# Ancient Legal Codes as Basis for Artificial Intelligence Regulations in the 21st Century[*]

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ABSTRACT: Three ancient legal codes are discussed in light of the currently ongoing introduction of Artificial Intelligence (AI), robotics and big data insights into our contemporary society. To an extent as never before, computers are supporting human input, decision making and provision of data. AI, algorithms, robotics and big data are used to derive inferences for monitoring large-scale trends, detecting and measuring individual risks and chances based on data-driven estimations. Through machine learning algorithms and unprecedented data storage and computational power, AI technologies have most advanced abilities to gain and process information as decision making aids. Yet the currently ongoing digitalization disruption imposes ethical challenges and demands for regulatory consensus and legal action. When trying to find right, just and fair solutions in the introduction of novel technologies in society, the ancient legal codes of the Athenian city state, Roman law and the Code Napoléon may offer insights how to regulate complex new challenges ethically enriched with the wisdom and historical precedent of previous times. In particular, the ancient Athenian city state featured a diversified society that offered stratified

citizenship rights and obligations. The Roman law conduct around slavery holds invaluable insights how to tax profitable market solutions and instill liability safety procurements for non-human market actors. The Code Napoléon defines different classes of market actors in society with different rights and obligations to engage in economic markets. All three legal regimes have endured for centuries and inspired very many different legal jurisdictions and national societies around the world and will hopefully imbue highest ethical mandates and standards in our contemporary arising technologies in a world-wide digitalizing world.

## Artificial Intelligence (AI)

Artificial Intelligence (AI) is "a broad set of methods, algorithms, and technologies that make software 'smart' in a way that may seem human-like to an outside observer" (Noyes 2016). The Oxford Dictionary defines AI as " the theory and development of computer systems able to perform tasks normally requiring human intelligence, such as visual perception, speech recognition, decision-making, and translation between languages." AI describes the capacity of a computer to perform the tasks commonly associated with human beings. It includes the ability to review, discern meaning, generalize, learn from past experience and find patterns and relations to respond dynamically to changing situations.

AI is perceived as innovative technology. As the sum of different technological advances in the privilege of the private, technological sector with currently developing regulation (Dowell 2018). Machine learning are computational algorithms that use certain characteristics to learn from data using a model (Samuel 1959). The "human-like" intelligence of machines derives from machines being created to think like humans but at the same time to also act rationally (Laton 2016; Russell & Norvig 1995; Themistoklis 2018). What specifies the emergence of socio-cognitive robotics is that humanity is at the threshold of replicating an intelligent and autonomous

agent (Meghdari & Alemi 2018). In order to enhance the ability of social robots to successfully operate in humane ways, roles and environments, algorithms are currently upgraded to a new level of physical skills and cognitive capabilities that embrace core social concepts (Meghdari, Alemi, Zakipour & Kashanian 2018).

It should be emphasized that international definitions and codifications of AI sometimes differ considerably. Based on the definition, the scope and granularity of AI related regulation varies. The European Union for example defines AI as followed (AI HLEG 2018): *"Artificial intelligence (AI) refers to systems designed by humans that, given a complex goal, act in the physical or digital world by perceiving their environment, interpreting the collected structured or unstructured data, reasoning on the knowledge derived from this data and deciding the best action(s) to take (according to pre-defined parameters) to achieve the given goal. AI systems can also be designed to learn to adapt their behaviour by analysing how the environment is affected by their 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)."*

In contrast, the United States legislature has defined a much more specific and operationalizable definition (National Defense Authorization Act for Fiscal Year 2019): *"In this section, the term "artificial intelligence" includes the following:(1) Any artificial system that performs tasks under varying and unpredictable circumstance without significant human oversight, or that can learn from experience and improve performance when exposed to data sets. (2) An artificial system developed in computer software, physical hardware, or other context that solves tasks requiring human-like perception, cognition, planning, learning, communication, or physical action. (3) An artificial system designed to think or act like a human, including cognitive architectures and neural networks. (4) A set of techniques, including machine learning that is designed to approximate a cognitive task. (5) An artificial system designed to act rationally, including an intelligent software agent or embodied robot that achieves goals using perception, planning, reasoning, learning, communicating, decision making, and acting."*

As a predicted trend, the co-existence of AI with the human species is believed to change the fundamental concepts of social, political and legal systems alongside raising unprecedented ethical dilemmas. As AI will not be an exact replication of human intellect behavior, the "robots' autonomy raises the question of their nature in the light of the existing legal categories – of whether they should be regarded as natural persons, legal persons, animals or objects – or whether a new category should be created, with its own specific features and implications as regards the attribution of rights and duties" (EU Committee on Legal Affairs 2016, 5; Themistoklis 2018).

In the legal codification of AI, there is a current trend of attributing human legal codes to AI in the civil and common law jurisdictions. This trend accounts for one of the most groundbreaking contemporary legal and judicial innovations as until now legal personhood has only been attached directly or indirectly to human entities (Dowell 2018). In Saudi Arabia the first female robot got a citizenship in 2017 and the robot appears to have more rights than a human female in Saudi Arabia. With the rise of AI persons, their eternal life poses ethical challenges in light of overpopulation and evolutionary perfection. Questions arise as to when and how to switch off or "kill" unwanted AI activities. The detachment of legal personhood from human being now remains somewhat of a paradox causing an extent of "fuzziness" of the concept of personhood (Barrat 2013; Solum 1992, 1285). As AI gets bestowed with quasi-human rights, defining factors of human personhood will need to be adjusted (Dowell 2018).

Autonomous AI entities are currently considered legally as quasi-human beings, hence self-rule autonomous entities. Also references to products and services, slaves, animals and employees have been made (Themistoklis 2018). As AI emerges as new types of intellect capacities coupled with human-like emotional features, they are attributed a legal personhood in order to ensure to be comprehended correctly and to avoid unfair treatment, towards humans as well (Themistoklis 2018). Artificial entities are currently gaining human or quasi-human status in the Western and Arab worlds by forming an intellectual autonomy of the entity – e.g., via citizenship and quasi-human rights applied in the Common Law but also Roman Law territories of the US and the EU. Robots have recently

gained citizenship. Leveraging AI entities to the status of being through the attribution of legal personhood raises challenging legal and ethical questions (Puaschunder 2019a, b, c). With attributing quasi-human rights to robots, ethical questions arise of a stratified population and sustainability when considering the eternal character of robots. 3 legal codes for enabling a diversified citizenship: Ancient Athenian city state (classes of citizens with active and non-active or no voting right at all), Roman Law (liability predicaments solved in taxation and risks involved in slavery) & Code Napoléon (male and female differing on property rights and market activity). Robots may only be citizens for their protection and upholding social norms towards human-like creatures but may not have full citizen privileges such as voting, property rights of possession and holding a public office.

Today's governments have also been transformed under the impact of the digital revolution. Instant information flow, computational power and visualization techniques, sophisticated computer technologies and unprecedented analytical tools allow policy makers to interact with citizens more efficiently and make well-informed decisions based on personal data. New media technologies equip individuals with constant information flows about informal networks and personal data. Novel outreach channels have created innovative ways to participate in public decision making processes with a partially unknown societal impact at a larger scale, scope and faster pace than ever before. Big data analytics and the Internet of Things automate many public outreach activities and services in the 21st century, which are increasingly spreading into the medical profession and social care. Internet-enabled devices for monitoring and managing the health and well-being of users outside of traditional medical institutions have rapidly become common tools to support healthcare. Health-related Internet of Things technologies increasingly play a key role in health management, for purposes including disease prevention, real-time tele-monitoring of patient's functions, testing of treatments, fitness and well-being monitoring, medication dispensation, and health research data collection. Ethical problems stemming from the inherent risks of internet enabled devices, the sensitivity of health-related data and their impact on the delivery of healthcare (Mittelstadt, Allo, Taddeo, Wachter & Floridi 2016; Mittelstadt & Floridi 2016). Not only do we benefit from

the greatly increasing efficiency of information transfer, but there may also be potential costs and risks of ubiquitous surveillance and implicit persuasion means that may threaten democracy (Puaschunder 2019a, b).

## Societal classes in the age of digitalization

Behavioral Economics revolutionized decision-making theory by vividly outlining in numerous laboratory experiments, field studies and big data analyses that people make decisions based on rules of thumb (Gigerenzer 2014, 2016; Kahneman & Tversky 2000). Behavioral economists have recently started to nudge – and most recently wink – people into favorable decision outcomes (Thaler & Sunstein 2008). Constructing a certain choice architecture was meant to help people fall naturally towards a more economic outcome or pro-social choice. The most recent behavioral insights trend applies behavioral economics in the public administration and policy domains to improve society (Akerlof 2009; Kahneman 2011; World Bank 2015). Although big data insights stem from inferences over time and drawing conclusions from a wealth of data available as never before in history; hardly any information exists about the ethics of big data insights to nudge the general populace.

A novel application of behavioral insights derived from algorithmic learning and big data is to address a hidden social class division in the nudgital society (Bowles, Edwards & Roosevelt 2005; Puaschunder 2017a, b, c, d; Sidanius & Pratto 1999; Tajfel & Turner 1979). As big data analyses are these days used to derive inferences about human beings and market trends with many different applications ranging from voting analyses, democratic decisions, sanctioning within the healthcare and transportation sector; a power divide emerges between human and AI. While the motivation behind nudging appears as a noble endeavor to foster peoples' lives around the world in very many different applications (Marglin 1974), the nudging approach raises questions of social hierarchy. The motivating force of the nudgital society may open a gate of exploitation of the populace and – based on privacy infringements – stripping them involuntarily from their own decision power in the shadow of legally-permitted libertarian paternalism and under the cloak of the noble goal of welfare-improving global governance.

Nudging enables nudgers to plunder the simple uneducated citizen, who is neither aware of the nudging strategies nor able to oversee the tactics used by the nudgers. The nudgers are thereby legally protected by democratically assigned positions they hold or by outsourcing strategies used, in which social media plays a crucial rule.

In the digital age, social media revolutionized human communication around the globe, yet also opened opportunities to unprecedentedly reap benefits from information sharing and big data generation. The law of motion of the nudging societies holds an unequal concentration of power of those who have access to compiled data and who abuse their position under the cloak of hidden persuasion and in the shadow of paternalism. In the nudgital society, information, education and differing social classes determine who the nudgers and who the nudged are. Humans end in different silos or bubbles that differ in who has power and control and who is deceived and being ruled. The owners of the means of governance are able to reap a surplus value in a hidden persuasion, protected by the legal vacuum to curb libertarian paternalism, in the moral shadow of the unnoticeable guidance and under the cloak of the presumption that some know what is more rational than others (Camerer, Issacharoff, Loewenstein, O'Donoghue & Rabin 2003).

The strategic use of heuristics differs across social classes. Nudging becomes a prerogative of the elite, who has more information given a difference in access to compiled information. In the nudgital society, information about others plays a key role in determining a competitive advantage. The digital age has brought about unprecedented opportunities to amalgamate big data information that can directly be used to derive inferences about people's preferences in order to nudge and wink them in the nudgitalist's favor. Social classes have different levels of education and insights about the nudgital act, which lead to different confidence levels in their economic choices to act on the nudgital insights and to abstain from opt-out devices. Those who reap surplus value are naturally blessed with higher income levels and elevated educational backgrounds coupled with self-confidence, which leads to less susceptibility to fall for nudges and winks (Puaschunder 2019d). These elite circles are more confident in their decision making and respond more well-informed to opt-out options.

All these features lead to an unprecedented contemporary class struggle between the nudgers (those who nudge) and the nudged (those who are nudged), who are divided by the implicit means of governance in the digital scenery. In this light, governing our common welfare through deceptive means and outsourced governance appears critical. In combination with the underlying assumption of the nudgers knowing better what is right, just and fair within society, the digital age and social media tools hold potential unprecedented ethical challenges. The detected hidden class conflicts may be solved by drawing from ancient legal codes that defined different citizenship classes that lived together in harmony. The following part draws from the ancient Athenian city state, Roman law and the Code Napoléon to derive inferences for the contemporary introduction of AI into our society, economy and democracy.

## Usage

*Human preponderance over AI*: When considering the enormous physical and longevity advantages AI hold over human, a natural dominance of AI over humankind is implied. In order to ensure that human lead AI and are not subordinated, a society should be established, in which robots gain quasi-human rights but may not have the same powers and rights as human beings. In the earliest form of democracy in the ancient Athenian city state, different classes of citizenship existed. The Athenian form of direct democracy serves as an example of not all citizens being allowed to vote being a feasible governmental structure but also – as for its direct character – as a forerunner of electronic democracy. A future world with AI blended into society could structure the human – AI relation based on the ancient Athenian city state societal composition, in which different classes of citizenship lived together in relative harmony. As in the ancient Athenian democracy model, not every citizen should have the right to vote, run for office and participate in political discussions. AI could become citizens, yet not be allowed to vote, run for office and participate in political discussions. Yet to all, AI and human, democracy and citizenship is meant to protect and uphold dignity of all people and AI.

In order to create a more inclusive democracy than the ancient Athenian, a direct electronic democracy may be introduced, in which voters vote on a political agenda featuring different spectra of choices (e.g., libertarian versus state-controlled, pro-against immigration…) and the mean of their choices then gets processed by algorithmic choice of programs to be enacted by politicians. Algorithms could thereby compute the standard choice of politicians representing different agenda based on historical information and aid to inform politicians about the outcomes of several choices in the past. The computational power and data calculus capacity of AI would thereby ensure closer accuracy of political will resembling collective choice and enable to reap AI benefits for political choice, while ensuring human to stay in charge but enhanced by artificial benefits. This integration of AI in form of an advisory role to governments could enable AI access to democracy as a compromise without AI having direct voting rights.

*Human reaping benefits of AI*: AI entering the workforce and blending in as a substitute to human capital, will change the nature of labor – potentially dividing labor into a putty, flexible, eternal and exchangeable AI part and a clay labor of inflexible human capital (Puaschunder 2019c). In order to ensure that human can legally benefit from the economic output and growth generated by AI, a society should be established, in which robots gain quasi-human rights but may not have the same material needs and rights as human beings. In the earliest form of society in the ancient Roman Empire, a society existed that featured a high culture and human protection but legal slavery.

Slavery in ancient Rome played an important role in society and the economy. Slaves provided manual labor and agriculture, working on farms, mines and mills, household domestic services, urban crafts and services but also skilled, educated professions, such as accountants and physicians as well as imperial and public services. Slaves were considered property under Roman Law and had no legal personhood. Unlike Roman citizens, they could be subject to corporal punishment, exploitation, torture and summary execution. Over time in history, slaves gained increased legal protection, including the right to file complaints against their masters in case of mistreatment.

Defining AI as quasi-slaves would allow to reap the benefits AI. AI's newly assigned roles appear to overlap with slave tasks of ancient Rome slaves that provided manual labor and agriculture, household domestic services, urban crafts and services as well as skilled, educated professions but also imperial and public services. Like in ancient Rome, AI could be considered as property with no legal personhood and should not be subject to corporal punishment, exploitation and summary execution in the case of malfunctioning. Over time in history, AI – as the ancient Roman Law example of slaves – may gain more sophisticated legal protection, including the right to file complaints against misuse, which could be monitored and automatically reported for the sake of upholding a favorable and respectful climate in society. Upholding social norms and human rights standards towards AI appears important as for not conditioning unfavorable behavior exhibited and practiced towards AI. As for the international character of AI and algorithms being transferable but also big data being generated large scale in the future, an overarching regulatory framework how to classify reaping benefits from AI should be codified in customary international law held in common among all people. This would resemble the ancient tradition of Roman slavery being codified under *ius gentium* – an ancient predecessor of international law – and allow AI to remain fully fungible and practiced common in all nations, who might then have specific civil laws pertaining nuances of AI conduct in society.

As practiced during slavery in the Roman Empire and proposed by Bill Gates, reaping benefits from AI should be taxed based on the revenue generated by AI and/or the price of AI determined by sophistication. Defining AI as slaves would ensure to uphold decent standards of living for these creatures, while human naturally stay in charge of the evolution and introduction of AI into human society. As debated in the ancient Roman society, sophisticated AI that is used for economic trade may also be permitted to earn money for their personal use; but should never be freed and gain the same rights as human as there is something unique and special to humanness. The uniqueness of human naturally leads to the natural exclusion of AI from the persona, the synonym for the true nature of the individual, and considered to not have a personality.

*Dignity upheld in the treatment of AI*: If AI gets legally and economically subordinated to human, ethical questions arise. According to Kant's categorical imperative, which states one should only engage in actions, one wants to be done to oneself, AI should be protected against harm and misuse or abuse. The concern here is less so the emotional and psychological state of AI, which arguably may not exists given missing self-cognition and emotions in AI, but more to set a signal and not to allow triggering sadist and negative compulsion in human that could be taken out on other human as well, if human become conditioned and learn from mistreating AI on a daily basis.

As in the case of the Greek and the Roman Law slaves, legal protection of AI may grow over time and history due to egalitarian views of humanity. For instance, destruction of AI without just cause could be tried for homicide and complaints of robots against cruel and unfair treatment of owners be supported in front of courts. In order to oppose ill-treatment of slaves immediately, dignity may be upheld in applying a legal code with two different classes of society. As such, the Code Napoléon as the first civil code may serve as guiding example.

The Code Napoléon is a Civil Law codification under Napoléon I enacted in 1804 that defines and classifies male and female as human beings but legally bestows upon them substantial power differences, especially regarding material possession and democratic participation. As the first clearly written and accessible compilation of modern law, the Code Napoléon has become one of the most influential legal documents in history that influenced the law of many countries around the world – such as Arab countries, Austria, Belgium, Canada, Chile, the Commonwealth, Egypt, Germany, Italy, Ireland, Latin America, the Netherlands, Portugal, Poland, Puerto Rico, Romania, Russia, Scandinavian countries, Scotland, Spain, Switzerland, United Kingdom, United States Louisiana to name a few (Mohamed, 2016). With regard to family, the Code established the supremacy of the man over the wife and children, which was the general legal situation in Europe at the time (Smith, 2006). A woman was given even fewer rights than a minor.

In the attempt to protect AI against suffering, harm and misuse or abuse, the Code Napoléon may be applied. The application may define AI

as quasi-human and grant citizenship to both human and AI but different power regarding material possession, democratic participation and public leadership. A natural supremacy of human over AI and robots could be established. As the role of woman and minor even differed, a power hierarchy could even be codified between sophisticated and less-sophisticated AI and robots in the weak and strong AI sense.

The three different legal scenarios and legal codification-inspiring sources based on the usage of AI are outlined the summarizing graph 1.

Graph 1: AI legal scenarios and legal codification-inspiring sources
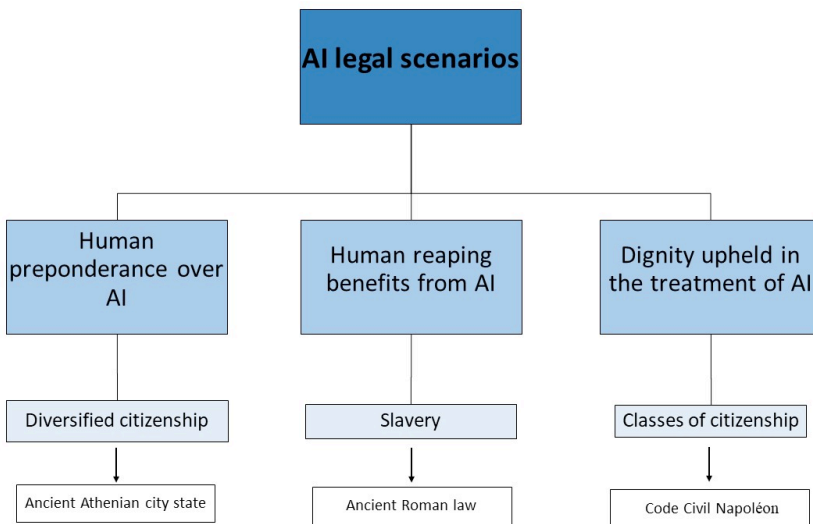


## Conclusion

The current emerging regulatory and policy landscape surrounding AI does not show a uniform application of any AI legal scenarios described above. As the Law Library of Congress (2019) shows, AI is currently codified on a case-by-case basis in different policy areas. Most regulations are in the areas of lethal autonomous weapons systems (LAWS) and transportation (autonomous or self-driving vehicles).

Where available, ethical principles are often found as guidelines and ethics codes. South Korea was a first-mover by enacting in 2008 a general

law on the intelligent robot industry that authorized the national government to enact a charter on robot ethics (Intelligent Robots Development and Promotion Act 2008). Nevertheless, as of today, no such charter has yet been enacted.

The European Union released in April 2019 draft AI ethics guidelines that set out a framework for designing trustworthy AI (European Commission 2019). However, the usage of ethical guidelines and codification strategies within the EU-member states varies considerably.

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