Artificial Intelligence and Fundamental Rights from a European Perspective

by

Claes G. Granmar

1. Introduction

In a near future, intelligent machines will be at the centre of the development of human civilisation. Algorithms already constitute the backbone of public administration, trade and communication in many instances, and man must learn how to co-exist and integrate with these machines. Indeed, the digital transformation entails a need to reassess the meaning of “democracy”, “law”, “the rule of law” and “fundamental rights” in the light of man-machine interfaces. Democracy as we know it is a system of government run by human beings (people) who are eligible members of a state or polity (citizens) entitled to vote and elect their representatives. As to “law”, it is a system of rules and principles that are created and enforced through institutions shaped – or at least accepted – by people to regulate behaviour. From a legal philosophical perspective, a distinction is often made between the “natural law” theories, which are anchored in ethics, and the “legal positivistic” theories which espouse political theory and go hand-in-hand with a formalistic definition of legal sources. Whereas proponents of natural law are inclined to justify legal norms by irrefutable standards, those in favour of legal positivism emphasise the mere authority of norm-giving powers. However, even if this bipolarity provides a theoretical starting point, it is illusory in practice. Because, man is at some level free to choose the social model and, depending on the social model chosen, some rules and principles will fit more naturally than others into the legal system. After all, both totalitarian states and democracies are governed by law. However, there is a limit whereby people can no longer accept the injustices in a dictatorship, lending weight to the argument that there is a universal sense of “right” and “wrong”. At the same time, law is virtually conditioned on enforceability in contrast to ethical virtues, and even those in power in a modern democracy have a certain leeway to dictate the rules.

Law can be a tool for those in power to impose their will upon others, or a framework derived from philosophical schools of thought dealing primarily with ethics. However, the “rule of law” is recognised only in the constitutional traditions of states and polities adhering to the idea of

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1 Claes Granmar is LL.D., DIHR and Associate Professor in EU law at Stockholm University, Faculty of Law.
5 Compare “totalitarianism” in H. Arendt, The origins of Totalitarianism, Nabu Press, 2nd ed. 2011 (the concept was introduced by her in 1951), and the value-driven development of a European Union (EU) in e.g. S. Weatherill, Law and Values in the European Union, OUP, 2nd ed. 2016.
6 See C. S. Lewis, Mere Christianity, Collins, 2012 (originally 1952), elaborating on the idea of universalism.
Because, the rule of law implies that the exercise of political power is subject to legal standards. Even if there is no generally accepted definition of the “rule of law”, a report issued in 2004 by the former Secretary-General of the United Nations (UN) Kofi Annan provides some guidance. According to the report, the rule of law “refers to a principle of governance in which all persons, institutions and entities, public and private, including the State itself, are accountable to laws that are publicly promulgated, equally enforced and independently adjudicated, and which are consistent with international human rights norms and standards […]”

Evidently, the recognition of “human rights norms and standards” is an essential element of the “rule of law”. Having said that, the various sets of “human rights” have often become absorbed in a more broadly defined category of “fundamental rights”, entailing also “social rights” and “economic rights”. By way of introduction to the topic, the legal structures of fundamental rights will be explored and a map of the legal landscape is provided to serve as a starting point for further discussions.

2. Fundamental rights and the European Unification Process

2.1 Starting points

Traditionally, the norm giving powers around the world have recognised two kinds of legal entities: natural persons (human beings) and legal persons (states, public bodies and private undertakings). As suggested by the notion of “human rights” they are conferred upon natural persons. More to the point, the rules and principles concerned are designed to safeguard basic rights and freedoms “to which a person is inherently entitled simply because she or he is a human being”.

Fundamental rights have from time to time been considered omnipresent and almost given by “nature”. However, the idea of human dignity enjoyed by everyone was probably unheard of before the Christian era, and rights for members of the public against the power houses were rare. Most likely, fundamental rights for a wider social strata than the ruling class did not exist in

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9 See an important contribution to “the rule of law” in L. L. Fuller, The Morality of Law, Yale University Press, 1969. In fact, the idea that a polity shall be built by law was recognised already in e.g. Medieval Scandinavian laws, such as Magnus Eriksson’s Landslag (the Country Law of King Magnus IV) passed ca. 1341. However, proponents of Scandinavian realism, such as Alf Ross, seem less concerned with the need to rein in the political powers.


12 Already Aristotle and Plato discussed “natural rights” for human beings. Furthermore, for instance Aquinas developed “human right” theories based on Christianity in the 15th century. In the “age of enlightenment” the idea of human rights as natural rights was a common position among leading figures such as Bacon, Descartes, Locke, Jefferson and Spinoza. See for an overview e.g. J. Griffin, On Human Rights, OUP, 2009. In more recent times the idea appears as an aspect of the theory of law expressed in L. L. Fuller, The Morality of Law, supra note 8.

13 Probably people have claimed some privacy in their homes since times immemorial and “rights” to e.g. limited imprisonment were recognized by the elite in Ancient Egypt. However, the first recorded statutory protection of “human rights” is the cylinder of Cyrus the Great dated back to 539 B.C. Cyrus the Great was the founder of the Achaemenid Empire (First Persian Empire). An early account is also the “Edicts of Ashoka” including the “law of Piety” that applied in big parts of today’s India and prohibited slavery, religious discrimination and cruelty against both humans and animals, see Draper G. I. a. D., The Contribution of the Emperor Asoka Maurya to the development of the humanitarian ideal in warfare, International Review of the Red Cross Archive 35 (305) 192-206, retrieved 12 September 2018.
any society until the plebs gained “citizenship” along with the patricians in Roman law. Basic legal rights appeared originally as vaguely defined aspects of the actions and means for the protection of the individual’s personality (personhood) associated with the *civitas* in ancient Rome.\(^{14}\) Having said that, the Magna Carta, which was drafted by King John of England in 1215 and granted certain rights to “English noblemen”, is considered the first codification of human rights.\(^{15}\) Nonetheless, the inviolability of woman and of every man in his home, in church and at the alþthing meetings, was safeguarded by severe punishment already in medieval Nordic societies. County decrees to that end are traced back to ca. 1100 A.D, and they were codified in the late 13\(^{\text{th}}\) century with a view to ensure public order and social stability in the emerging Nordic countries.\(^{16}\) In any event, the idea of human rights as we know them originated in the “age of enlightenment”. During the 17\(^{\text{th}}\) and 18\(^{\text{th}}\) centuries, thinkers resorted to the Greek tradition to rely on reason as the primary source of knowledge, and they began to question old church dogmas and sovereigns.\(^{17}\) In pursuit of universal “truths” verified by empirical observations and scientific methods such as deduction and induction, various “universal rights” took upon political dimensions.

2.2 National and International Human Rights

In 1789, the mix of philosophical and political movements resulted in major societal upheavals in France that lasted until 1799, commonly known as the “French revolution”.\(^{18}\) In a Eurocentric perspective, the basic rights for the citizens against the state soon appeared as parts of a “social contract”.\(^{19}\) In the young nation states on the European continent, similar sets of human rights found their way into constitutional catalogues or basic laws, along with social and economic rights.\(^{20}\) In the United Kingdom (UK), the fundamental rights evolved more generically in case law.\(^{21}\)

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\(^{14}\) For further reading see B. Periñán, The Origin of Privacy as a Legal Value: A Reflection on Roman and English Law, American Journal of Legal History, Vol. 52, Issue 2, 2012, 183-201. Human rights were also recognized in the Arabic world e.g. in the Charter of Medina 622 A.D. and in Al-Risalah al-Huquq in the late 7\(^{\text{th}}\) to early 8\(^{\text{th}}\) century.


\(^{16}\) According to the Rime chronicle Edsöreslagarna (the sworn oath laws) recorded by the King Birger Jarl in ca. 1250 can be traced back to ca. 1100. In 1285 Magnus Ladulås (Magnus III) codified the laws. It was modernised in the Country Law of King Magnus IV, supra note 8, ca. 1341, which was the first law applying to the entire nation of Sweden. Whereas the Landslag applied to rural areas in the burgeoning polity, separate City Laws were also adopted. Many of the laws remained (formally) in force until the first Civil Code of Sweden was passed in 1734.

\(^{17}\) See the age of enlightenment, supra note 12.


\(^{20}\) As Germany was united by Otto von Bismarck in 1871, the original Constitution of the German Confederation of 1871 and the Constitution of the German Empire adopted later on the same year were silent on fundamental rights. Basic rights were a matter of State law until the Basic Law for the Federal Republic of Germany was adopted in 1949, albeit they were recognized more vaguely as “State objectives” in the Weimar Constitution of 1919. See e.g. M. Barber Crosby, The Making of a German Constitution – A Slow Revolution, Berg Publishers 2008.

\(^{21}\) There was, however, a statutory framework relied upon by the British Courts as well. Besides the Magna Carta, some basic civil rights were recognized in the English Bill of Rights that received Royal Assent on 16
Evidently, the social development in Europe also had repercussions overseas, and some of the seeds sown by philosophers such as Rousseau and Locke fell into even better soil in “the new world”. Indeed, the first written constitution still in effect today was signed in Philadelphia in 1787, and established that the United States of America (USA) was based on the *trias politica* model.\(^{22}\) In fact, the new politics on the other side of the Atlantic also influenced “the old world”. For instance, Thomas Jefferson, who had been instrumental in the liberation of the USA and who was appointed as the Minister to France in 1785, was involved in the drafting of the French Declaration of the Rights of Man and Citizen which was adopted in 1789.\(^{23}\) In the USA, the Bill of Rights was drafted by James Madison and signed the very same year.\(^{24}\) Having said that, ideas about defining differences between categories of human beings and their right to respect are persistent, and the allure of racism and unworthy ideas of ethnical supremacy is still haunting mankind. Indeed, there are still places where equal treatment is a “Potemkin village” at best.\(^{25}\)

Considering the ghastly events that took place during the 150 years that followed the French revolution, it is no surprise that the idea of statutory universal rights gained widespread acceptance. In 1948, the UN adopted its Universal Declaration of Human Rights that is still in force today.\(^{26}\) Furthermore, in 1949 the Council of Europe was founded in order to uphold human rights, democracy and the rule of law, and a year later it adopted the European Convention for the Protection on Human Rights and Fundamental Freedoms (ECHR) that took legal effect in 1953.\(^{27}\) Besides codifying a set of basic substantive human rights, the Convention and the protocols thereto establish and define the jurisdiction of the European Court of Human Rights (ECtHR).\(^{28}\) In total, 47 states have acceded to the ECHR, including all the Member States of the European Union (EU), and the rights have gradually been clarified and specified by the ECtHR.

### 2.3 Domestic fundamental rights and the European Communities

Whereas domestic legal systems in the EU Member States result from political processes, the autonomous Union legal order is set up and defined by international agreements between the

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\(^{22}\) Habitually, the idea of the distribution of power as we know the model today is attributed Charles-Louis de Secondant, Baron de La Brède et de Montesquieu, and elaborated in *Spirit of the Laws*, published amorously in 1748. Notably, the US constitution took effect on 4 March 1789 and the US Bill of Rights adopted on 25 September 1789 became the first ten amendments to the Constitution. See e.g. M. Hallaq (ed.), *U.S. Constitution, Bill of Rights, Amendments, Federal Papers and More!*, US Government, 2014.

\(^{23}\) C. Hitchens, *Thomas Jefferson: Author of America*, Eminent Lives, 2005. Jefferson had written the Virginia Statue of Religious Freedom that was passed in 1786 and became the forerunner of the US Bill of Rights and, hence, the first amendment to the US Constitution.

\(^{24}\) For those who are interested the US Bill of Rights, supra note 22, was adopted less than a month after the French Declaration of Rights, supra note 18.

\(^{25}\) “Potemkin village” is a notion meaning a construction built to deceive people into believing that the situation is better than it is, originating from the fake portable village built to impress the Russian Empress Katarina during her journey to Crimea in 1787.

\(^{26}\) UN General Assembly, Resolution 217 A(III) of 10 December 1948. There is nowadays an abundance of related Declarations and Resolutions adopted by the UN.

\(^{27}\) The Council of Europe was founded by Belgium, Denmark, France, Ireland, Italy, Luxembourg, the Netherlands, Norway, Sweden and the UK. Within a year Greece, Iceland, Turkey and West Germany also became members.

\(^{28}\) There are 16 Protocols to the ECHR open for signature. However, no member has acceded to all the 16 protocols.
states. As the EU institutions may act only within the competences conferred upon them by the Treaties, supranational measures cannot be justified on the mere basis of shifting political ideas or agendas. Instead, the Union has a duty to attain the objectives written into the Treaties. Furthermore, all its normative measures must be consistent and fit like pieces into the puzzle of EU law. Ultimately, the European Court of Justice ensures the teleology and consistency of EU law. Indeed, the Court of Justice will revoke a legislative act adopted by the Union, such as a directive or a regulation, that is incompatible with the values, objectives and systematics of EU law.

Historically, the role of fundamental rights in the European unification process has been paradoxical. Evidently, the Treaties establishing the original three European Communities were drafted by people who had experienced the horrors of early twentieth century Europe. Indeed, to prevent anything like that to happen again was the raison d’être of the Communities. However, the Member States conferred virtually no powers at all to protect human rights. Even if an “ever closer union among the European peoples” was envisaged already in the preamble to the Treaty of Rome, the legal framework for the European Economic Community (EEC) was designed primarily for economic integration of the domestic markets. Hence, the Member States retained the right to regulate in the field of human rights. Inevitably, however, the creation of an internal market soon collided with fundamental rights in the domestic legal systems of the Member States. Famously, in 1970 the Court of Justice clarified in Internationale Handelsgesellschaft that legislative acts adopted on basis of the Treaties have, in parity with the Treaties themselves, primacy over all domestic law, including the fundamental rights guaranteed by a national constitution. Even if it was affirmed by the Court of Justice in the case that “respect for fundamental rights forms an integral part of the general principles of law”, the preliminary ruling was met with hesitation. As the German Constitutional Court finally decided the case in accordance with the preliminary ruling, it explained that the primacy of EU law could be accepted only as long as (solange) the fundamental rights recognised in German constitutional law were safeguarded.

During the following decade, the Court of Justice recognised fundamental rights enshrined in the ECHR and common to the constitutional traditions of the Member States as general principles. In 1973, the heads of State or Government of the Member States also adopted a set of criteria that

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30 See Treaty on European Union (TEU) Articles 4(1) and 5(1-2).
32 See primarily Article 19 TEU.
made it impossible to accede to the Communities if human rights were not respected. However, there was no general support for expanding supranational competences, and fundamental rights remained protected primarily by the national norm-giving powers. Indeed, the tensions between proponents of a mere free trade area (FTA) and those advocating a broad socio-economic integration almost derailed the project in the early 1980s. It was primarily the need to join forces in a globalising economy that saved it. In 1983 the Member States resolved their commitment to a value-driven unification process. Finally, the deadlock could be solved by a “white paper” issued by the European Commission on the completion of the internal market with a view to promote international competitiveness. Even if the plan was met with opposition and took two years of debates and national referenda, the Single European Act (SEA) came into force on 1 July 1987.

Already in 1979, the first election to the European Parliament by universal suffrage had been held. As a result of the SEA, the Parliament was attributed formal legislative powers and the “democratic deficit” has since then been reduced, as the Parliament has increasingly gained powers. In connection with the new momentum for European unification, the German Supreme Court found it opportune to establish that it would no longer assess the validity of legislative acts adopted by the Community on basis of fundamental rights contained in the constitution.

### 2.4 Fundamental rights and the Union legal order

In the late 1980s, the Cold War came to an end and, in an atmosphere of unity on both national- and supranational levels, the work constructing the European Union intensified. In 1992, the Treaty on European Union (TEU) was signed in the Dutch city of Maastricht. As the TEU entered into force on 1 November 1993, it established a Union based on three “pillars”. A central “pillar” consisted of the three original Communities which were amalgamated into a European Community (EC) through a new Title (TEC). In addition, a new Title consolidating the cooperation in the field of Justice and Home Affairs (JHA) and a Title on Foreign and Security

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40 Originally in accordance with the Copenhagen criteria and nowadays pursuant to Article 21 TEU.
41 In 1973 the United Kingdom (UK) and Denmark acceded to the Union because of the oil crisis and the overall economic downturn and these Member States have ever since been proponents of a limited economic integration.
44 See Single European Act, OJ L 169/1 29.6.87. As to fundamental rights see recital 5 in the preamble to the SEA where a reference was made to the UN Universal Declaration of Human Rights, supra note 26.
45 The first general election to the Parliament was held in 1979. It is today the co-legislator with the EU Council in the ordinary legislative procedure of the Union, see Articles 289-294 TFEU.
46 In October 1986 the Bundesverwassungsgericht accepted the primacy of EU law in Re Wünsche Handelsgesellschaft, BVerfGE 73, 22 October 1986 – 2 BvR 197/83 (Solange II). In France the principle of primacy was accepted by the Court de Cassation already in 1975. By contrast it was not accepted in administrative law by the Conseil d’Etat until 1995 in the case of Nicolo published in the Common Market Law Review (CMLR) [1990] 1 173. In the UK there are incompatible rulings on the matter, from on the one hand the House of Lords in R v Secretary of State for Transport, ex p Factortame Ltd maintaining the principle of primacy, and on the other hand the UK Supreme Court in Case R (HS2 Action Alliance Ltd) v. Secretary of State for Transport qualifying the principle. Now settled by the UK Supreme Court in R (on the application of Miller and another) v. the Secretary of State for Exiting the European Union [2017] UKSC 5.[1] (hereinafter the Brexit ruling).
Policy (CFSP) constituted the second and third “pillars”. A statement on the respect for fundamental rights was introduced in Article F(2) TEU. An identity in external relations was on top of the EC’s agenda. Along those lines, the European Commission adopted budgets with a view to providing funding for initiatives to promote human rights, both within the Union and in external relations. In 1993, the Commission suggested that the EC should accede to the ECHR system. However, in Opinion 2/94 the Court of Justice explained that this was not possible at the time, because the EU still had no general competence to regulate in the field of human rights.

As the “Europhoria” turned into destabilisation towards the end of the 20th century with a civil war raging in the Balkans, the Union intensified its efforts to promote democracy and the rule of law. With a view to evince the core values of the Union, both internally and in relation to the wider world, the TEC was revised and the Treaty of Amsterdam entered into force on 1 May 1999. Only two years later, the TEC was revised once again in order to pave the way for the accession of new Member States from Central and Eastern Europe. On 18 December 2000, the Commission, the Parliament and the Council of Ministers solemnly proclaimed the adoption of the Charter of Fundamental Rights of the European Union (EU-Charter), however, without any reference to a legal basis in the Treaties. Hence, the legal value of the policy document remained unclear for quite some time. In the first decade of the new millennium the creation of an EU Constitution was on the agenda, but the project came to a halt in 2007 because of the referenda in France and the Netherlands. Nevertheless, the legislative bodies of the EC continued the work to revise the TEU. As the Treaty of Lisbon entered into force on 1 December 2009, the three-pillars-structure was replaced by one basic legal framework for the Union, consisting primarily of the Treaty on European Union (TEU), and the Treaty on the Functioning of the European Union (TFEU). According to Article 6(1) TEU the EU-Charter shall have the same legal value as the Treaties. Hence, the TEU, the TFEU and the EU-Charter constitute “primary law” within the Union. As a result of the Lisbon revision, the unification process is based on fundamental rights.

As stated in Article 6(2) TEU, the Member States expect the Union to accede to the ECHR-system. However, in Opinion 2/15 the Court of Justice once again rejected an accession since it would now be incompatible with the primacy, consistency and very nature of the EU legal order. Nevertheless, Article 6(3) TEU manifests the case law where the Court of Justice...
recognises the fundamental rights guaranteed by the ECHR and, as they result from the constitutional traditions common to the Member State, as general principles of EU law. Similarly, the EU is committed to the UN Universal Declaration of Human Rights as amended. It also adheres to other human rights standards in international law pertaining if not else to “jus cogens”. By accepting the rights as principles, they become flexible enough to be fitted into EU law.

2.5 The EU-Charter

Notably, the EU-Charter encompasses a wide range of fundamental human-, economic-, and social rights and freedoms which can sometimes be complementary and sometimes contradictory. All the rights can be confined to what is necessary in order to reconcile them with public interests and other private rights due to the principle of proportionality. Some rights may seem more “fundamental” than other rights. For instance, the right to life and dignity may appear to categorically prevail over freedom of expression, protection of property and the right to conduct a business. Indeed, some human rights are in national law still perceived as virtually absolute. However, there is no general consensus with regard to a hierarchy of rights, and there are no rights which are inviolable without exemptions. Empirically, even the right to life is qualified by social interests and other private rights manifested in penal systems, military operations and far-reaching rights to abortion. Moreover, the list of human rights changes along with social development. Privacy and data protection have moved into the limelight in the “information society”.

At the outset, the EU-Charter must not confine the fundamental rights stipulated in the ECHR or recognised in the domestic legal systems. However, in case there is a norm conflict within the ambit of the Union legal order, EU law will prevail. It is true that the Court of Justice is at this stage of socio-economic integration susceptible to different views on fundamental rights and the Member State have a broad margin of appreciation. However, the teleology and consistency of EU law justifies a gradual approximation of the domestic structures. Indeed, the value-driven development of EU law profoundly transforms the national legal systems as they are brought together. Ultimately, it confines the political room for manoeuvre at both the national and Union

57 See e.g. T. Weatherall, Jus cogens: International Law and Social Contract, CUP 2015.
58 See Article 52(1) EU-Charter.
59 Compare Articles 1, 2, 16 and 17 EU-Charter.
61 In the Union, measures with regard to the “information society” were originally taken in the field of copyright law. However, the harmonization of domestic copyright law is now but an aspect of the program to shape a digital internal market, see originally Communication from the Commission, A Digital Single Market Strategy for Europe, COM(2015)0192 final 6.5.2015; and Directive on Copyright in the Digital Single Market, adopted by the European Parliament 26 Mars 2019, see also COM(2016)0593 – C8-0383/2016-2016/0280(COD). However, the origins of the EU data protection regime can be traced back to the early 1980s. See the Council of Europe Convention for the Protection of Individuals with regards to Automatic Processing of Personal Data, concluded in Strasbourg 28 January 1981, ETS 108; and Commission Recommendation 81/679/EEC of 29 July 1981 relating to that Convention, OJ L 246/31, 29.8.1981.
62 Compare Judgement of 26 February 2013, Åklägaren v. Åkerberg Fransson, C-617/10, EU:C:2013:105, paragraph 22 with the letter of Article 53 EU Charter.
Arguably, emerging technologies require more supranational coordination of the legal frameworks. Artificial intelligence (AI) changes the overall context in which law operates, and there is an impending risk that the legal development is lagging behind the technological development. AI brings questions to the fore about what “law” as we know it can do for the society. Why do we need the “rule of law” when legal sanctions are empty blows against machines? Perhaps law should rather be understood as a basic script on which applications are running. Indeed, regulation by design is already an essential element of the protection of personal data. However, the lack of basic legal training may mislead programmers and computer scientists to design systems displaying intelligent behaviour which are irreconcilable with the rule of law. It is a bit ironic that just when the Union has obtained formal powers to safeguard fundamental rights, AI challenges the existence of these rights as well as the enforcement of the rights.

3. In Pursuit of Definitions of “AI” and “AI robots”

3.1 The Union’s first attempts to define AI

 Whereas computer scientists need to abide by the legal ramifications, those working in the various fields of humanities need to understand the meaning of concepts such as “AI” and “robots”. In particular, from a legal point of view, vague connotations always pose normative problems. Perhaps the words are of secondary importance for those designing the machines, but they are essential for those designing ethical and legal standards. Indeed, words are the building blocks of law (in a legal sense) and the notions are pivotal for a correct classification of factual situations. Hence, legislators and courts around the world are grappling with the terms “AI” and “robots”. In order to safeguard a purposeful and consistent regulation of the phenomena called “AI” and “robots”, it is simply necessary to capture the subject-matter for regulation in legal definitions. Along the same vein, phenomena such as “intelligence”, “consciousness” and “trust”, which have been taken for granted by legislators, must now be scrutinized and explained more carefully. Indeed, as AI leaves “no stratum of society untouched”, the regulation of emerging technologies will be an aspect of law in general as opposed to merely an obscure separate field of law.

In April 2018 the European Commission launched its action program on artificial intelligence for Europe. With a view “to ensure a coordinated approach to making the most of the opportunities offered by AI and to address the new challenges that it brings”, the Commission suggests that:

65 See Commission reasoned proposal of 20 December 2017 in accordance with Article 7(1) of the TEU regarding the rule of law in Poland: Proposal for a Council decision on the determination of a clear risk of a serious breach by the Republic of Poland of the rule of law COM(2017)0835; and European Parliament resolution of 1 March 2018 on the Commission’s decision to activate Article 7(1) TEU as regards the situation in Poland 2018/2541 (RSP).


67 It is a problem that the AI-HLEG is thus far focusing entirely on ethical aspects without enforceability in this regard.


AI refers to systems that display intelligent behaviour by analysing 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 facial recognition systems) or AI can be embedded in hardware devices (e.g. advanced robots, autonomous cars, drones or Internet of Things applications).

Evidently, deterministic machines which interact with their environment is far from anything new. Mechanical devices of this kind were developed already a century ago for industrial and military purposes, and back in 1936 Alan Turing famously designed a mathematical model for computing. Only the reference to autonomy extricates this definition of AI from that of a computer. Hence, this definition of AI is probably too open-ended to provide any useful guidance.

In accordance with the communication from the Commission regarding the action program on AI for Europe, a high level expert group on AI (AI-HLEG) was appointed in June 2018. It has the task to propose ethical and legal guidelines and address issues relating to in particular fairness, safety, transparency, the future of labour markets, democracy and the fundamental rights. On 8 April 2019, AI-HLEG issued its first “Ethics Guideline for Trustworthy AI”, where the expert group provides an updated definition of AI deriving from a separate working document on the matter.

Artificial intelligence (AI) systems are software (and possibly also hardware) systems designed by humans that, given a complex goal, act in the physical or digital dimension by perceiving their environment through data acquisition, interpreting the collected structured or unstructured data, reasoning on the knowledge, or processing the information, derived from this data and deciding the best action(s) to take to achieve the given goal. AI systems can either use symbolic rules or a numeric model, and they can also adapt their behaviour by analysing how the environment is affected by its previous actions.

As a scientific discipline, AI includes several approaches and techniques, such as machine learning (of which deep learning and reinforcement learning are specific examples), machine reasoning (which includes planning, scheduling, knowledge representation and reasoning, search, and optimization), and robotics (which includes control, perception, sensors and actuators, as well as the integration of all other techniques into cyber-physical systems).

If the first attempt to capture the elusive subject-matter called “AI” was too imprecise, the rather lengthy and process-oriented definition provided by the AI-HLEG is perhaps too detailed. First of all, it is rather unconvincing that only systems designed by humans could qualify as AI, since software and hardware are already today very much involved in the development of new technology. Why would systems designed entirely by intelligent machines not be classified among AI? Secondly, why should AI systems use either symbolic rules or a numeric model and no other

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71 In fact, automatized and self-propelled machines were introduced already during the first industrial revolution in the early 19th century, see e.g. R. L. Hills, Power in the Industrial Revolution, Manchester University Press, 1970. As to the first robot arm it was designed by Georg Devol in 1954, see e.g. R. C. Dorf and A. Kusiak, Handbook of Design, Manufacturing and Automation, John Wiley & Sons Inc., 1994.
73 See the AI-HLEG, Ethics Guidelines for Trustworthy AI, European Commission 8 April 2019, at 4; and AI-HLEG, A Definition of AI: Main Capabilities and Scientific Disciplines, European Commission 8 April 2019.
method? From a dynamic perspective it seems unwise to confine the definition to the current methods. Quantum computers are already released from the straitjacket of binary code, and as the qubits take upon endless varieties of values, numeric rules and computer algebra become esoteric. Ultimately, it is all about magnetic fields and transmission/reception of microwave impulses. Thirdly, AI as a scientific discipline should preferably entail more than technological development. Tentatively, “AI” is a manufactured entity that is capable of communicating with humans or machines and is capable of learning, adapting and understanding why a decision or conduct is to prefer in a given situation.

3.2 The bounded freedom to call machines intelligent

All systems classified among AI have in common that they are somehow intelligent. Naturally, the inherent human propensity to read meaning into interactivity makes it easy to believe that a device that takes decisions on the basis of data collected from its environment is intelligent i.e. when executing the decisions by means of actuators. However, the capacity of taking decisions and executing them is no sign of “thinking” really. For instance, a traffic light with a sensor lacks intelligence in any way, shape or form. Indeed, “artificial intelligence” is an elusive concept and technology that may initially be considered truly smart is no longer classified among AI when it becomes routine technology. A well-known example is optical character recognition, surpassing the capacity of human beings but which is no longer considered “intelligent” in any intelligible sense.

At first glance, there might seem to be nothing preventing humans from labelling phenomena in any way they like. In fact, the same meaning is often connoted in different ways in different languages. For instance, “human being” is “Ningen” in spoken Japanese and “människa” in Swedish. However, along the lines of linguistic theories developed by philosophers such as Ferdinand de Saussure and Ludwig Wittgenstein, the system of symbols called “language” requires a certain level of evolutionary consistency to constitute a linguistic system. Linguistic building blocks such as letters, words and grammar define a greater whole. In the vocabulary of Saussure, the expressed word is called signifier and the meaning of the word is referred to as signified. In the context of the English language system, the signifier “intelligence” could become deceptive if the signified cognitive capacities (object) differs too much from what it previously connoted. True, the signifier “artificial” may expand the connotations of the word “intelligence”. But even if artificial intelligence may differ from human cognitive processes, it requires something more than automatic responses to stimuli originating in the “umwelt” or internally. An inventive step is required to make machines somehow aware of what they are doing.

Indisputably, the concept of “intelligence” as we know it derives from the human condition. Indeed, “intelligence” takes more than the calculation of optimal solutions based on limited data sets. When measuring intelligence quotient (IQ) there has been a lop-sidedness towards rationality, and the “clarity” of rationality has often been contrasted with the “obscurity” of emotions. However, intelligence as we know it has always required a tacit emotional quotient (EQ). It could easily be believed that it is the absence of IQ that disqualifies AI from being a legal

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76 Compare with W. Yu et al, Understanding Artificial Intelligence, PMBA6042 HKU MBA IOM (1) Kindle ed., 2018.
entity. However, the reason for its status as a “thing” is rather the fact that algorithms are not “sentient”. Indeed, in the light of emerging technologies, rationality in the strict sense of schemes for making a correct calculation of given facts, appears as rather unintelligent in the absence of EQ. On that note, a human being normally knows what is “fair” in a broader context under certain given circumstances, even if a model for calculation of selected sets of data goes against intuition. For instance, models for calculation of the allocative “efficiency” of markets should provide only facts that may be taken into consideration when regulating markets on the basis of overall human knowledge. Perhaps the capacity to “learn” from past experiences and adapt the conduct in response to supervised or unsupervised training on the basis of a script can be called “artificial intelligence”. Then again, even a machine that is convincingly mimicking human behaviour without some kind of “understanding” of what it is doing may lack intelligence in a true sense. Indeed, “general intelligence” is considered to require a human-like intellectual capacity. In a society where machines are attributed more and more decision-making powers, the meaning of cognitive functions such as “intelligence” and “consciousness” will need further explanation. Indeed, there are intensified efforts to map the human brain, of which we know little. In a society where machines are attributed more and more decision-making powers, the meaning of cognitive functions such as “intelligence” and “consciousness” will need further explanation. Indeed, there are intensified efforts to map the human brain, of which we know little.

3.3 Robots

Systems displaying intelligent behaviour may be embedded in hardware with physical actuators executing the decisions. In parity with the definition of AI the signified phenomenon called “robot” is ill-defined. However, as the European Commission suggests a “robot” is hardware as opposed to merely an algorithm. Perhaps the first thing that springs to mind in this regard is a humanoid or an android. Indeed, the concept of “robot” derives from the old Czech word “róbóta”, connoting people who in the feudal society were forced into servitude. It was publicly used to label manufactured artificial workers for the first time in the title of a science-fiction play from 1921. A similar signifier is used in for instance spoken Japanese “robotta” and Swedish “robot”. It has been suggested that the signified object is a machine designed to execute one or more tasks automatically with speed and precision, and this is an agreeable description, albeit not exhaustive. Because a robot must be able to move in some sense as opposed to execute tasks statically. It may be awkward to call machines transporting people “robots” but linguistically we can.

3.4 Functional hardware and the science of materials

Even if the idea of a human resembling a machine or a machine resembling a human still resonates in the collective memory, “robot” is today used with a broader meaning in the vernacular. There are for instance “industrial robot arms” and cylindrical “robot vacuum cleaners”. Furthermore, robots so small that they are not perceivable by the human senses will soon be used in healthcare or sent in swarms at the speed of light into outer space. Other kinds of robots of vast proportions will soon be mining the earth or terraforming distant celestial

77 See e.g. as to the robot Sophia that was granted citizenship of Saudi Arabia in 2017, C. Gohd, Here’s what Sophia, the First Robot Citizen, Thinks about Gender and Consciousness, Life Science, https://www.livescience.com/63023-sophia-robot-citizen-talks-gender.html, last visited 18 April 2019.
78 W. Yu et al, Understanding Artificial Intelligence, supra note 76.
80 See Communication from the Commission, Artificial Intelligence for Europe, supra note 69.
81 Evidently the title of the Karel Čopek play was Rossum’s Universal Robots (RUR). However, Karel Čopek has said that the term was coined by his brother Joseph Čopek, https://web.archive.org/web/20120204135259/http://capek.misto.cz/english/robot.html, visited 24 May 2019.
82 Indeed, the European Commission does, see its Communication, Artificial Intelligence for Europe, supra note 69, at 8.
bodies. In fact, “robots” may come in any shape and design that new achievements in the science of materials and engineering allows, and their aesthetics will often be conditioned on functionality. Interestingly enough, however, most robots designed to move freely in nature and in buildings assume the features of man with two legs and two arms, or of animals with four legs. Perhaps there is a lack of imagination or a belief that well-known features are preferred from a marketing point of view, but when thinking about it four limbs is often an optimal solution. Is it simply in the “nature of things” or a God-given fact that terrestrial mammals have four extremities? Just consider the motor activity needed to climb a stair, jump over hurdles or to hide. Indeed, a quadrupedal machine moves more easily across rough terrain than a crawler machine. At the same time, there is an increasing awareness that “nearly human” scares people. In many instances, it has proven easier for people to accept a machine that does not resemble a human at all than a humanoid that seems to share human experiences when it does not.

3.5 AI Robots

AI is not embedded in all hardware units conventionally classified among “robots”. Arguably, the industrial robot arm mentioned above does not display “intelligent behaviour”. Hence, a distinction needs to be made between AI robots and merely mechanical robots. An AI robot is in fact a platform for the use of any applicable software customizing the machine to the needs of the user within the limits of the design of the hardware unit. It contains software measuring up to AI. Conversely, not all automatically executing hardware units containing AI qualify as “robots”. For instance, household appliances displaying “intelligent behaviour” cannot be referred to as “robots”, despite executing tasks automatically with speed and precision as they do not primarily move. Evidently, there is no sharp dividing line between the Internet of Things (IoT) and AI robots and the grey zone of composite units will probably get broader along with technological development. Nevertheless, it should be safe to say that household appliances or furniture may not constitute “robots” at all however intelligent they get as long as they do not move in some sense. By contrast, a vacuum cleaner, as well as a car or a space craft may nowadays qualify as a “robot”. In the light of this an “AI-robot” is tentatively hardware designed to move and adapt its conduct on the basis of interactions with its environment or internal stimuli involving complex decision making on basis of AI.

4. Mapping the Legal Landscape of AI and Fundamental Rights

4.1 Who can enjoy fundamental rights?

In many instances, the legal-historical perspective adds to the understanding of what law can do to safeguard the interests of human beings in a world of “systems that display intelligent behaviour”. As mentioned, these rights emerged a shield for natural persons against power houses. However, along with the transformation of “human rights” into an aspect of “fundamental rights”, the category of beneficiaries has been extended to also include legal persons classified among “private parties” as opposed to those classified among “public

83 See as to innovative ways to move through urban landscapes known as “parkour” (originating from French “parcours du combattant” or in English “obstacle source”), D. Belle and S. Gros la Faige, Parkour, Intervista 2009.
84 For the time being, the fastest land-moving robot known is Boston Dynamic’s quadrupedal military robot “Cheetah”.
85 Also known as the uncanny valley problem, see e.g. M. B. Mathur and D. B. Reichling, Navigating a Social World with robot partners: A quantitative cartography of the Uncanny Valley, Cognition, Volume 146, 22-32.
86 See as to the concept of “systems that display intelligent behaviour” Communication from the Commission, Artificial Intelligence for Europe, supra note 69, at 1.
entities”. As fundamental rights are typically invoked against persons exercising public powers, public authorities, institutions and bodies do traditionally not enjoy any fundamental rights themselves. Notably, conduct by a natural person who is acting as a representative of one of the branches of the state or polity, is an action by the public authority, institution or body concerned. Whereas a “natural person” is a human acting in her or his private capacity, her or his conduct as a representative of the state or polity constitutes a measure taken by a “public entity”. According to the basic trias politica model, the Parliament enacts the laws, the Courts apply and interpret the laws, and the Government with all its public authorities, institutions and bodies executes the policies and instructions within the scope of the overarching legal frameworks.

Both legal rules with general applicability and individual decisions may infringe fundamental rights. Consequently, legislators, courts and other public bodies may develop legal norms within their powers only insofar as the norms are in accordance with the rule of law and fundamental rights. Moreover, without a possibility to invoke the law and punish wrongdoers there are as mentioned no legal rights stricto sensu, however right a person may be from an ethical point of view. Automated decisions, which may very well be customised or tailored on basis of collected data, are contrary to the rule of law in cases where they cannot be subject to a proper judicial review. Indeed, any difficulty to understand why a machine took a decision in a certain situation (the black box problem) is incompatible with the rights of good administration and access to justice. There is a real risk that AI may strip persons of the fundamental rights that they once had. Then again, the human-centric normative system called “law” both creates and responds to “reality”. Mankind still has the prerogative to shape its future by means of developing legal frameworks. It is in our hands to prohibit certain technologies or to prevent the use of existing technology for certain purposes. Even if there is a technology race between polities, it is of utmost importance to regulate away the risk that it gets out of hand and to avoid a “tremendous social disorder and political collapse stemming from widespread unemployment and gaping inequality”. It is necessary to bring the rule of law back into the picture when designing the future.

### 4.2 Liability for the state to safeguard fundamental rights regarding AI

Evidently, the state or polity has a responsibility to ensure that also weak, old and sick people benefit from the digital transformation, and that no one is left behind. Media illiteracy is a problem that needs to be addressed at some level. As not everyone developing, deploying or

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87 For instance, both natural persons and private legal persons enjoy the freedom to conduct a business according to Article 16 and the right to property according to Article 17 of the Charter of Fundamental Rights of the European Union. See for further reading European Union Agency for Fundamental Rights, Applying the Charter of Fundamental Rights of the European Union in law and policymaking at national level, Publication Office of the European Union, 2018.


89 See, Baron de La Brède et de Montesquieu, supra note 22.


92 Ibid.

using AI can plausibly be held responsible for general media education the public powers need to intervene.\(^9^4\) Some might say that AI is also the solution to the social challenges that it brings about. Indeed, as performance-enhancing implants become the rule rather than the exception, for medical reasons and due to vanity, there is no need for people to communicate via text and keyboards.\(^9^3\) However, this line of reasoning reveals a paradoxical relation between AI and social development. Even if it is the absence of true intelligence that creates problems with algorithmic decision making at this stage of technology development, the reliance on increasingly sophisticated and autonomous machines propels a shift away from the human-centric structures wished for.\(^9^6\) Indeed, there might be problems that are hardly solved “by design”, as it is the novelty of the design itself that creates thresholds for those who cannot keep pace with the development.\(^9^7\)

Perhaps a more philosophical question is whether there is a human obligation to become AI compatible? True, the mind-set of a person born into a world where machines are a normal part of life will differ profoundly from that of a person who experienced a time before the dawn of AI. But, also people who choose not to integrate with machines or who do not have that option in the first place shall be inherently entitled to fundamental rights simply because they are humans. In that connection we should be attentive to the fact that those using the machines accumulate power when listening in and learning from communication without those concerned knowing about it. Why should a person not be allowed to exercise the democratic right to vote or to communicate with public entities without being directed to a website or some other machine interface? Even the right to life is jeopardised if food and water can be accessed only through machines. Or are there any social interests or private rights that may confine these rights for humans? All practicalities aside, it also remains to be seen to what extent a machine can replace the implied contact between human beings or between human beings and other sentient beings. Without mirror neurons and EQ there is no true contact between machines and man, only manipulation. Conversely, machines tapping into the “collective consciousness” may be uncalled for.

For the time being, one might wonder to what extent there is a human obligation to assist the companies developing AI, in terms of providing them with personal data when using standard technology.\(^9^8\) Evidently, some data is automatically collected online, and permission to collect additional data may be required for access to services under the pretence that the approval is voluntary. Indeed, personal data has become a gold mine for companies in the information society. As data is a basic commodity in many industries, it has become urgent to clarify who owns it, e.g. when balancing the protection of personal data and the free movement of such data.\(^9^9\)

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\(^9^4\) In the European Union, the social challenge was recognised by the European Commission in its contribution to the informal EU27 leaders’ meeting in Sibiu (Romania) on 9 May 2019, Europe in May 2019: Preparing for a more united, stronger and more dynamic Union in an increasingly uncertain world, at 48 et seq. See press release IP/19/2309.

\(^9^5\) Indeed, standard software for word processing allows you to dictate text instead of using a keyboard already today.

\(^9^6\) See the European Commission’s contribution to the informal EU27 leaders’ meeting, supra note 94, at 31.

\(^9^7\) In EU-law, regulation by design is emphasised in the GDPR, supra note 66.

\(^9^8\) Mass collection of personal data may soon move from cyberspace into the material world. In 2017 Sidewalk Labs, a sister company to Google Inc., launched its Waterfront project to develop a “smart” city in the vicinity of Toronto, Canada. However, the mass-surveillance city has provoked a strong reaction, see J. Wakefield, the Google city that has angered Toronto, BBC News, https://www.bbc.co.uk/news/technology-47815344, last visited 18 April 2019.

\(^9^9\) In EU law see the GDPR, supra note 66. Compare with the United States (US) Clarifying Overseas Use of Data (CLOUD) Act, (H.R. 4943) of 2 June 2018, asserting that US companies must provide data regarding US
Naturally, cyber security moves into the limelight as humans act more and more through proxies. Conventionally, hacking attacks and dissemination of misleading information disrupt human interactions and businesses, distort markets and challenge the basis of a democratic society. Naturally, the technology can also be used to manipulate online systems in many inventive ways. If Photoshop was once considered a problem as it corrupted images in printed media, there are countless ways to manipulate digital profiles and representations, including sequences recorded by means of closed-circuit television (CCTV) and similar systems for monitoring. Moreover, “bank robbery” has new connotations in the digital era. Well the list can be made much longer. Law enforcement authorities need to deal with these kinds of issues routinely.

4.3 Liability for private parties to safeguard fundamental rights regarding AI

Whereas public entities must always recognise the fundamental rights of private parties the liabilities of private parties against other legal persons or natural persons, are a subject of contention. It depends on who the persons are, on the situation and on the fundamental rights at stake. Along with the deregulation and privatisation pursuant to the liberalisation of trade, there is a tendency towards liability for private legal persons to respect the fundamental rights of other private parties. A case in point is the obligation for companies not to discriminate when acting as employers. An algorithm may for instance be used to evaluate and select candidates for a position. Online actuators that perform tasks based on algorithms (bots) may also decide whether a person is entitled to social security benefits, a bank loan or access to insurance cover. In such cases, it could be a violation of fundamental rights if the applicant (or consumer) does not have a real possibility to discuss the matter with a human being and appeal the decision ultimately to a court. Generally speaking, AI makes individualisation possible by dealing with thousands of persons at the same time which might be a “good” or a “bad” thing, depending on who is asked. However, tailored offers on the basis of digital footprints may amount to personalised discrimination. Furthermore, automatized changes of consumer contracts may be contrary to contract law and credit scoring by machines or social scoring in any sense may be difficult to challenge. Evidently, the mere vulnerability of the systems and recurring “bugs” are far from reassuring. When AI is developed, deployed and used in some sense by private parties, it brings questions to the fore about product liability and liability for those who deploy and use the machines. Hence, whereas public entities have obligations only, a private party may both enjoy fundamental rights and be held accountable for conduct caught by the same regulatory framework. However, it should be remembered that fundamental rights concern structural problems. Private parties with no special social responsibilities escape the scope of fundamental rights. In view of this, it should be clarified that when AI is developed, deployed or used by a natural person, fundamental rights law is inapplicable against the individual per se. By contrast,

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101 In EU law, see originally Judgement of 12 July 1990, Foster and Others v. British Gas, C-188/89, ECLI:EU:C:1990:313.

102 In EU law, Article 22 GDPR, supra note 66.

103 In EU law, see Communication from the Commission, Artificial Intelligence for Europe, supra note 69, at 15 et seq. See also the AI-HLEG, Ethics Guidelines for Trustworthy AI, European Commission, supra note 73, at 4.
fundamental rights may be invoked against a private legal person (in the absence of substantive rules).

There is a need to invoke fundamental rights only in so far as there is no applicable substantive law. Substantive law governs specific situations or behaviour as opposed to the fundamental rights. Even if substantive law resonates in fundamental rights it differs in nature from those rights. For instance, the legislator may prohibit hate speech or similar attacks on dignity by individuals. However, the fact that an individual need to abide by substantive legal norms hardly makes the person a powerhouse against which other private parties can invoke fundamental rights. By contrast, fundamental rights can in the absence of substantive rules be invoked against a private legal person having special powers that go beyond those that private parties normally have. For instance, a private school may be liable for discrimination in case it uses AI that decides that female and male students shall have different food or different portions of food for lunch. In case no substantive law applies for whatever reason fundamental rights could be invoked. Perhaps the liability to ensure fundamental rights seems weaker where a teacher, the head teacher or even the school board would ignore misconduct by a student on only one or a few occasions. Indeed, the structural problems become clearer if there is a pattern of accepting misconduct. Nevertheless, the possibility to invoke the fundamental rights against the school in case there is a lacuna in substantive law, is explained only by the fact that the school has special powers.

4.4 AI and the causality problem

Under all circumstances, it is a basic principle of law that a person can be held liable for actions or inactions only insofar as there is an adequate link between the cause and an effect (proximate cause). On that note, the causality between the development, deployment and use of AI and an effect may be stretched to the point where the natural or legal person's liability becomes virtually arbitrary. Even if a company developing AI abides by Asimov’s laws and all substantive laws that exist to safeguard the interests of human beings, a machine may learn to take decisions which are incompatible with fundamental rights or any other legal regime for that matter. If so, it is difficult to impose product liability upon the company producing the machine. Similarly the natural or legal person who bought the AI device and deploys it or uses it in accordance with the instructions, might not meet any standards for liability in terms of actual responsibility if the machine autonomously infringes the legal rights of another person. For instance, the user of a self-driving car may try to avoid an accident by steering the car right, but as the car overrides the command and steers the car left, one or more people are injured. The decision by the car might

104 In EU law, see Judgment of 10 October 2017, Farell v. Whitty and Others, Case C-413/15, ECLI:EU:C:2017:745 (Farell II), paragraph 33.
105 In EU law, compare with Judgment of 6 November 2018, Stadt Wuppertal and Willmeroth Others, Joined Cases C-659/16 and C-570/16, ECLI:EU:C:2018:871, paragraph 92.
106 Even if the idea of causation is materialised in different ways in various legal systems, the principle is the same, see e.g. V. Palmer, A General Theory of the Inner Structure of Strict Liability: Common Law, Civil Law, and Comparative Law, 62 Tul. L. Rev. 1330 (1987-1988). In the European Union, the causation problem has been recognised in the European Parliament Report with recommendations to the Commission, supra note 68, paragraph 54.
107 Asimov’s laws are directed to developers, see the European Parliament Report with recommendations to the Commission, supra note 68, introduction recital U: “(1) A robot may not injure a human being or, through inaction, allow a human being to come to harm. (2) A robot must obey the order given it by human beings except where such orders would conflict with the First Law. (3) A robot must protect its own existence as long as such protection does not conflict with the First or Second Laws.”
be right on basis of the information it had collected and all calculations of the risk that something worse would happen if it turned to the right. Nonetheless, it is difficult to hold the person in the car accountable since there was no proximate cause between her actions and the actual damage for which the compensation is claimed. Naturally, it is in practice a matter of evidence, but the point is that due to current legal standards it is far from sure that a user can be held liable for autonomous decisions by AI. In response to machine learning and autonomy, legal entities could preferably be required to sign an insurance covering all damages caused by AI irrespective of their involvement. Arguably, that ensures a fair distribution of costs within the framework of civil law. By contrast, autonomous decisions taken by AI are likely to escape the scope of criminal law.

4.5 Liability for AI to safeguard fundamental rights regarding AI

In a society where machines no longer merely execute pre-programmed functions and produce other machines, it may become difficult to justify why a human being or a company (in the current understanding of the word) should be liable for the conduct of AI at all. Hence, we should think twice before just waving aside the idea of AI as a kind of legal entity. Whereas machines talking to humans was little more than science fiction 50 years ago, it is worthwhile contemplating what the man-machine interface will be 50 years from now. Indeed, an “AI world order” also requires an AI liability regime. Along the same vein, it may be unthinkable to us that a machine could claim legal rights. Nevertheless, machines can create things including artistic works which pertain to copyright. It is fair to ask why the owner of a skilled machine should be considered the creator of music, art, sculpture and film if the person has not been involved in the creative process. In general, as public entities and private parties act more and more through proxies and as machines take over much of the decision making and the labour currently conducted by man, the complexity of the distribution of legal rights and obligations will certainly increase.

It has been suggested that AI could in the future be classified among “legal persons” and, hence, be attributed civil liberties as well as duties similar to those of public entities and private companies. Conversely, it should be prohibited to classify machines among natural persons because, all ethical aspects aside, that would go against a human-centric development of civilisation. Furthermore, no one born a human should under any circumstances be classified among machines. Because of the difficulties to allocate legal responsibilities also an electronic personhood (e-personhood) has been discussed in EU law by the European Parliament. In parity with public entities such an e-person could have asymmetric rights and obligations. At the end of the day, there has always been a formalistic side of the allocation of fundamental rights. Evidently, anyone born a human being may enjoy some basic legal rights even when unconscious. Conversely, sentient beings such as animals normally have neither rights nor obligations. Hence, access to fundamental rights does not depend only on EQ and general intelligence. In contrast, the rights and obligations for human beings depend on cognitive

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109 In the European Union, this is proposed by the European Parliament, see its Report with recommendations to the Commission, supra note 68, paragraph 56 and 59 (a-e).
110 See as to the concept of an “AI World Order”, Dr Kai-Fu Lee in the YJL, supra note 93, at 4-5.
112 A human-centric approach is emphasised in the AI-HLEG Ethics Guidelines for Trustworthy AI, supra note 73. Compare with the Robot Sophia, supra note 77.
113 In the European Union, this is proposed by the European Parliament in its Report with recommendations to the Commission, supra note 68, paragraph 59 (f-g). Indeed, the Parliament proposes a “Charter on Robotics” in the annex to the Report. However, neither the Commission, nor the AI-HLEG, has accepted that view.
114 See European Parliament Report with recommendations to the Commission, supra note 68, and the annex thereto.
capacities. For instance, children do typically not assume the same rights and obligations as adults. At the end of the day, all parts of a legal system are communicating vessels and, hence, consistency is required. In case AI would be considered a legal entity in one field of substantive EU law, it should also be considered a legal entity in the context of fundamental rights and vice versa. In a “proxy society”, AI must be taken into consideration when shaping the fundamental rights. Rights for someone and obligations another are two sides of the same coin as indicated by the chart below. Then again, the chart shows only the direct applicability of fundamental rights as opposed to the applicability of substantive law that may or may not resonate in fundamental rights.

**Picture 1:**

<table>
<thead>
<tr>
<th>OBLIGATIONS</th>
<th>RIGHTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>AI</td>
<td>Natural persons</td>
</tr>
<tr>
<td>Public entities</td>
<td>No! (but in the future?)</td>
</tr>
<tr>
<td>Private legal persons</td>
<td>Sometimes</td>
</tr>
<tr>
<td>Natural persons</td>
<td>No!</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>OBLIGATIONS</th>
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</tr>
</thead>
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</tr>
<tr>
<td>Private legal persons</td>
<td>Sometimes</td>
</tr>
<tr>
<td>Natural persons</td>
<td>No!</td>
</tr>
</tbody>
</table>

The chart above shows the direct applicability of fundamental rights and the potential for substantive law to resonate in fundamental rights.
5. A Look Ahead

On the verge of a new brave world, where man is increasingly dependent upon emerging technologies, the exchange of knowledge and interdisciplinary collaboration has become crucial. On the one hand, those designing the machines that will shape our future need to understand ethical, social and legal ramifications that have often been achieved at a high price. Asimov’s laws are starting points, but far from enough as the standards for computer engineering. If we want to preserve human-centric development, the machines need to learn the “right” things, and no system must undermine democracy, the rule of law or fundamental rights. On the other hand, the humanities need to be adaptive and an important aspect in this connection is to start reassessing old concepts and “truths” originating in a world before AI. From an ethical point of view, we need to steer clear of arbitrary decisions by machines executed without any sense of the virtues that define an advanced and prosperous human civilisation. From a legal point of view, it is necessary to adapt all normative frameworks to AI.

Fundamental rights for human beings should be ensured also in a world of intelligent machines. Indeed, to turn back the clock to a time where many people were lawless is simply untenable. AI can of course be used to safeguard fundamental rights for humans in many instances, but it would be naïve not to recognise the challenges it brings about. For instance, the right to good administration and access to justice implies human review of decisions by machines and, hence, “black box” problems are unacceptable. Furthermore, as machines become more and more autonomous, the causality between the conduct of natural or legal persons and those of the machines may be called into question. Indeed, there might be a point where it is necessary to recognise AI as a new legal entity. Even if technology is developed with the best intentions to assist human beings, the transfer of decision-making powers away from humans to machines has consequences. From a human perspective it should be uncontroversial that with power comes responsibilities. However, how can machines be held responsible for decisions and what are the sanctions? We must contemplate such a liability only when the machines become “self-aware” and can be attributed some kind of “personhood” by man. It would bring profound changes of law in its train. Indeed, there are probably better ways to regulate AI than to enter text into a document. However, considering the rapid technological development, we should already now keep an open mind. Man has the prerogative to shape its future by designing a suitable legal framework.