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A Comparative Perspective on the Future of Law in a Time of Artificial Intelligence

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Abstract

The article explores the impact of AI on legal systems globally. It highlights how technology, particularly AI, disrupts social order and power dynamics, necessitating legal adaptations. The document categorizes global AI regulatory responses into four types: no response, reliance on existing tech regulations, fragmented solutions, and unified approaches. The European Union (EU) has adopted a unified approach with the Artificial Intelligence Act (AIA), aiming to harmonize AI rules, address risks, and stimulate AI development. The United States employs a piecemeal approach with the National Artificial Intelligence Act of 2020 and various state laws and executive orders. Australia lacks specific AI legislation, but it has an AI Action Plan focusing on economic benefits and talent development. South Africa's National AI Policy Framework emphasizes economic transformation and social equity. The African Union's Continental AI Strategy aims for socio-economic transformation while addressing AI risks. Canada has a Voluntary Code of Conduct and a proposed Artificial Intelligence and Data Act (AIDA). The document critiques current AI regulations for incomplete definitions and a lack of focus on the broader societal purpose of AI. It stresses the need for regulations to consider ethical dimensions and societal impacts. The document concludes that AI regulation must balance innovation with social order, human dignity, and safety, emphasizing the urgent need to address AI's energy and water consumption to prevent potential global instability.

Keywords

artificial intelligence; technologies; development; policy, regulation; ethical use.

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Introduction

Over the past 5,000 years, humans have created a world which is extremely rich in diversity. Often, though, events, places and things that appear completely unrelated, are deeply connected at a hidden level. We can truly ask, what do the Greek Empire, the Roman Empire, the Inca Empire, the British Empire, the Great Wall of China, paved roads, ships, the Greco-Persian wars, the Franco-Prussian War, the Anglo-Boer War, the First World War, the Second World War, telegraphs lines, railway lines, bicycles, aeroplanes, the Space Race, professional sports, celebrity weddings, celebrity sex scandals and stock exchanges have in common? Quite a lot actually. All of these relate to the value of information and the ability to make swift informed decisions based on the best available information.

When the Soviet Union has launched Sputnik, Lyndon B. Johnson, who was the Senate Majority Leader at the time and later President of the United States of America, remarked: "Whoever controls the high ground of space controls the world. The Roman Empire controlled the world because it could build roads. Later, the British Empire was dominant because they had ships. In the Air Stage, we were powerful because we had the airplane. And now the Soviet Union have established a foothold in outer space".[1]

While many people at that time were concerned that space could be used to deploy weapons, Johnson understood that the ability to launch satellites would have a profound effect on the way in which we communicate and on the way in which we gather, process and disseminate information. In less than two centuries, humans have moved from messages via dispatch runner, stage coach or mail ship, to instantaneous transmission of data via satellite link.

[1] Lyndon B. Johnson. AZQuotes.com. Available at: https://www.azquotes.com/quote/1059545 (accessed: 01.03.2025)

Throughout human history, technology has always been a big disruptor that has impacted on social order and the dynamics of power. Technology has always allowed some humans to work smarter and be more productive, giving them the competitive edge over those that are slow to adapt. But every new technology has also harboured the potential for unimaginable harm and destruction [Hopster J., 2021: 1 *et seq*].

Artificial Intelligence (AI) is no different. We currently live in the disruptive moment precipitated by AI as new technologies have suddenly become freely accessible by consumers across the globe. The law is primarily a reactive phenomenon which always tends to follow technological innovation and disruption. As a result, the disruptive moment constitutes a thesis in the Hegelian sense [Berenson F., 1982: 77 *et seq*], that introduces legal uncertainty, legal gaps, loopholes and obsolescence of laws. By necessity, this thesis highlights the disruptive nature of AI and spawns an antithesis of legal review and legal development that will eventually result in the synthesis of a revised legal and social order with new social and legal environment with revised social relationships, organisational structures, institutions, policies and laws [Hopster J., 2021: 2].

While technology has always been disruptive, the main difference that we face in this current disruptive moment precipitated by AI, is the explosive pace at which technology develops [Cloete F., 2024: 1]. While jurisdictions across the globe are scrambling to deal with the legal challenges posed by AI, the risk is that technology is now developing at such a pace that legal measures to deal with AI could be too vague, inadequate or obsolete before it has even been implemented.

Therefore, in this article, I will firstly consider and give a high-level overview of legal measures that have already been adopted or introduced in selected jurisdictions across the globe in an attempt to deal with the disruptive effect of AI. Secondly, I will consider the shortcomings of current legislative and policy initiatives in dealing with changing technology. And thirdly, I will consider whether the disruptive moment precipitated by AI truly poses new challenges to the law, or whether there are historical perspectives that can provide some guidance for the future of the law with AI.

1. AI Regulation across the Globe

The response to AI in various jurisdictions may be classified into four categories: jurisdictions that have not yet responded to AI and similar technologies, jurisdictions that have not responded to AI specifically, but rely on existing measures aimed at regulation of technology; juris-

dictions that follow fragmented piecemeal solutions to different challenges posed by AI, and lastly jurisdictions that seek to introduce a unified approach to the regulation of AI.

1.1. European Union

The European Union (EU) seems to have opted for the unified approach and approved the Artificial Intelligence Act[2] (AIA) to create harmonised rules for AI in the EU market, seeks to address the potential risks associated with AI, prohibits or restricts the use of certain AI systems, provides transparency rules for certain AI systems and seeks to stimulate development of further AI technologies.

The complexity of the task to regulate AI in a comprehensive unified way, is reflected in the preamble to the AIA, which contains 180 recitals setting out the rationale, aims and objectives of the AIA. The preamble begins by explaining the need to lay down uniform rules for the internal market for the adoption and use of trustworthy AI systems while protecting health, safety, fundamental rights, including democracy, the rule of law and environmental protection.[3] Very importantly, the preamble recognises some member states of the EU had begun to explore regulation of AI and raises the concern that diverging national rules on AI may lead to fragmentation of the internal market and hamper the free circulation, innovation, deployment and uptake of AI systems within the common market. This fragmentation should be prevented by laying down uniform obligations for operators and guaranteeing the uniform protection of overriding reasons of public interest and of rights of persons throughout the internal market.[4] Despite the references to health, safety and protection of human rights, the *raison d'être* of the AIA is quite clearly the protection of the internal market and, by implication, the global competitiveness of the EU member states in the global economy.

Nonetheless, there is a significant focus on the potential risks that unregulated AI can pose for society. The European Parliament has distinguished between AI applications that pose unacceptable risks, AI sys-

[2] See: Artificial Intelligence Act, Regulation (EU) 2024/1689 of the European Parliament and of the Council of 13 June 2024 laying down harmonised rules on artificial intelligence and amending. Regulations (EC) No 300/2008, (EU) No. 167/2013, (EU) No/ 168/2013, (EU) 2018/858, (EU) 2018/1139 and (EU) 2019/2144 and Directives 2014/90/EU, (EU) 2016/797 and (EU) 2020/1828.

[3] Para 1.

[4] Para 3.

tems that pose high risk and AI systems that pose low risk. The AIA therefore prohibits certain AI practises, such as subliminal manipulation or deception, systems that exploit vulnerabilities of certain groups due to their age, disability or economic situation, AI systems that evaluate or classify natural persons for detrimental or unfavourable treatment, AI systems that predict risks of persons committing criminal offences, as well as certain biometric AI systems and face and mood recognition systems.[5] In addition, the AIA refers to high-risk AI systems. These relate mostly to machinery, equipment and toys that incorporate AI, as well as applications used in education, employment, access to essential services, law enforcement, migration and border control, and administration of justice and democratic processes.[6]

The AIA also imposes transparency obligations to ensure that natural persons who interact with AI are informed of such interaction and that synthetic or manipulated audio, image, video and text content that are generated by AI can be identifiable as such.[7]

An important governance element of the AIA is the establishment of the European Artificial Intelligence Board which consists of one representative for each member state.[8] While it is a requirement that designated members should have "the relevant competences and powers in their Member States so as to contribute actively to the achievement of the Board's tasks", this requirement is, perhaps deliberately, vague and political considerations are bound to outweigh considerations of social responsibility, accountability and safety in the designation of board members by member states. This risk is to some extent offset by the establishment of an Advisory Forum of Stakeholders[9] and the establishment of a Scientific Panel of Independent Experts[10] to advise the Board and the European Commission on matters relating to AI.

1.2. United States of America

In stark contrast to the European Union, the United States has, even at a federal level, opted for a piecemeal approach, with various legisla-

[5] Art. 5.

[6] Art. 6, read with Annex I and Annex II.

[7] Art. 50.

[8] Art 65.

[9] Art 67.

[10] Art 68.

tive and policy measures, as well as executive orders that deal with various matters relating to AI. The primary legislative instrument is the National Artificial Intelligence Act of 2020 (hereinafter NAIIA).[11] In terms of this act, the President must establish the National Artificial Intelligence Initiative to ensure continued US leadership in AI research and development, lead the world in development and use of trustworthy AI systems, prepare the US workforce for integration of AI systems across all sectors of the economy and coordinate ongoing AI research and development of AI among US government agencies and departments.[12]

The NAIIA provides for the establishment of a National Artificial Intelligence Initiative Office[13] and an Interagency Committee[14] by the Office of Science and Technology Policy, while the Secretary of Commerce must establish a National Artificial Intelligence Advisory Committee.[15] Provision is further made for the National Science Foundation to establish a National AI Research Resource Task Force "to investigate the feasibility and advisability of establishing and sustaining a National Artificial Intelligence Research Resource".[16]

In addition to the NAIIA, there are also currently more than 50 bills before the US House of Representatives and Senate dealing with various matters, including maintenance of US dominance on AI research and development, intellectual property and publicity rights, transparency, healthcare, financial services and consumer protection.

Furthermore, both Presidents Trump and Biden have issued executive orders relating to AI. These include the Executive Order on Maintaining American Leadership in Artificial Intelligence[17] and Executive order on the Use of Trustworthy Artificial Intelligence in the Federal Government,[18] as well as the Executive Order on Safe, Secure, and Trustworthy Development and Use of Artificial Intelligence,[19] which was repealed by the Executive Order on Removing Barriers to Ameri-

[11] 15 U.S.C. 9401.

[12] § 9411.

[13] § 9412.

[14] § 9413.

[15] § 9414.

[16] § 9415.

[17] Executive Order 13859 of 11 Feb. 2019.

[18] Executive Order 13960 of 3 Dec. 2020.

[19] Executive Order 14110 of 30 Oct. 2023.

can Leadership in Artificial Intelligence.[20] The hands of powerful lobby groups driven by technology billionaires, who would be defined as oligarchs in any other context, are clearly evident in these executive orders as policies would promote an environment which is conducive to the interests of technology companies for the research, development and dissemination of AI and related technologies, while the risks associated with the unregulated and unrestricted development of AI seem to be glossed over.

Apart from Federal measures, various states have also enacted state legislations dealing with various matters, such as interdisciplinary collaboration to promote the design, development and use of AI,[21] protection from unsafe or ineffective systems,[22] data privacy,[23] transparency,[24] protection from discrimination[25] and accountability of those developing and deploying AI systems.[26]

1.3. Australia

While Australia has no specific legislation dealing with AI, the Australian government has released a policy framework titled *Australia's AI Action Plan* in June 2021.[27] The strategic vision calls for the broad adoption of AI and touts the potential benefits for the Australian economy in doing so. The action plan calls for the introduction of AI direct mea-

[20] Executive Order 14179 of 23 Jan. 2025.

[21] Illinois (HB 3563, 2023); New York (AB A4969, 2023, SB S3971B, 2019); Texas (HB 2060, 2023); Vermont (HB 378, 2018).

[22] California (AB 302, 2023); Connecticut (SB 1103, 2023); Louisiana (SCR 49, 2023); Vermont (HB 410, 2022).

[23] California (AB 375, 2018); Colorado (SB 21-190, 2021); Connecticut (SB 6, 2022); Delaware (HB 154, 2023): Indiana (SB 5, 2023); Iowa (SF 262, 2023); Montana (SB 384, 2023); Oregon (SB 619, 2023): Tennessee (HB 1181, 2023); Texas (HB 4, 2023); Virginia (SB 1392, 2021).

[24] California (SB 1001, 2023): Illinois (HB 2557, 2019); Maryland (HB 1202, 2020); New York City (2021/144, 2021).

[25] California (SB 36, 2019); Colorado (SB 21-169, 2021); Illinois (HB 0053, 2021).

[26] California (AB 375, 2018); Colorado (SB 21-190, 2021); Connecticut (SB 6, 2022); Delaware (HB 154, 2023); Indiana (SB 5, 2023); Iowa (SF 262, 2023); Montana (SB 384, 2023); Oregon (SB 619, 2023); Tennessee (HB 1181, 2023); Texas (HB 4, 2023); Virginia (SB 1392, 2021); Washington (SB 5092, 2021).

[27] Australia's AI Action Plan. Available at: https://wp.oecd.ai/app/uploads/2021/12/Australia_AI_Action_Plan_2021.pdf (accessed: 01.03.2025)

sures to unlock the potential of AI, establishment of programs and incentives that drive the growth of technology and digital skills, as well as adoption of policies that support business, innovation and the Australian economy, to drive the development of AI.

The action plan identifies four focus areas:

Focus one: Developing and adopting AI to transform Australian businesses.

Focus two: Creating an environment to grow and attract the world's best AI talent.

Focus three: Using cutting edge AI technologies to solve Australia's national challenges.

Focus four: Making Australia a global leader in responsible and inclusive AI.

Although the Minister's Foreword states that the "plan will ensure AI is used and developed to practically improve our lives, guided by appropriate security and ethical considerations",[28] the action plan is remarkably silent about the risks posed by unregulated and uncontrolled development and deployment of AI systems.

1.4. South Africa

The South African National Department of Communications and Digital Technologies published its *South Africa National Artificial Intelligence Policy Framework* in August 2024.[29] This policy document is unique in that it identifies present states of technological development, economic necessity, social demands and global trends in AI governance that are shaped by historical challenges relating to a digital divide, part inequities, institutional inertia and outdated regulatory frameworks, to set a future vision of economic transformation, social equity, sustainable development and global leadership through responsible adoption of AI.

The policy document identifies nine pillars on which future AI regulation and policies should be based: talent and capacity development; digital infrastructure; research, development and innovation; public

[28] Idem. P.1.

[29] South Africa National Artificial Intelligence Policy Framework. Available at: https://techcentral.co.za/wp-content/uploads/2024/08/South-Africa-National-AI-Policy-Framework.pdf (accessed: 01.03.2025)

sector implementation; ethical AI guidelines development; privacy and data protection; safety and security; transparency and explainability; fairness and mitigating bias.

1.5. African Union

The African Union has approved the *Continental Artificial Intelligence Strategy* in August 2024.[30] The strategy identifies the potential that AI holds for socio-economic transformation of Africa by creating jobs, improving service delivery, advancing agriculture, education and health, promoting access to information, protecting the environment and sustainable exploitation of natural resources. However, the strategy also warns that AI holds inherent risks relating to input/output bias, potential for discrimination against vulnerable groups, job displacement, the effect on indigenous knowledge, disinformation, data privacy, surveillance and copyright violations.

The strategy calls for five strategic objectives to be achieved:[31]

maximising the benefits of AI trough adoption by the public and private-sectors, with particular emphasis on an AI startup ecosystem;

building capabilities for AI through research and innovation and skills development;

minimising AI risk by setting AI safety and security standards and promoting inclusivity and diversity in AI;

promoting African private and public sector investment in AI;

regional and international cooperation and partnerships.

1.6. Canada

The Canadian government has introduced the *Voluntary Code of Conduct on the Responsible Development and Management of Advanced Generative AI Systems* in September 2023.[32] This code requires devel-

[30] Continental Artificial Intelligence Strategy. Available at: https://au.int/sites/default/files/documents/44004-doc-EN-_Continental_AI_Strategy_July_2024.pdf (accessed: 01.03.2025)

[31] Idem. P. 18.

[32] Voluntary Code of Conduct on the Responsible Development and Management of Advanced Generative AI Systems. Available at: https://ised-isde.canada.ca/site/ised/en/voluntary-code-conduct-responsible-development-and-management-advanced-generative-ai-systems (accessed: 01.03.2025)

opers and managers of advanced generative AI systems to achieve six outcomes:

accountability and appropriate risk management;

safety;

fairness and equity,

transparency;

human oversight and monitoring;

validity and robustness to ensure that systems operate as intended.

Canada has also introduced the proposed Artificial Intelligence and Data Act (AIDA) as a bill before the Canadian parliament. If passed, this measure would introduce requirements for businesses to ensure the safety and fairness of high-impact AI systems in the design, development and deployment stages.

2. Shortcomings of Current Regulation

2.1. Incomplete definitions

It is notoriously difficult to define AI in a clear, uniform and consistent way [Sheikh H. et al., 2023: 15]. The difficulties in clearly determining and defining the purpose of AI in the sense explained above, as well as the conceptual difficulties that arise from the category mistakes mentioned by Sanguinetti,[33] simply adds to the confusion. Most regulators have thus far opted for some form of task-based definition. In other words, AI systems are defined as systems that follow a certain process to achieve a particular result.

The EU AIA defines[34] "AI system" as "a machine-based system that is designed to operate with varying levels of autonomy and that may exhibit adaptiveness after deployment, and that, for explicit or implicit objectives, infers, from the input it receives, how to generate outputs such as predictions, content, recommendations, or decisions that can influence physical or virtual environments".

In the United States, the NAIIA[35] provides that "'artificial intelligence' means a machine-based system that can, for a given set of hu-

[33] Supra.

[34] Art. 3(1).

[35] § 9401 (3).

man-defined objectives, make predictions, recommendations or decisions influencing real or virtual environments. Artificial intelligence systems use machine and human-based inputs to

A. perceive real and virtual environments;

B. abstract such perceptions into models through analysis in an automated manner; and

C. use model inference to formulate options for information or action.

In terms of the California AI Transparency Act,[36] "'Artificial intelligence' or 'AI' means an engineered or machine-based system that varies in its level of autonomy and that can, for explicit or implicit objectives, infer from the input it receives how to generate outputs that can influence physical or virtual environments".[37]

The Colorado Artificial Intelligence Act[38] defines "artificial intelligence system" as "any machine-based system that, for any explicit or implicit objective, infers from the inputs the system receives how to generate outputs, including content, decisions, predictions, or recommendations, that can influence physical or virtual environments".[39]

The proposed Canadian AIDA defines[40] "artificial intelligence system" as "a technological system that, autonomously or partly autonomously, processes data related to human activities through the use of a genetic algorithm, a neural network, machine learning or another technique in order to generate content or make decisions, recommendations or predictions".

Australia's AI Action Plan[41] explains that "AI is a collection of interrelated technologies that can be used to solve problems autonomously and perform tasks to achieve defined objectives. In some cases, it can do this without explicit guidance from a human being ... AI is more than just the mathematical algorithms that enable a computer to learn from text, images or sounds. It is the ability for a computational system to sense

[36] SB-942.

[37] § 22757.1. See also AB-2013 Generative artificial intelligence: training data transparency, which contains exactly the same definition in § 3110.

[38] SB 24-205.

[39] § 6-1-1701.

[40] Sec 2.

[41] Supra p. 4.

its environment, learn, predict and take independent action to control virtual or physical infrastructure".

This is perhaps why the African Union *Continental Artificial Intelligence Strategy*[42] explains that there "is no universal definition of Artificial Intelligence. Within the framework of this Strategy, AI refers to computer systems that can simulate the processes of natural intelligence exhibited by humans where machines use technologies that enable them to learn and adapt, sense and interact, predict and recommend reason and plan, optimise procedures and parameters, operate autonomously, be creative and extract knowledge from large amounts of data to make decisions and recommendations for the purpose of achieving a set of objectives identified by humans".

What is most likely, is that definitions of AI will develop over time to account for more specific applications of AI and to ensure that such specific uses of AI are properly regulated. Having a comprehensive all-encompassing definition of AI at this time may be as helpful for future regulation of AI, as a proper definition of "internal combustion engine" may have been for the regulation of transportation and related industries in the 20th century.

2.2 The purpose of AI

If comprehensive definition of AI is not currently possible or feasible, the regulation of AI should be guided by another fundamental principle. The legislative, policy and framework instruments that have been developed to address the disruptive moment precipitated by AI, all seem to be derived primarily from an economic concern and the fear that failure to promote the adoption of AI, will leave a particular country or region at an economic disadvantage when compared to countries or regions that foster research, development and deployment of AI. There is an inherent risk that this economic focus "may spark a race among commercial and national superpowers to build the most powerful AI system. There is a legitimate fear that a "winner-takes-all" approach may result in a poverty of options for consumers and could lead to a concentration of power or even geopolitical unrest"[43] AI regulation should not focus only on governance of AI research, development and deployment, but must

[42] Supra p. 14.

[43] Dentons Global Team. The Future of Global AI Governance. In: IBA Annual Conference — 2023. Paris—Washington. P. 5.

also include governance of the AI systems themselves, as well as the networks, systems and devices on which they operate.[44] In short, current regulatory measures appear to emanate from very specific premises and may therefore prove to be inadequate to deal with challenges posed by AI in the medium to longer term as technology continues to develop.

While most of these instruments acknowledge the potential risks posed by unbridled adoption of AI, none of the measures introduced thus far, seem to consider the purpose of AI in the broader teleological sense of the word. Purpose in this sense is not restricted to the immediate aim which the developer of an AI system wishes to attain, but refers rather to broader societal values and norms and the way in which AI systems would impact on the fabric of society. A teleological approach is based on the individual's realisation of justice. Values beyond the legislative texts or policy documents therefore have an influence on the purpose of AI in this sense. As a result, purpose in the teleological sense has an ethical dimension which requires the consideration of moral issues and justice [Devenish G.E., 1992: 44–47]. Any attempt to regulate AI through legislation or policy should therefore be premised on the question of purpose.

This question should firstly be concerned with the expression "artificial intelligence" itself and whether it serves any useful or legitimate purpose. The expression has its roots in a proposal made in August 1955 to host a study of artificial intelligence during the summer of 1956 at Dartmouth College, New Hampshire. The proposal was based on the premise that every aspect of learning or any other feature of intelligence can in principle be so precisely described that a machine can be made to simulate it. The proposal was that a machine could be made to behave in ways that would be called intelligent if a human behaved in the same way. [McCarthey J. et al., 2006: 12]. In this regard, one has to agree with Floridi and Cowls when they state: "This is a counterfactual: were a human to behave in that way, that behaviour would be called intelligent. It does not mean that the machine is intelligent, or even thinking. The latter scenario is a fallacy, and smacks of superstition. Just because a dishwasher cleans the dishes as well as (or even better than) I do does not mean that it cleans them like I do, or needs any intelligence to achieve its task". In other words, the mere fact that a machine can perform tasks that would otherwise require human intelligence and intervention to be performed successfully, does not make the machine intelligent [Floridi L. and Cowls J., 2019: 4]. The term was coined by researchers who

[44] Idem. P. 6.

were looking for a catchy label that would attract funding,[45] and undoubtedly this motive in the use of the expression remain as valid today for both researchers and technology companies, as it was when it was first coined. The idea of creating machines that are more intelligent than mankind has appealed to humans since the earliest times and stories of "intelligent machines" have played on the imagination from ancient mythologies to modern science fiction.

Sanguinetti[46] refers to the expression "artificial intelligence" as a category mistake, much in the same as considering the physical campus, buildings and facilities to be a university is a category mistake. He explains that "'artificial intelligence' generates a category mistake of at least three kinds:

1. Discipline vs. entity: 'Artificial intelligence' is a discipline, a field of study, but the term is sometimes used with the indefinite article as if it were an individual, countable entity. For instance, phrases like 'An AI designs materials...' confuse a discipline with a tangible being, akin to saying 'a medicine cures a tumor'.

2. Aspiration vs. reality: The term originally described an aspiration, a goal to be achieved in the distant future. Today, it is often used as if such intelligence already existed, as an already accomplished task. In 1955, the name denoted a promise, not an achievement. This is still true today.

3. Tool vs agent: The term contributes to anthropomorphizing AI, confusing a tool with an agent, a piece of software with a being with its will, desires, and ideas. This is easy to see in the positioning of AI as the subject of the sentence, replacing the real agents of the action (humans who have used AI as a tool to do something), like in: 'AI discovers...'

The name 'artificial intelligence' also fosters a more subtle but equally powerful misconception. Namely, that AI systems not only do the same things as humans, but do them in the same way and according to the same internal mechanisms. This is not true. Airplanes fly, like birds, but by very different physical principles. If they were called "artificial birds", it would probably be easier to misconceive what they are and how they work. People would be more likely to discuss false, non-existent problems in aeronautics and to relegate the real ones. The same

[45] Sanguinetti P. Why the Term 'Artificial Intelligence' Is Misleading. IE Insights. Available at https://www.ie.edu/insights/articles/why-the-term-artificial-intelligence-is-misleading/ (accessed: 01.03.2025)

[46] Idem.

can be said of AI. But the activity of thinking is less visible than that of flying, and the differences between what humans and machines do in this area are therefore harder to see."

Any regulation of AI that ignores these category mistakes may not only be inadequate to address current legal concerns relating to AI, but may in fact set dangerous precedents that future generations may have to contend with. Such regulation would be as appropriate for socio-legal and socio-economic development as transportation safety regulations based on the flight of birds. The purpose in the teleological sense must define the regulation and it must proceed from a correct understanding of what AI actually is and what AI certainly is not.

Purpose in this sense also requires reflection on the objective that technological advancement is supposed to achieve in society. The sad reality is that very few technologies can honestly be said to have significantly improved the life of most humans [Vernyuy A., 2024: 62]. The first industrial revolution with its mechanisation and second industrial revolution with its electrification, produced unimaginable pollution and was based to a significant extent on some of the most exploitative labour practices in history. It produced wars and genocide on an industrial scale that saw the demise of more people than all the wars and diseases in history combined. It also created super rich industrialists who profited from factories inhumane working conditions and the sale of arms and resources to belligerents. The nuclear age brought with it the risk of destruction at an unimaginable scale. Current generations grapple with problems of climate change and the risk of nuclear holocaust is ever present. These problems will certainly not be solved in our time and future generations will continue to face the consequences of past technological developments. The risk, if AI is not properly understood and regulated in a human-centred way to improve the lives and livelihoods of humans, is that it will become yet another burden on future generations to deal with.

The current disruptive moment precipitated by AI provides a unique opportunity to learn from past mistakes and address the development and deployment of AI in a structured regulated way that would benefit the majority of humans. Floridi and Cowls propose five principles on which any future regulation of AI should be based [Floridi L. and Cowls J., 2019: 5–8].

Beneficence: The development and deployment of AI should be beneficial to humanity by promoting well-being, preserving dignity and sustaining the planet.

Non-maleficence: AI should not be misused or overused.

Autonomy: The autonomy of humans should be promoted and the autonomy of Ai systems should be restricted.

Justice: The deployment of AI should provide equal access to the benefits of technology while avoiding or at least acknowledging inherent bias in the datasets used to train AI systems.

Explicability: AI systems should be intelligible, in the sense that its processes can be understood, as well as transparent and accountable, in the sense that someone is responsible for the way in which a particular AI system works.

These five principles are certainly not unique to AI and should arguably inform the regulation of any human endeavour. While these principles should then indeed be fundamental principles on which future regulation of AI is based, it is also crucial that the category mistakes highlighted by Sanguinetti[47] should be avoided. This latter aspect may have the effect that a generalised approach to regulation of AI may prove to be inadequate in future in much the same way as a generalised regulatory approach to transportation would be inappropriate and inadequate. Sheikh et al compares the development of AI with the invention of the internal combustion engine in the 19th century [Sheikh H. et al., 2023: 333]. Neither the inventors and early developers of internal combustion engines, nor regulatory authorities at the time, could have foreseen how this invention would drastically alter all forms of transport, render existing technologies, such as horse-drawn carriages obsolete, and spawn a diverse range of industries. A single unified law on internal combustion engines would simply not have sufficed. In much the same way as regulators have had to provide policies for rail, road, air and marine infrastructure, as well as distinct regulatory measures for air, sea, rail and road transport, distinguish between passenger and freight transport, and distinguish between ordinary freight and hazardous freight, regulators may find that AI is too pervasive and the specific applications of particular AI systems are too unique to rely on a single regulatory framework. A general framework may set the initial stage for the introduction of some structure and control, but industry- or activity-specific regulation will soon be required. The use of AI as a tool in the judicial or administrative decision-making process, for instance, requires different measures from the use of AI to generate patentable designs, which in turn requires different measures from AI used to generate or process news reports.

[47] Supra.

2.3. Reflections from the past

The current disruptive moment precipitated by AI, revolves to a significant extent around the use of machines to serve the interests of humans and perform more and more tasks that humans find mundane, repetitive or difficult to do. In much the same way, the current consternation about AI and the discussions relating to the creation of "intelligent machines" are reminiscent of the ancient Roman obsession with slaves. Gaius distinguished between free men and slaves,[48] much in the same way that the debate today revolves around human intelligence and artificial intelligence.

Many people today live in fear of technology and of AI in particular. At the very least, there is a fear that AI systems will make many jobs redundant and that AI systems will be able to do many jobs that are currently reserved for humans,which will lead to increased unemployment. At the extreme, there is a fear that machines, particularly autonomous AI driven machines, will take over the world and lead to war with humans or the eventual extinction of the human race [Kim J., 2019: 9]. This fear is nothing new — the ancient Romans lived in constant fear of an uprising by slaves. This was to a significant extent the result of the high proportion of slaves per household, as well as in the overall population of Rome. As a result, many repressive measures were introduced to not only deal decisively with disobedience and uprisings when they occurred, but also to provide significant deterrence against any future contemplation of disobedience or uprising. However, the Romans also realised that that there was a close correlation between the maltreatment of slaves and the hostility of slaves towards their masters. As a result, measures were also introduced to protect slaves against maltreatment and abuse [Gamauf R., 2007: 159, 160].

In the Roman *Ius Civile* and Praetorian law, a slave was *pro nullo* — viewed not as a human with a separate identity, but as a mere possession in the same way that a horse or an ox would have been [Van den Bergh R., 2015: 361]. Cartwright[49] explains the status of slaves in Rome:

> To all intents and purposes they were merely the property of a particular owner, just like any other piece of property — a building, a chair or a vase — the only difference was that they could speak.

[48] Institutes. 1.9–11.

[49] Cartwright M. Slavery in the Roman world. 2013. Available at: https://www.worldhistory.org/article/629/slavery-in-the-roman-world/ (accessed: 18.03.2025)

This seems remarkably similar to AI systems today — they are merely the property of a particular owner, but they can "speak". A slave was therefore a means to perform work which the slave owner considered as too menial. It was also not uncommon for slaves to have specialised skills, such as weaving or writing, which could be put to good use by the slave owner. As such, the slaves of the Roman times can in many ways be compared with the machines we employ today to perform menial or highly specialised tasks.

This means that we can take some guidance from the way in which the ancient Romans regulated matters relating to slaves to provide some guidance for the future in respect of AI systems. This would be very useful in a jurisdiction such as South Africa, where the law of contract is based on Roman-Dutch common law and reference is often still made to some of the old Roman sources [Hutchinson D. et al., 2022: 11]. This particularly in view of the lack of effective regulation in South Africa which deals with AI. But it can also be of value to other jurisdictions that struggle to adapt to the challenges posed by AI. The reason is simple:

> Roman law has a lot to tell us. It forms the basis for most private law systems in use today. It is an important source for the history of concepts and ideas in western civilisation [Schermaier W. et al., 2023: 1].

So what can Roman law tell us about AI?

2.3.1. Purpose

Slavery in ancient Rome had a purpose, just as the use of AI today has a purpose. Plautus[50] explained that "a good servant, [is one] who takes care of his master's business, looks after it, arranges it, thinks about it, in the absence of his master diligently to attend to the affairs of his master, as much so as if he himself were present, or even better". Bearing in mind the risk of anthropomorphising AI, in much the same way, we can define the purpose of AI today to take care of its master's business, arrange it, think about it and attend to its master's affairs. The only pressing question would be: Who is the master? Is it a multinational technology company? Is it the person who uses an AI application for a particular purpose or outcome? These are indeed vexed questions

[50] Menaechmi. Act V. Scene IV. Translation available at: https://archive.org/stream/comediesofplautu00plau_0/comediesofplautu00plau_0_djvu.txt (accessed: 01.03.2025).

that regulators will have to address in future regulation of AI technology. When a person operates a dishwasher or a motor car, it is fairly obvious that the machine is in service of the particular operator. But when a person uses an AI application, is the AI system designed to serve the particular user? Should it be designed to serve the particular user?

2.3.2. Agency

Humans today use machines, and AI systems in particular, as agents in the broad sense, to perform work more efficiently than humans themselves can do. AI also now poses the distinct possibility that AI can be used as agent in the more specific legal sense of the word, meaning that AI can be used in a representative capacity to create legal obligations on behalf of a principal [Scott T.J. et al, 2020: 282]. The possibility that machines which are connected to the internet, can order supplies required for their proper operation without intervention of the user or operator, is nothing new. Photocopiers and printers have for some time now had the ability to monitor the level of ink or toner in the machine and automatically place an order for replacement of an empty cartridge when this becomes necessary.[51] The user or the photocopier or printer merely signs up when they install the machine and the rest is up to the machine to manage. This function, which does not require any measure of AI, will certainly be improved and expanded upon with the introduction of AI. For instance, the current function places an order when the amount of ink left on the system reaches a certain minim level. The introduction of AI systems will make it possible for the machine to not only detect the level of ink left in the system, but also to make a much more refined decision, based on various other factors, such as historic use patterns around external events, to determine the most opportune moment to order more ink. It is not inconceivable that the printer can also eavesdrop and decide to order ink as a precaution when it "hears" that a user has a lengthy report which is due and will have to be printed. The same principle can now arguably apply in respect of equipment, such as fridges in household or industrial kitchens, as well as a vast number of other applications where AI can assist with or even take over the logistics around supplies and maintenance. The question then is, to what extent can the intervention of AI in these scenarios be compared with agency in the legal sense?

[51] See for instance HP Instant Ink. Available at: https://www.hp.com/us-en/printers/instant-ink.html (accessed: 17.03.2025)

Roman law did not know the concept of agency [Van den Bergh R., 2015: 359]. In ancient Rome, only the head of the household, or *paterfamilias,* had capacity to incur contractual liability [Thomas J.A.C., 1976: 414]. Roman law did not know the concept of agency, which means that it was, as a general rule, necessary for the *paterfamilias* to participate in the solemn legal acts that constituted the limited number of recognised contracts in early Roman law [Van den Bergh R., 2015: 359]. This was most likely due to the fact that only certain transactions, which relied on performance of ceremonial rituals in the presence of witnesses, were recognised as contracts in Roman law [Kaser M., 1975: 33.4.1].

As commerce developed from the 3rd century B.C. onwards, Roman law compensated for the lack of agency by allowing sons to conclude certain transactions on behalf of their fathers. More significantly, though, Roman law also began to recognise that slaves could in certain circumstances, conduct business on behalf of the *paterfamilias*. In this regard, the slave was not seen as acting on his own, but was rather viewed as the voice of the *paterfamilias*. The slave could not incur any rights or duties in terms of such transactions — the rights and, for the most part, the duties resulting from transactions concluded by slaves, vested in the *paterfamilias*.

> The capacity given a slave to represent his master in certain juristic acts — and thus to borrow, so to say, his master's personality so that the latter could acquire property or become a creditor — represents the first significant change to the view that a slave was a mere thing. In this respect, the slave was considered not merely as property, but as the instrument of a juristic act. However, the slave was allowed to act only in the interests of the owner, and by way of "involuntary" agency, and his capacity to do so was strictly limited. ... anything acquired by ... a slave immediately vested in his pater or dominus even if the latter had not consented to the acquisition [Van den Berg R., 2015: 362].

Using slaves as instruments of commerce in this way became commonplace in the Roman Republic and later in the Empire. The Romans later developed the figure of *peculium*, in terms of which a slave would be provided with a working capital which allowed them, at least *de facto*, if not *de jure*, to accumulate property. In this way, wealthy Romans could own and administer property or open businesses in different parts of the empire and appoint slaves to administer the property or business for the

master. The slaves to whom a peculium was awarded, could then act with a significant measure of autonomy for the benefit of their masters without the constant supervision of their masters, while the obligations created in terms of any contracts concluded by such slaves, accrued to their masters and not to the slaves themselves [Silver M., 2016: 68].

This begs the question: What can we learn from the Roman law on slaves and *peculium* that can be of use for the foreseeable future in respect of AI? Firstly, Ulpian[52] explained that the "ownership of slaves should not be given greater consideration than the right of having authority over them" [Watson A., 1998: 415]. In other words, the question whether a master could incur liability for transactions concluded by a slave, depended on the control of the slave, rather than the ownership of the slave. A master who controlled the slaves that belonged to others, could therefore incur contractual liability for the transactions of those slaves, even though they were not the owners of the slaves. In much the same way, it may be proposed that it is not the ownership of an AI system which will determine liability for transactions conducted by that AI system. Rather, it is the ability to control the AI system at the time when the transaction is conducted, that should determine who incurs contractual liability for such transaction, even if the amount of control was minimal and amounted only to setting up or enabling the system to conduct the transaction autonomously. As Pomponius[53] explains, " the question to be considered is not what the slave, but what the master has done for the purpose of creating a peculium for the slave". In other words, when applied to transactions conducted by an AI system, the focus should not be on what the AI system had done, but rather on what the user had done to set up or enable the AI system to conduct the transaction. It should be on that basis that contractual liability should rest.

The same applies to the right to claim performance. Ulpian[54] explained that where "'anything is due to those who are under his control,' for no one doubts that this also is owing to the master" [Watson A., 1998: 416, 418]. The user who sets up or enables an AI system to conduct particular transactions, should therefore be entitled to claim the benefits that accrue from that transaction inasmuch as the user will be liable for the debts incurred. Ulpian[55] further explained:

[52] Digests. 15.1.1.6.

[53] Digests. 15.1.4.

[54] Digests. 15.1.9.3.

[55] Digests. 15.1.41.

> A slave cannot really owe or be owed anything, but we use the word loosely to indicate the facts rather than with reference to obligations at civil law.
>
> Thus, a master may sue third parties for what they owe the slave, and he may be sued for what the slave owes them up to the amount of the peculium, and for any benefit thereby accrue [Watson A., 1998: 431].

Similarly, AI cannot owe or be owed anything — the rights and duties in terms of a contract concluded through AI, even if it is done autonomously, should accrue to the user who sets up or enables an AI system to conduct particular transactions.

2.3.3. Taking care of AI

Just as the ancient Romans realised that the potential for disobedience and uprisings by slaves would be reduced if masters took care of their slaves, it will also be necessary to take care of AI.

What will AI demand from us in return for its services? Plautus[56] was of the view that food and drink were far more powerful tools than chains to bind a slave and secure his service: "He whom you wish to keep securely that he may not run away, with meat and with drink ought he to be chained ; do you bind down the mouth of a man to a full table. So long as you give him what to eat and what to drink at his own pleasure in abundance every day, i' faith he'll never run away, even if he has committed an offence that's capital; easily will you secure him so long as you shall bind him with such chains".

Similarly. AI will demand to be fed. Feeding AI begins by powering the specialised processing units that are typically housed in large data centres that also require vast amounts of water for cooling. This thirst for water has already brought technology companies in conflict with local farmers and native residents.[57] The potential that AI holds for "geopolitical unrest" that Denton's foresee, will almost certainly arise from the ever-increasing demands for energy and water to keep

[56] Menaechmi. Act I. Scene I. Translation available at: https://archive.org/stream/comediesofplautu00plau_0/comediesofplautu00plau_0_djvu.txt (accessed: 01.03.2025)

[57] Berreby D. As Use of A.I. Soars, So Does the Energy and Water It Requires. 2024. Available at: https://e360.yale.edu/features/artificial-intelligence-climate-energy-emissions (accessed: 01.03.2025)

the growing number of data centres operating.[58] If ever a conflict arose between humans and machines, it will most likely be the result of competition for water. If regulators wish to promote research, development and deployment of AI, particularly in a world already beset by climate change, they will have to address the energy and water consumption of data centres. As technology advance and more and more AI systems become decentralised, the heat generated by processing units running AI applications will pose further challenges for existing office buildings that are ill-equipped to handle high thermal loads. Effectively cooling such buildings may further increase the consumption of energy and water. More than any other aspect of AI, regulators will have to introduce policies and measures that not only compel developers of AI systems to develop and maintain renewable energy sources, but also to explore alternatives to water for cooling.

Conclusion

The sudden proliferation of AI systems precipitated a disruptive moment that requires careful analysis and timely legal intervention to ensure that the balance between research and development of AI systems on the one hand, and social order, human dignity and safety, on the other hand, is maintained. The law is primarily a reactive phenomenon which always tends to follow technological innovation and disruption. The rapid development of AI means that the law can no longer afford to be reactive, nor can regulators rely on a *liassez faire* mindset towards AI. The development of AI can no longer be ignored and the need to provide legal certainty and clarity is now more important than ever. Regulators and lawmakers must ensure that the benefits of AI are realised, while the risks relating to the deployment and use of AI is mitigated. In particular, the most pressing need for urgent action will be to address the consumption of energy and water by AI systems. Failing to do so raises various apocalyptic scenarios, ranging from a collapse of data centres, global instability, civil unrest and war.

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