understood instead a wide range of possible applications that can be very different from each other, and some of which can be and in fact are compatible with the development, by those in charge, of different techniques oriented to control and the manipulation of public opinion through education, the media, and so on.

Artificial intelligence represents a radical redefinition of organizational and cognitive processes, of the construction of otherness, of the mechanisms of the State, of the symbols that give collective meaning to our society and, in general, of the relationship of the human being with its context. Again, we are facing a technology capable of transforming our material reality and called to form new elites and either to deconstruct existing systems of privilege, or to crystallize them even more. We face, therefore, the challenge of foreseeing the transformations to come, preparing our communities and defining frameworks

that allow new decision-making process. Especially if we take into account the role that the private sector is playing in this field

In the specific case of the AI weapon application, we are faced with the advent of a new dystopian order. The delegation of the ability to kill in a system of which we are barely able to predict future behavior and whose reliability can not be guaranteed 100% in terms of execution of orders or in compliance with international law. A delegation of lethal capacities that cannot be justify from an ethical point of view (neither the efficiency, nor the cost nor even the protection of own soldiers), it is a suicide walk towards the abyss that we will only avoid if we are able to equip ourselves with instruments binding legal guarantees that human life can not be stolen by non-human entities. Certain applications must be restricted while others are strengthened from the purpose of socializing the technology; to make it accessible to broad layers of the population in a way that helps to build an open and plural society.

ARTIFICIAL INTELLIGENCE AND LETHAL AUTONOMOUS SYSTEMS

The Artificial Intelligence represents our next frontier, as well as in the 60's and 70's was the space exploration and in the 90's and 00's decoding the human genome, a new land of promises and dangers ready to be conquered. And as happened with the previous technological sets the concept have had the ability to embody our wildest dream while pictured in Sci-Fi culture. So, it is important to begging by offering a clear definition, understanding that Artificial Intelligence *"refers to systems that display intelligent behaviour by analyzing their environment and taking actions – with some degree of autonomy – to achieve specific goals. AI-based systems can be purely software-based, acting in the virtual world (e.g. voice assistants, image analysis software, search engines, speech and face recognition systems) or AI can be embedded in hardware devices (e.g. advanced robots, autonomous cars, drones or Internet of Things applications). We are using AI on a daily basis, e.g. to translate languages, generate subtitles in videos or to block email spam. Many AI technologies require data to improve their performance. Once they perform well, they can help improve and automate decision making in the same domain. For example, an AI system will be trained and then used to spot cyberattacks on the basis of data from the concerned network or system. On the other hand, Miskey, simplified the concept by defining artificial intelligence as "the science of producing machines that can carry out tasks that require intelligence (if developed by humans)."*

A system that has been evolving for more than 50 years, even more if we take into account that AI found its origins late back in the 1930s when Alan Turing described the first artificial intelligence system. and today are practically innumerable those fields where AI has been already put in place and it's making decisions with real, tangible, and sometimes dramatic consequences. In this sense, An article published by The Atlantic entitled *"How Algorithms Can Reduce Minority Credit Scores"* reveals how the massive use of artificial intelligence algorithms by financial entities can crystallize into marginalization dynamics over minorities, making it is necessary to include human controllers that can correct these biases. In the same way, The Guardian warned about the appearance of "prejudices" related to gender and race in artificial intelligences due to the processing of natural language in open sources that alters the theoretical neutrality of artificial intelligence, something that was recognized by companies such as Facebook, who promised to increase the phases under human control.

The critical difference between this technological sets it's even space exploration and genomic research required of required of a new legal corpus as the "Space Law Treaties and Principles" or the Genetic Information Nondiscrimination Act of 2008. Those legal frameworks never were intended to deal with "man out-of-the-loop" situations in critical decision-making process. Especially if we think about process were lethal capacities would be delegate to Artificial Intelligence. Systems are characterized by the integration of artificial intelligence in such a way that they have the intrinsic capacity to approach decision processes outside human control or supervision in a meaningful way.

In the last census conducted in 2018, the International Committee of the Red Cross counted some 130 autonomous weapon systems in the world, although other counts approximate the number to three hundred. These would include semiautonomous weapons systems, since they would be subject to human

oversight at key stages, such as the selection of targets. This would be the case of Patriot or drone missiles like the Reaper model.

Our object of analysis is focused in sum on those weapon systems capable of selecting and attacking targets without human intervention and whose applicability is usually theoretically restricted to military objectives in non-populated areas. The rise of cybernetic systems of rapid development, high processing power and artificial intelligence forces us not to be naive and to value that there are no limits for their use as autonomous weapons in urban spaces and without a formal declaration of war. This is a technology that, if it reach the hands of non-state actors, such as terrorist organizations, can open a new scenario that mortgages the development of artificial intelligence even in non-weapon applications.

One of the biggest challenges that we face and that the United Nations wants to solve is that there is no definition of autonomy or of the independent concept agreed internationally for the laws, nor consensus about the characteristics or traits that combine to form them. It is necessary, then, to provide elements that allow us a classification that facilitates its regulation through a deeper understanding of their nature and AI itself.

Grosso modo, we could understand that these types of independent weapons have three basic characteristics:

- They can move independently through their environment to places they choose arbitrarily. Its capabilities are: mobility, persistence and orientation and navigation.
- They can select and shoot against targets in their environment. Their capacities are: own identification of objectives, discrimination to categorize objectives, prioritization of objectives and selection of the type of weapon appropriate to the objective.
- They can create and / or modify their objectives by incorporating observation of their environment and communication with other agents. Its capabilities are: self-determination, self-commitment, autonomous communication with other systems,

Here arises a question to which we must face: what degree of artificial intelligence or intelligent behavior is necessary for the legal system to consider the prohibition of the laws? What will ultimately make the difference will be precisely whether or not they have significant human control in the different phases of the lethal action process (implementation, validation and execution).

AI GOES TO WAR

According to Lin, in armed conflicts, the right to life means the right not to be killed arbitrarily or capriciously, inexplicably or inhumanely or as collateral damage; and it is really, in some way, a right to human dignity. It can be said that human dignity is a more important right than the right to life, because it can be lost or avoided more easily: in a civilized society there can be legal executions, but these must be humane and dignified. On the other hand, there is a growing consensus that before even these rights are the individual and collective right of access to information; the right to know and, as Rosemberg points out, to ask. In this framework, administrative legislation (in the United States: FOIA, Sunshine Act, etc.) is revealed as the most effective preventive tool to face the risks and dangers posed by certain products or artifacts with artificial intelligence, and especially lethal weapons, lacking the capacity for moral reflection and respect. Lin points out that it is not absurd that dignity and freedom can prevail over security.

Germany has one of the most developed legal concepts regarding human dignity: Article 1 of its Constitution establishes that human dignity is inviolable and even more important than the right to life included in Article 2, which can be lost under certain conditions. terms. According to the German Constitution, human dignity is intangible, so respecting and protecting it is the obligation of all public powers.

In 2005, the air transport security law of that country authorized its armed forces to shoot down commercial planes suspected of having been kidnapped by terrorists. If an airplane appeared to be

heading towards a collision with a building, demolishing the plane and sacrificing passengers was considered a minor evil with respect to allowing the flight to continue and killing thousands of people on the ground. But in 2006 the Federal Constitutional Court annulled this law as unconstitutional, since it treated people as objects; as part of the airplane itself and not as individuals who deserve respect and consideration. As Lin points out, *"the law would also have treated people as numbers or statistics, predetermining their deaths because of the possibility of saving a greater number of unidentified lives. And there is something wrong - something disrespectful and dehumanizing - in doing ethics only by numbers »*. The LAWS do not recognize people as human beings, but simply as objects or, worse, as bytes of information; and the German court found conclusively that civilized society could not treat them in the same way.

Fear of a dystopian future seems a legitimate reason for a total ban or a moratorium on LAWS by applying the precautionary principle, but in order to defend that position the notion of human dignity and the Martens clause must be previously strengthened, as well as the concepts related to significant human control and self-determination of AWS. It is also necessary to deepen in new forms of coexistence taking into account that the dehumanization already provoked by the autonomous systems with human control in the war conflicts leaves on paper all that had been learned in the First World War about cooperation and dignity human, on non-verbal communication and on the human relationship between combatants.

Progress in non-verbal humanitarian communication stops and even goes back when fighting with AWS. In Sparrow's words, *"we must maintain an interpersonal relationship with other human beings even during the war"* or we will not be respecting the very foundations of law. The enormous advance that, for example, the Dei Truce supposed from the eleventh century (a convention according to which priests, women and the younger population should not undergo death under any circumstances) could only be achieved among humans. The reserved security zones would not have been achieved without the components of humanity and reciprocity.

The defenders of these new weapons systems, are ignoring the need for this component of humanity, attribute them numerous advantages: reduction of operating costs (the Pentagon has valued the cost of each soldier deployed in Afghanistan for a year in 850 000 dollars , whereas the one of a robot type TALON is of 230,000), unique potential to develop certain tasks faster than humans, ability to impact on an objective even when communication links are affected ... Arkin points out that *"they can be designed to accept the highest risks; they can have the best sensors; they will not be shaken by emotions such as fear or anger, which can incite human beings to act immorally; they will not suffer from cognitive prejudices that affect the human being [...] and can even legitimately and reliably distinguish the legitimate targets of the illegitimate"*.

These are certain advantages and should not be disregarded, but neither should they be, taken from an exacerbated utilitarianism, the serious problems that all this involves both theoretically and practically, and above all, legal; nor the fact that on numerous occasions it has been precisely the human factor, the human emotion, the negotiation, which has prevented processes of military escalation: there are numerous examples of men and women of all kinds and conditions that at one time refused to press the button that would have triggered one. The wars could be more human because the non-verbal communication of the trench war allowed moments of truce and low lethality without the contending soldiers having received any order in that sense.

There are even neurological factors that promote a more human and cooperative security; and there are ethical foundations strongly rooted in our psyche, as the notion of responsibility, which also play a determining role, and that could and should be a future part of the algorithms on which artificial intelligences are based. It has been pointed out that *"studies of the experiences of soldiers support that human beings are naturally reluctant to take life, and this aversion can manifest itself in moments of compassion and humanity amidst the horrors of war. Programming an artificial intelligence to allow autonomous weapons systems to technically comply with the law of war in situations where discrimination with intuition and proportionality must be made, even if possible, is not enough."*

Nor should it be overlooked that the public nature of the conflict shaped by the mass media tends to fix the gaze only on the own losses, and that in this framework autonomous weapons can generate and in fact generate new levels of opacity and greater freedom so that governments act outside their population in military matters.

Among the problems associated with the militarization of artificial intelligence is also the evolution of technology itself, which can be profoundly affected by uses that go against the criterion of public opinion, in such a way that the whole of technology, just as it happened with nuclear or chemistry. In the same way, a relaxation of the intervention on said technology can lead to its own end and that of humanity itself. The deadly effects of the orange agent used in Vietnam reached even the descendants of the military personnel involved so they are the first interested in slowing the development of certain weapons that can kill themselves.

Another strong argument in favor of the prohibition of the LAWS is that once activated they could select objectives and end the life of the people to their free will, irrevocably and without human intervention, which would suppose the granting of a contrary administrative faculty to the international legal order. A fact that can have even deeper implications for the future development of AI.

The suppression of a human life can only be justified legally or morally if it is not arbitrary. But in order not to be considered arbitrary, the agent's lethal act must be based on an informed decision and a human cognitive judgment, since only human decision-making guarantees the full recognition of the value of individual life and the importance of its loss. Only in it, do all the complex modern standards of humanitarian law come into play: proportionality, compassion, use of less burdensome or less restrictive methods, constant care, chivalry ... Consequently, LAWS actions are not legitimate or morally justifiable and should be prohibited under the principle of human dignity and *ius cogens*, which as a mandatory rule contains the fundamental rules of humanitarian law.

For Amoroso, *"the idea of a machine endowed with the power to make life or death decisions is intuitively repugnant"* and *"extremely disrespectful of the humanity of our enemy."* And in that line we believe that, although the AWS could get to offer better results based on a cost-benefit calculation or get to get human behaviors, they should be prohibited for ethical and legal reasons. Heyns, who has the same opinion, bases it on Kant's conception of human dignity, according to which people have an inherent right to be treated as unique and complete human beings especially when their lives are at stake. That human dignity would be denied if the victims who wanted to appeal to the humanity of their executioner could not because it was an artificial being. The executive branch must offer due respect to the dignity of the person considering their specific case and making constant assessments and adjustments. And nothing of that law enforcement with the characteristics of human capabilities can be guaranteed by autonomous weapons, since there would be a lack of adequate human judgment in their actions.

Law, on the other hand, never takes into account a fundamental cognitive element, human intuition, when it regulates discretionary public faculties in decision making, perhaps because it assumes that it is human beings who carry them out. But the LAWS may be hypothetical recipients of these powers, so it must be analyzed if they have the capacities that the law claims and if therefore they can exercise such powers.

Intuition has been described in various ways. One such definition is the ability to discern when a problem or opportunity exists and select the most appropriate action without conscious reasoning; putting into operation deep-seated patterns of acquired and distilled experience. It has also been considered as the ability to quickly and easily recognize the possibilities of a certain situation. Also as a set of emotionally charged judgments that emerge through a rapid, non-conscious and holistic association. And also, as confidence in mental models: internal representations of the environment that allow us to anticipate future events based on current observations.

All these definitions share a series of common assumptions. First, that intuition is fast; second, that it is an automatic and unconscious analysis of a process; in third, which is based on experience and involves human emotions; and in place fourth, offers potential for creativity and innovation. Kahneman, a specialist in intuition and decision making under uncertainty, argues that intuition is the result of human experience and that the human brain, in formulating a judgment or making the decision to, for example, kill, employs two combined systems: part, a quick, intuitive and emotional thought; on the other, a slower one that is deliberative and applies logic. According to this author, the human being should not always believe in his intuition, because it is based on his experience and not on the slow system of thought. For his part, Klein argues that intuition is not a sixth innate sense, but a vision of each person and an essential skill that can be learned.

Be that as it may, intuition is part of our very essence as humans and of all our actions, and has always played a fundamental role in war. And the LAWS can be equipped with mechanisms of imitation and incorporate processes of an integrative and cognitive type, but not phenomenological. They can never be intuitive or feel emotions, but only replicate them. As the neuroscientist G. Rizzolatti, discoverer of mirror neurons, says, "*robots can imitate, not feel*". And if this is the case, if the algorithms included in the LAWS can not reach the human characteristics necessary to make transcendental discretionary decisions referring to the exercise of legitimate force against people, the transfer of such competences to autonomous systems should not be accepted. The power not only to defend the State that created them from foreign attacks of other nations, but to decide that the enemy is within the same State and that it must fight it by seizing lives, it is so *imperium* that it can not be granted to artificial beings without human emotions.

An additional problem in the LAWS is that their responsibility is difficult to demand from a traditional legal point of view, and in case of human rights violations, remedies against such actions may not be effective. In this regard, the Human Rights Watch report entitled "*Mind the gap: the lack of accountability for killer robots*" is interesting. It states that

"The obstacles to accountability for the production and use of fully autonomous weapons under current law are monumental. The weapons themselves could not be held responsible for their conduct because they could not act with criminal intent; they would be outside the jurisdiction of international tribunals and could not be punished. Criminal liability is likely to apply only in situations where humans specifically attempted to use the robots to break the law. At least in the United States, civil liability would be virtually impossible due to the immunity granted by law to the Army and its contractors and the evidentiary obstacles to liability claims for defective products."

The responsibility should fall on the operator, as well as on the person who can order the use of the weapon against the law. "*It has also been said that "the delegation of the use of force to non-human decision makers would create a gap of responsibility"*.

Bearing in mind that a robot of this type could identify an objective and launch an attack to its own free will, the inevitable excuse of the agents involved will be that they are not responsible for what the artifact does after it is put into operation. And could be identified as responsible for these issues to the political and military hierarchy of the State that has funded the project (whether public or private companies) and that LAWS has put into action, the people who have investigated and activated the robot, the programmer who has created the algorithms of action, the manufacturer that has put it on the market, et cetera; but it has been pointed out that none of them would be completely responsible, since the decision itself would correspond only to the lethal autonomous system.

They must be. The agents involved must be subject to a kind of obligation not to do to said lethal technology with artificial intelligence. The defense of due obedience can not be applied-not even in authoritarian states-to personnel who know, or should know, who are experiencing, creating or transferring a completely autonomous lethal system that can become the most dramatic enemy of

humanity. And in any case, the responsibility of the competent Administration should at least be clear if it agrees to promote or dispose of said technology.

The mere investigation and development of this type of technology by any person or organization could be typified as a clear indication of conspiracy for the crime. In this regard, the necessary criminal types must be enacted at the national and international levels so that experimentation and creation of laws with artificial intelligence strong for non-defensive purposes constitute "*crimes of conspiracy for genocide or for the selective assassination through synthetic beings with independence*". Any democracy that does not proceed like this will be flagrantly violating its own Constitution.

It is interesting to note that within the American constitutional Common Law there has been, from the very beginning, crimes of "conspiracy" for monopoly and collusive actions. All the Constitutions of the thirteen states that made up the first United States established in a convincing way that monopolies were contrary to the free spirit and should not be tolerated; prohibition that is included in the chapter of the fundamental rights of the people. On that basis, a federal and national legislation was developed (Sherman Act of 1890, Clayton Act of 1913 ...) that penalized crimes such as altering prices or dividing the market. If this was done with these issues, the conspiracy to grant powers and subsidize private companies to investigate AI systems should be penalized, as this could alter the balance not only of the market, but of the State itself. And it should be possible to make this type of legislation for the whole world insofar as today there is an international common law that, developed from Nuremberg to Yugoslavia (although also discussed in the Rome Treaty of the International Criminal Court), points out that obedience It does not serve as an excuse for committing such actions: the judgment of the International Military Court of Nuremberg against the German war criminals of October 1, 1946 clearly states that the crimes "are committed by men, not by abstract entities, and only through punishment of the people who commit such crimes can be enforced the provisions of international law ».

George Orwell already raised in his famous work 1984 the terrible threat represented by the violation of privacy and the rights of the individual, but his complaint seems naive compared to some shocking cases that we have been getting to know in recent years and that are materializing spooky, like Snowden and the NSA or Face book-Cambridge Analytica. McQuillan rightly warns that analysis, surveillance and the massive and detailed accumulation of data through intelligent systems are leading to changes in governance and damage at the core of civil society. He refers to it as "the implementation of algorithmic exception states". For his part, Rosembuj reminds us that other authors had already described it as cognitive capitalism (Boutang) or as surveillance capitalism (Zuboff). Surveillance, access and control become the core of the system through the collection, extraction, storage and analysis by big data.

Until now we understood a state of exception as the implantation of militarism or the police state as a new Inquisition, but the scary news has left that concern short. Even for the human intelligentsia it is hard to imagine the degree of public-private police state of real artificial intelligence that we are suffering. As Montesquieu pointed out, "*there is no tyranny worse than that which is perpetuated under the shield of laws and in the name of justice*". And today that shield protects global monopolies such as Facebook or Google, which own and manage the most private information of two billion citizens. We live, and we do not realize, in an artificially intelligent police state. Even Mark Zuckerberg, CEO of Facebook, implicitly acknowledged before the US Congress that we are facing an anomie state and that we need a regulator that does not trust everything to the free market: "*That federal regulation of Facebook and other Internet companies is inevitable*". It will be through this American federal legislation when there will be an international projection and, ultimately, a globalization, since it could have extraterritorial effects on other countries, as has happened with the Foreign Corrupt Practices Act of 1977 (FCPA). However, so far there are no legally binding international instruments or even national laws that prohibit the development, production and use of so-called killer robots.

TRANSPARENCY AND REGULATION

The Nobel Prize for Economics D. North explains that the scientific and technological explosion that led to the industrial revolution in England in the 18th century was regulation: an intellectual property or

patent law was enacted and an incipient administrative regulatory state was created in this matter. Before, the self-regulated market did not stimulate research because it was plagiarized and there were no incentives. In the United States, the first administrative agency was the Patent Office, created in 1787. Even those who do not agree that the United States was already an administrative State have to accept that these courts resolved conflicts and that there was clear State judicial intervention.

This administrativization process has a parallel with the anomic and self-regulated market in the matter of LAWS with artificial intelligence. If at that time a law enforcement administration, specialized officials and courts specializing in intellectual property and patent litigation were created in both England and the United States, an administrative regulation regarding artificial intelligence is now appropriate. The market failures caused the right to intervene, and that need is again pressing. The only guarantee of progress and sustainability of citizen rights before artificial intelligence in LAWS is regulation.

A group of British experts from the University of Oxford, the Electronic Frontier Foundation, produced in February 2018 an important report entitled The malicious use of artificial intelligence: forecasting, prevention and mitigation. It warns about the threats of artificial intelligence and its more than possible transmutation into dual-use technology, that is, its translation from civil to military. For greater concern, this technology is researched and developed in a public-private partnership, but by entities whose only interest is the commercial one and which are not subject to the control neither of the Administration nor of the legal order because they are processes that affect the national security and espionage. In addition, a danger entailed by the transfer of critical technological sovereignty to other non-democratic states is the underground corruption that comes with it. Fortunately the highest security control body BND (Bundesnachrichtendienst or federal intelligence agency) denounced the sale of the main AI Company to China that is, warned that the most cutting-edge security technology could end up in the hands of the enemy at private interest. Therefore, the Merkel government has hastened to prepare a bill to strengthen the veto in foreign acquisitions of shares in companies considered national security.

It should be noted, in any case, that today patterns of self-regulation or self-censorship are beginning to be observed in research centers that see the need to limit their work as imperative due to the potential risks that this represents. For example, the OpenAI company (founded in 2015 by Musk and Altman with the aim of ensuring that the development of artificial intelligence has a positive impact on humanity) has restricted the release of an unsupervised feeling neuron, an algorithm that I had trained to understand feelings through reading reviews on Amazon. The group decided to maintain the previous model of language that it had developed in order to avoid the misuse of the algorithm and the perversions that it perceived to be generated. The boycott that the South Korean university KAIST is receiving for its decision to open a weapons laboratory with artificial intelligence deserves to be highlighted; laboratory that, in collaboration with the arms manufacturer Hanwha Systems, can develop the so-called killer robots. They project four lines with artificial intelligence: command and decision systems, navigation algorithms for unmanned underwater vehicles, smart aircraft training systems and intelligent object recognition and tracking technology.

In short, the sectors involved themselves should self-regulate, obliged by regulations that impose preventive compliance in order to guard against potential devastating applications of their discoveries. The way forward is the one that at the time marked the nuclear industry, which had captured and corrupted the US Nuclear Regulatory Commission at the time but that after the accident of Three Mile Island realized that it should reach higher levels of safety and reliability and created the INPO (Institute of Nuclear Power Operations); and in 1986, after that of Chernobyl, he agreed that either he strictly regulated himself and implemented surveillance systems or the negligence of a few could lead to the decline and the end of this energy sector. The World Association of Nuclear Operators was created in order to promote cooperation and excellence among its members and an admiral, James Ellis, was appointed to preside over the INPO and ironically discipline this de facto deregulated sector. It should be noted that, in spite of this lucid vision, the sector failed to successfully self-discipline, as the Fukushima disaster set in 2011.

Another example of a promising principle of regulation is offered by the Maven Project, a contract signed between Google and the Pentagon whereby the first one developed automatic learning algorithms with the aim of providing a sophisticated system that would allow the second watchman entire cities. To do this, he needed images compiled by military drones, and he was granted official authorization from the Government (the FedRAMP program, which establishes security standards for cloud services). However, despite Google's attempts to keep the matter secret, the company's employees and a group of academics led by Lucy Suchman, Lilly Irani and Peter Asaro of ICRAC reacted by issuing a letter with thousands of signatures. In which they demanded that Google cancel the contract with the Department of Defense. In protest, many employees even resigned their jobs. And finally, the company announced that it would not renew the contract by 2019. In addition, it has promised to publish a statement on an ethical policy of the company in the development of technology with artificial intelligence, which will include never using the data of consumers in military operations or for massive surveillance, as well as not developing military applications of artificial intelligence.

These examples illustrate the importance of the outpouring of information by companies through compliance (with expert delegates) or employees through an internal or external complaint channel. Systems must be established so that the whistleblowers (whistleblowers or informers) who detect illegal activities in the company take them to light and are protected by legislation, which should encourage such practices and establish protocols to protect them by promoting the transparency of private activities with transcendence in security. The urgency to develop a regulation that protects research of undesirable applications through international systems of exhaustive control and regulatory compliance programs in the previous phases is also imperative. This regulation should guarantee that, even if the investigations are segmented in different centers with possible intentions of deliberate opacity, there is an administrative inspection or audit that connects these segments. As an example to follow in this case, it can be applied to the inspection that the United Nations submitted to some countries that are suspected of violating the prohibition to investigate nuclear weapons. The success of this preventive inspection was recognized in 2006 with the awarding of the Nobel Peace Prize to the International Atomic Energy Agency and its Director General, Mohamed el-Baradei. Recently, the IAEA has approved a project to renew its information system to be more effective in its task of guaranteeing the peaceful use of nuclear technology.

In the European administrative-centric models, the monopoly of legitimate violence resides in the State and specifically in the official staff that makes up the Security Forces and the Armed Forces, subject to the president. And that obviously makes it illegal for the LAWS to assume those powers that, in addition to being discretionary, involve the use of a violence that would no longer be legitimate, because it decides on a machine that even has the necessary technology to rebel and decide for itself sovereign way. This is also the case in the United States, where the model, which was originally single-centric, is currently administrated to centric in the military and in the police. However, nowadays a new model is seen on the horizon that is no longer the individual-citizen Army State (citizen-police: materialized in the posse comitatus or departure of the community commanded by a sheriff, citizen-soldier: volunteers in the militia, today National Guard) as in the origin of the United States, neither administrator to centric or official centric, but a tertium genus consisting of a model of State and Army with artificial intelligence, robotized and depersonalized.

There are many models of authoritarian states. But in these, there is also a competition of models: some are military dictatorships, others are civil dictatorships and others are party dictatorships, among others. In Spain during the nineteenth century, even in democratic times, there was a model called "military autonomy" that is, the Government and Parliament could not enter the fields of the army or the militarized police, both budgetary and in decisions of intervention. This military autonomy was the key issue throughout the Spanish Transition to dismantle the ruling regime for two centuries. It is now recognized that a democratic state is only democratic if it has destroyed such military autonomy. If a democratic state can only be democratic when it does not have military autonomy, a state admitting the autonomy of the LAWS can be accepted.

Wars and terrorism, on the other hand are fought, in a decisive part, with prevention and specialization of commanders. The first prevention measure is the study of the risks of this technological career, which is evidenced by the lack of inclusion of the topic in some of the general works on risk and regulation.

The war conflicts today completely asymmetric conflicts between the States or between non-States should be understood as a new form of governance, and therefore, the Administration has basic executive administrative obligations and, the State, a commitment to apply the general principles of the right, even if they are considered political acts. The regulated core of such discretionary competence must always be taken into account, and it can never be left to an independent and unilateral technologically advanced military system.

The demilitarization of the modern state was carried out, among other things, to avoid the military rebellions that mark, for example, the Hispano-American history. Today, the constitutional principle of check and balance (and, among other things, the submission of military power to civil and democratic power) is already inherent to our societies and has become more necessary than ever at a time of boom in the privatization of industry military. If we do not admit that a democratic state can be compatible with military autonomy, we can least admit that of discretionary LAWS, which could lead to the advent of a new technocratic coup -civil or military- against democratic states and governments; a greater risk if the already known threat of the privatization of wars.

In conflicts, the final decision to act must be made by the competent personnel of the FFCCSS and the Armed Forces, whose competence, intuition and emotions are human and are aimed at solving a conflict with human beings. Here the principle has already been cited, the Constitution follows the flag, progressively implemented throughout the world as a result of its adoption by English jurisprudence and which means that the constitutional rights and guarantees of citizens and the responsibilities of public authorities remain applicable when they operate outside their territory. According to him, it is totally unacceptable that in a more technologically advanced legal system the attribution of public powers to lethal autonomous robots is possible: the application of their discretion would go against the constitutional principles of responsibility of the military and civilians wherever they go.

Today, the relocation of large military and technological supply companies - not only for fiscal reasons, but also to avoid political and judicial control - is the order of the day. Halliburton, a company linked to former US Vice President Dick Cheney, is an example of this and how technology and military services are out of control and maintain corrupt relations with foreign governments. Giving power to these companies to create LAWS with artificial intelligence and that these carry out arbitrary actions would be a procedure in itself arbitrary and therefore prohibited. As the Spanish Supreme Court established in 1992,

"The discretionary power of the Administration in the production of acts not regulated by administrative law is justified in the presumption of rationality with which it has been used in relation to facts, technical means and the multiplicity of aspects and values to be had in account in its decision, so that the discretionary activity must not be capricious, or arbitrary, or be used to produce a deviation of power but, on the contrary, must be based on a proven factual situation, valued through previous reports that the legal norm of application determines and interpreted and valued within the rationality of the purpose pursued. "

Freedom as ideology, as a metaphysical aspiration, is substantiated in the subjective public right, which *"begins to be configured as a right to legality in the sense of a right to oppose oppression that does not come in the name of the law; to oppose any possibility of being affected in the sphere of personal interests if it is not by express provision of the law. "* In the current technological age, the fight against the immunity of power is no longer carried out only through the fulfillment of formal legality, but also from the principles inherent in the non-ordinary constitutional, which can not accept that complex and the companies that will promote them are recipients of a competition to not only apply the death penalty almost legally to citizens, but also lay the foundations for an authentic local or global genocide.

The ability of LAWS to discriminate between legitimate and illegitimate objectives is often referred to, but it is very difficult for that capacity to truly exist: what is legitimate and illegitimate very often depends on the political context and international humanitarian law; and let's not say when those objectives have to be discriminated against based on the big data through which the LAWS artificial intelligence learns or imitates patterns of behavior.

According to the *jus belli*, attacks on combatants are illegitimate under three types of circumstances. First, that the attack will cause a disproportionate number of civilian casualties (Article 57 of the Geneva Convention, Additional Protocol). Second, that the attack constitutes an unnecessarily destructive and excessive use of force. Third, that a desire to surrender has been demonstrated or that one is already out of combat (article 41). LAWS should be able to distinguish these circumstances, but this requires an abstract and intuitive analysis of the situation. In the end, they should face an ethical and moral dilemma and be able to understand the nature of their actions from a human point of view, which, currently, is impossible.

In an armed conflict, the act of discriminating objectives is often discretionary, so that the assessment according to extrajudicial criteria is not acceptable to attribute it to an inanimate body; to a machine with artificial intelligence. It is not always a matter of applying specific legal concepts, but often of choosing between several equally possible forms of behavior, and even between choosing and discriminating objectives. That is to say, A LAW could decide as much on the need for intervention as on the measures to be taken.

Administrative discretion is situated on the volitional level and is not a simple activity of cognition, which means that, when making a judicial control, the judge, as they have entered extrajudicial criteria (political or opportunity) in the discretionary decision, can not control this beyond the limits imposed by the order to lack parameters to make such a judgment. In the case of the LAWS, we would be talking about granting them a non-auditable blank check.

We insist: the granting of the exercise of lethal discretionary power (the choice of general interest as regards the application of legitimate violence by public authorities) should not be attributed to an independent LAWS, because the legal system refers to organs with human capabilities and to which there is the possibility of submitting to a jurisdictional control of their actions according to that nature, which is totally impossible with respect to a lethal being with general artificial intelligence. Consequently, autonomous weapons with artificial intelligence should not hold powers that imply authority or be recipients of the attribution of administrative discretion.

CONCLUSIONS

The development of an advanced artificial intelligence and its possible application to lethal autonomous weapon systems represents a threat to life, peace and the foundations of law, and it is essential to advance in a classification system that leads to an international and state regulation on the particular. But this will only be possible if an agreement is reached on the processes to achieve this objective. We have two opposing models (unilateralist and multilateral that seek an integrating agreement) but unfortunately as in other times we are moving towards a unilateral scheme. The same goes for Putin's Russia and Britain's Brexit. The ambivalence of China is demonstrated by the fact that in some areas it has been perfectly integrated (WTO) and in others, it has a tendency not only unilateral but the lifelong self-proclamation of its current President shows a true authoritarianism. All this, are clear indications of what will be the future model: unilateralism of the great powers. However, in some areas at the international level there is a surprising cooperation that has advanced a global integrating system. Under different American and Russian presidencies, cooperation procedures such as the WTO or Kyoto became evident. There is also an exemplary model of cooperation in fields adjoining the LAWS, such as nuclear matter, with a deliberative procedure that has reached treaties and institutions under the auspices of N.U as is the International Atomic Energy Agency (IAEA). Another successful model of cooperation and multilateral integration are the projects related to navigation and space satellites. After an initial competitive race of confrontation between the US and Russia, we see how there is now almost total cooperation in programs,

projects and even in the International Space Station (ISS). In it, the US, Russia, Europe, Japan, and others cooperate. NASA has said that "the ISS has been the most complex space exploration program ever undertaken (...) visited by astronauts from 18 countries." The model of international cooperation in space: now more so ever is where we should be oriented to implement the same negotiation procedures in LAWS regulation. However, we are not being inspired by this model. Before reaching any agreement, an honest and open cooperation and negotiation pact must be ensured.

It is absolutely necessary that strong state and international administrations protect the right to life and dignity of citizens by vetoing a very clear threat such as the total independence of the LAWS. In this field we must discard the neoliberal principle of more market and less State (less regulation, less public administrations and international institutions, less taxes, etc.) that leads to less national and global security of all undesirable points. Faced with the selfishness and unilateral temptation of each State, a reality is recognized: the LAWS cause the syndrome of "mutual hostages" as happened in nuclear matter after the accidents of Three Thousand Islands, Chernobyl and Fukushima. In other words, the mistakes and negligence of a state in the matter of LAWS can trigger an uncontrolled escalation of disasters around the world. Therefore, all states are interested in nobody secretly programming a project of this type. Certainly, the LAWS are not exempt from making mistakes and causing the death of innocent people because they can divert their objectives due to a fortuitous event (for example, an alteration of the functioning of the system due to overheating) not foreseen by scientists or by businessmen. Irresponsible business habits.

In any case, in addition, military technology (LAWS) should be under the control and shareholding (golden share) of the State and not in a private market where technological sets that threaten sovereignty and national security are purchased and sold. Because of corruption and a "kleptocracy," as Chayes calls it.

In a planet plagued by nuclear or biochemical threats in the hands of non-democratic and corrupt destabilizing powers or in non-states (such as DAESH) and in which nuclear weapons may enter the black market and pass into the hands of terrorist groups, the appearance of the LAWS makes a global arms race practically inevitable, as well as the unleashing of a selective or general genocide.

At present, it is evident that we suffer an erosion of paradigms that seems to lead us to the emergence of a new scientific revolution, and this forces us to recover the right as a tool to face future challenges and ethics as a source of social regeneration.

REFERENCES

1. Agamben, G. (2004): *Estado de excepción: Homo Sacer*, ii, Valencia: Pre-Textos.
2. Agor, W. H. (1989): *Intuition in organizations: leading and managing productively*, Newbury Park (Estados Unidos): Sage.
3. Amoroso, D. (2017): «Jus in bello and jus ad bellum arguments against autonomy in weapons systems: a reappraisal», *Questions of International Law*, 4(43), pp. 5-31.
4. Amoroso, D. and G. Tamburrini (2017): «The ethical and legal case against autonomy in weapons systems», *Global Jurist*, 22 de septiembre de 2017 [en línea], <<https://doi.org/10.1515/gj-2017-0012>>. [Consulta: 14-8-2018].
5. Arrillaga, J., Bollen, M. H., & Watson, N. R. (2000). *Power quality following deregulation*. Proceedings of the IEEE, 88(2), 246-261.
6. Asaro, P. (2012): «On banning autonomous weapon systems: human rights, automation and the dehumanization of lethal decision-making», *International Review of the Red Cross*, 94, pp. 687-709.
7. Axelrod, R. (1984): *The evolution of co-operation*, Nueva York: Basic.
8. Bates, T. (1975): «Gramsci and the theory of hegemony», *Journal of the History of Ideas*, 32(2), pp. 351-356.
9. Baudrillard, J. (1990). *Cool memories*. Verso.
10. Baudrillard, Jean. *Simulacra and simulation*. University of Michigan press, 1994.
11. Bauman, Zygmunt. *Liquid modernity*. John Wiley & Sons, 2013.
12. Beck, Ulrich. *Risk society: Towards a new modernity*. Vol. 17. Sage, 1992.
13. Beebe, S. D. y M. Kaldor (2010): *The ultimate weapon is no weapon: human security and the new rules of war and peace*, Nueva York: Public Affairs.
14. Behling, O. y N. L. Eckel (1991): «Making sense out of intuition», *The Executive*, 5(1), pp. 46-54.
15. Bhuta, N.; S. Beck, R. Geib, H. Liu y C. Krebs (eds.): *Autonomous weapons systems: law, ethics, policy*, Cambridge University Press.

16. Bothmer, F. von (2014): «*Robots in court: responsibility for lethal autonomous weapons systems*», in S. Brändli, R. Harasgama, R. Schister y A. Tamò (eds.): *Mensch und Maschine – Symbiose oder Parasitismus?*, Berna: Stämpfli.
17. Breuil, H., Windels, F., & Boyle, M. E. (1952). *Four hundred centuries of cave art* (p. 22). Centre d'études et de documentation préhistoriques.
18. Brundage, M., Avin, S., Clark, J., Toner, H., Eckersley, P., Garfinkel, B., ... & Anderson, H. (2018). *The malicious use of artificial intelligence: Forecasting, prevention, and mitigation*. arXiv preprint arXiv:1802.07228.
19. Brussels, 25.4.2018 COM(2018) 237 final. Communication from the commission to the european parliament, the european council, the council, the european economic and social committee and the committee of the regions. *Artificial Intelligence for Europe*
20. Conger, K. (2018): «Google plans not to renew its contract for Project Mawen, a controversial Pentagon drone ai imaging program», *Gizmodo*, 6 de enero.
21. Dane, E. y M. G. Pratt (2007): «Exploring intuition and its role in managerial decision making», *Academy of Management Review*, 32(1), pp. 33-54.
22. Davies, William. "The age of post-truth politics." *The New York Times* 24 (2016): 2016.
23. Devlin, H.: «AI programs exhibit racial and gender biases, research reveals», *The Guardian*, 13 de abril de 2017 [en línea], <<https://www.theguardian.com/technology/2017/apr/13/ai-programs-exhibit-racist-and-sexist-biases-research-reveals>>. [Consulta: 14-8-2018]
24. DoD US (2017) Project Maven to Deploy Computer Algorithms to War Zone by Year's End
25. Drohan, M. (2003): *Making a killing: how corporations use armed force to do business*, Nueva York: Random House.
26. Durkin, E. (2018) Space Force: all you need to know about Trump's bold new interstellar plan <https://www.theguardian.com/us-news/2018/aug/10/space-force-everything-you-need-to-know> (09/12/2018)
27. Edward S. Herman, & Chomsky, N. (1988). *Manufacturing consent: The political economy of the mass media*. London: Vintage.
28. Ellul, J. (1964). *The technological society*.
29. Ellul, J. (1968). Technique, institutions, and awareness. *The American Behavioral Scientist* (pre-1986), 11(6), 38.
30. Espín, R. (2017): El canal de denuncias internas en la actividad empresarial como instrumento del «compliance» (tesis doctoral; dir. Manuel Ballbé), Universitat de Barcelona.
31. Fischer (2008), Las emociones en la negociación, Granica.
32. Funtowicz, Silvio, and Jerome Ravetz. "Post-normal science." *International Society for Ecological Economics* (ed.), Online Encyclopedia of Ecological Economics at <http://www.ecoeco.org/publica/encyc.htm> (2003).
33. García de Enterría, E. (1983): *La lucha contra las inmunidades del poder*, Madrid: Civitas.
34. Gilovich, T., D. Griffin y D. Kahneman (eds.) (2002): *Heuristics and biases: the psychology of intuitive judgment*, Cambridge University Press.
35. Gramsci, A. (1995): Further selections from the prison notebooks, Saint Paul (Estados Unidos): University of Minnesota.
36. Herman, Edward S., and Noam Chomsky. *Manufacturing consent: The political economy of the mass media*. Random House, 2010.
37. Heyns, C. (2013): *Report of the special rapporteur on extrajudicial summary or arbitrary execution*.
38. Heyns, C., "Autonomous weapons systems: living a dignified life and dying a dignified death", en *Autonomous Weapons Systems. Law, Ethics, policy*. Bhuta, N., Beck, S., Geib, R., Liu, H., Kreb, C. (eds), Cambridge, 2016
39. Howard, A., C. Zhang y E. Horvitz (2017): «Addressing bias in machine learning algorithms: a pilot study on emotion recognition for intelligent systems», en *IEEE Workshop on Advanced Robotics and its Social Impacts*, Austin
40. Hussain, Abid, et al. "Social data analytics tool: A demonstrative case study of methodology and software." *Analyzing Social Media Data and Web Networks*. Palgrave Macmillan, London, 2014. 99-118.
41. IAEA (2013) <https://www.iaea.org/newscenter/pressreleases/iaea-completes-3-year-project-to-modernize-safeguards-it-system>. (06/14/2018)
42. Jameson, F. (1991). *Postmodernism or, the cultural logic of late capitalism*. duke university Press.
43. Jordan, M., "AI-The revolution hasn't happened yet" citado en Wladawsky-Berger, I. (2018).
44. Kahneman, D. (2015): *Pensar rápido, pensar despacio*, Barcelona: Debate.
45. Kahneman, D. y G. Klein (2009): «Conditions for intuitive expertise: a failure to disagree», *American Psychologist*, 64(6).
46. Kaldor, M. (2001), *Las nuevas guerras*, Tusquets Ed.
47. Kang, C. y K. Roose: «Zuckerberg faces hostile Congress as calls for regulation mount», *The New York Times*, 11 de abril de 2018 [en línea], <<https://www.nytimes.com/2018/04/11/business/zuckerberg-facebook-congress.html>>. [Consulta: 21-8-2018].
48. Lee, D. (2017): «Facebook adds human reviewers after 'Jew haters' ad scandal», *BBC News*, 20 de septiembre [en línea], <<https://www.bbc.com/news/technology-41342642>>. [Consulta: 20-8-2018].
49. Levitsky, S. y L. Way (2010): *Competitive authoritarianism: hybrid regimes after the Cold War*, Cambridge University Press.
50. Lin, P. (2015): «Do killer robots violate human rights?», *The Atlantic*, 20 de abril.
51. Lin, P. R. Jenkins y K. Abney (2017): *Robot ethics 2.0: from autonomous cars to artificial intelligence*, Oxford University Press.
52. López-Tarruella, A. (ed.) (2012): *Google and the law: empirical approaches to legal aspects of knowledge-economy business models*, Nueva York: Springer.

53. Markoff, J. (2016): «As artificial intelligence evolves, so does its criminal potential», *The New York Times*, 23 de octubre.
54. Martínez, R. (2003): *Armas: ¿libertad americana o prevención europea?*, Barcelona: Ariel.
55. Martínez, R. and Rodriguez, J. (2018) *Inteligencia Artificial y Armamento letal autónomo. El nuevo desafío para naciones unidas*. TREA
56. Marx, K. (2008): *The poverty of philosophy*, Nueva York: Cosimo.
57. Marx, L. (2000). *The machine in the garden*. The Green Studies Reader: From Romanticism to Ecocriticism, London: Routledge, 104-108.
58. Mashaw, J. (2006): «Recovering American administrative law: federalism foundation, 1787-1801», *Yale Law Journal*, 1256.
59. McQuillan, D. (2015): «Algorithmic states of exception», *European Journal of Cultural Studies*, 18, 4-5, pp. 564-576.
60. Meyer, J. (2007): «Supervising the Pentagon: covert action and traditional military activities in the war on terror», *Administrative Law Review*, 59, 463.
61. Minsky, M. (1991): «Society of mind: a response to four reviews», *Artificial Intelligence*, 48(3), pp. 371-396.
62. Morales, A. (2009): Regulación nuclear globalizada, Madrid: *La Ley Actualidad*.
63. Muller, F. L. (2018): «Identifying German legal approaches to terror: how the Constitution shapes legislation allowing the shooting down of a hijacked plane», *German Law Journal*, vol. 19, núm. 1.
64. Nietzsche, F. (1989): *On the genealogy of morals and Ecce Homo* (ed. Walter Kaufman), Nueva York: Vintage.
65. Nilsson, N. J. (2014). Principles of artificial intelligence. Morgan Kaufmann.
66. North, D. (1981): *Structure and change in economic history*, Nueva York: Norton.
67. Nye, R. (1977): *The anti-democratic sources of elite theory: Pareto, Mosca, Michels*, Nueva York: Sage.
68. O'Neil, C. (2016): *Weapons of math destruction: how big data increases inequality and threatens democracy*, Nueva York: Broadway.
69. Parejo, L. (1993): *Administrar y juzgar: dos funciones constitucionales distintas y complementarias. Un estudio del alcance y la intensidad del control judicial a la luz de la discrecionalidad administrativa*, Madrid: Tecnos.
70. Parejo, L. (2016): *Lecciones de derecho administrativo*, Madrid: Tirant lo Blanch (8.ª edición)
71. Pareto, V. (1991): *The rise and fall of the elites: an application of theoretical sociology*, Nueva York: Transaction.
72. Perrow, C. (2011). *Normal Accidents: Living with High Risk Technologies*-Updated Edition. Princeton university press.
73. Postman, N., & Riggenbach, J. (1994). *Technopoly*. Blackstone Audio Books.
74. Putnam, R., Feldstein, L., (2003). *Better together. Restoring the American Community*, Simon and Schuster ed.
75. Putterman, L. (2008). Agriculture, diffusion and development: Ripple effects of the neolithic revolution. *Economica*, 75(300), 729-748.
76. Razor, D. y R. Bauman (2007). Chayes, S. (2015), *Thieves of State. Why corruption threatens global security*, Norton and Company.
77. Rees, J. (1994): *Hostages of each other*, The University of Chicago Press.
78. Rodella, F. (2018): «Los robots pueden imitar, no sentir», *El País*, 28 de abril [en línea], <https://elpais.com/elpais/2018/04/26/ciencia/1524760728_658244.html>. [Consultar: 21-8-2018].
79. Rodríguez-Arana, J. (1993): *Principios de ética pública: ¿corrupción o servicio?*, Madrid: Montecorvo.
80. Roff, H. (2016): «Meaningful human control or appropriate human judgment? Necessary limits on autonomous weapons», *UNCCW*.
81. Rosemberg, L. (2006), *The right to ask questions*, BSCS ed.
82. Rosembug, T. (2017): «Governing artificial intelligence», *LLR*, n.2/2017.
83. Sandoval, G. (2018): «After a dozen employees quit in protest, Google has reportedly decided not to renew its contract for military drone initiative Project Maven», *Business Insider*, 1ST June [en línea], <<http://www.businessinsider.com/google-caves-to-criticism-over-military-drone-work-wont-renew-project-maven-pentagon-contract-2018-6>>. [Consulta: 17-8-2018].
84. Sardar, Ziauddin. "Welcome to postnormal times." *Futures* 42.5 (2010): 435-444.
85. Sassoli, M. (2014): «Can autonomous weapon systems respect the principles of distinction, proportionality and precaution?», (International Committee of the Red Cross)
86. Sharkey, N. (2008). The ethical frontiers of robotics. *Science*, 322(5909), 1800-1801.
87. Sharkey, N. E. (2012). The inevitability of autonomous robot warfare. *International Review of the Red Cross*, 94(886), 787-799.
88. Singer, C. J., & Williams, T. I. (1954). *A history of technology* (No. 609). Clarendon Press.,
89. Smyth, J. y B. Harris (2018): «Academics boycott South Korea University on killer robot fears. Kaist faces backlash over opening IA weapons lab», *Financial Times*, 4 de abril de 2018 [en línea], <<https://www.ft.com/content/6ef206e6-37d1-11e8-8b98-2f31af407cc8>>. [Consulta: 20-8-2018].
90. Sparrow, R. (2016): «Robots and respect: assessing the case against autonomous weapon systems», *Ethics and International Affairs*, 30, 1, pp. 93-116.
91. STS del 6th May 1992, Sala 3.ª, Sección 6.ª. Ponente Sr. D. Fco. J. Hernando Santiago.
92. Tegmark, M. (2018). *Vida 3.0. Qué significa ser humano en la era de la inteligencia artificial*, Taurus, pág.115.
93. Turing, A. M. (1939): «Systems of logic based on ordinals: proceedings of the London Mathematical Society», s2-45(1), pp. 161-228.
94. UNOOSA, Out Space Law <http://www.unoosa.org/oosa/en/ourwork/spacelaw/treaties.html> (10 September 2019)
95. Uri (2005), *Alcanzar la paz: resolución de conflictos y mediación en la familia, el trabajo y el mundo*, Paidós.

96. Vandekerckhove, W.(2016), Wistleblowing and organizational social responsibility. A global assessment. Routledge.
97. Veblen, T. (2017). *The theory of the leisure class*. Routledge.
98. Vergottini, G. de (1982): «La supremacía del poder civil sobre el poder militar en las primeras constituciones europeas», *Revista Española de Derecho Constitucional*, 6, pp. 9-34.
99. Waddell, J. (2018): «How algorithms can bring down minorities' credit scores», *The Atlantic*, 5 de junio [en línea], <<https://www.theatlantic.com/technology/archive/2016/12/how-algorithms-can-bring-down-minorities-credit-scores/509333>>. [Consulta: 20-8-2018].
100. Watch, H. R. (2015). *Mind the Gap: The Lack of Accountability for Killer Robots*.
101. Waters, R. (2018a): «AI progress sparks cyber weapons fears», *Financial Times*, 20 de febrero [en línea], <<https://www.ft.com/content/c54002ee-1668-11e8-9e9c-25c814761640>>. [Consulta: 20-8-2018].
102. White, L. (1973): *Tecnología mundial y cambio social*, Barcelona: Paidós.
103. White, L. T., & White, L. (1962). *Medieval technology and social change* (Vol. 163). Oxford University Press.
104. Wladawsky-Berger, I. (2018). “Artificial Intelligence ushers in Human-centric engineering discipline. AI is creating an opportunity to conceive of a new kind of engineering”, *The Wall Street Journal*, 24.08.2018. <https://blogs.wsj.com/cio/2018/08/24/artificial-intelligence-ushers-in-human-centric-engineering-discipline/>
105. Žižek, Slavoj, and Slavoj Iek. *Welcome to the desert of the real!: five essays on September 11 and related dates*. Verso, 2002.