

ARTICLE

Reconceptualizing Constitutionalism in the AI Run Algorithmic Society

Matej Avbelj 

New University, Nova Gorica, Slovenia
Email: matej.avbelj@nova-uni.si

(Received 15 April 2024; accepted 22 July 2024; first published online 28 October 2024)

Abstract

This Article is dedicated to what is arguably one of the most significant tests to which constitutionalism has been subject to in recent times. It examines the theoretical and practical challenges to constitutionalism arising from the profound technological changes under the influence of artificial intelligence (AI) in our emerging algorithmic society. The unprecedented rapid development of AI technology has not only rendered conventional theories of modern constitutionalism obsolete, but it has also created an epistemic gap in constitutional theory. As a result, there is a clear need for a new, compelling constitutional theory that adequately accounts for the scale of technological change by accurately capturing it, engaging with it, and ultimately, responding to it in a conceptually and normatively convincing way.

Keywords: Constitutionalism; artificial intelligence (AI); technology; legal theory

A. Introduction

This Article, as an exercise in constitutional theory, is dedicated to what is arguably one of the most significant tests to which constitutionalism has been subject to in recent times. It examines the theoretical and practical challenges to constitutionalism arising from the profound technological changes under the influence of artificial intelligence (AI) in our emerging algorithmic society. As it will be argued in greater detail below, the unprecedented rapid development of AI technology has not only rendered conventional theories of modern constitutionalism obsolete, but it has also created an epistemic gap in constitutional theory. As a result, there is a clear need for a new, compelling constitutional theory that adequately accounts for the scale of technological change by accurately capturing it, engaging with it, and ultimately, responding to it in a conceptually and normatively convincing way.

In pursuit of this theoretical objective, the Article will therefore seek a response to the following question: How can constitutionalism be reformed so that it can continue to fulfill its normative functions in a fair and sustainable algorithmic society in late post-modernity governed by AI? Our discussion will consist of five sections. This introduction, which outlines the main conceptual and theoretical assumptions of the Article, is followed by Section B that reveals the actual nature, context, and scope of the constitutional challenges posed by AI. Section C continues by examining the existing theoretical responses to the *problematique*, whereas Section D charts the path to the future of a reformed constitutionalism in algorithmic society. Section E offers a preliminary conclusion.

In conceptual terms it is necessary to begin the discussion by shedding light on the meaning of constitutionalism that this Article works with. Accordingly, the Article will rely on the

understanding of constitutionalism as put forward by Weiler and Trachtman. They suggested that constitutionalism should be comprehended as the discourse of socio-political imagination and conceptualization,¹ according to which a polity and its members constitute themselves, understand themselves and normatively guide their actions. In other words, constitutionalism as the discourse of imagination and conceptualization is a matrix in which and through which we as citizens exist in the public sphere. Constitutionalism is thus a source of our civic public identity which, in turn, is also an important marker of our private identity. This means that the nature of our polities, our individual civic and private identities, change with transformation of constitutionalism. The change in constitutionalism, in turn, is in function of technological development, among other things.

The relationship between technological development, in the broadest meaning of the word, and social change, is well documented and has been subject of many studies, not only in sociology,² but also in philosophy³ and legal theory.⁴ However, the current technological development taking place under the influence of AI is unprecedented in human history due its speed, scope and depth.⁵ AI, both as an offspring and a culmination of a broader technological process of digitalization which has converted an unprecedented amount of information into digital formats,⁶ is causing profound changes in our societies, and in their underlying matrix: Constitutionalism. These are even difficult to fathom and will remain so in the foreseeable future. The research problem that this Article is triggered by therefore derives from the empirical observation of a profound social change, nothing short of a social revolution,⁷ which has been taking place in contemporary societies under the influence of technological development, especially related to digitalization *lato sensu*. This empirical observation underpins the main hypothesis of this Article, that technological development disrupts the existing, normal or conventional way of social existence,⁸ just as scientific discoveries affect scientific knowledge as Kuhn has argued,⁹ so that the existing epistemic and conceptual apparatus of social governance becomes obsolete and redundant. Consequently, a new social paradigm emerges, giving rise to a new kind of society. In this way, as we will show in more detail below, technological development has brought about modernity, which has later morphed into post-modernity, which is now transforming into late post-modernity due to the unprecedented breakthroughs in the field of AI.

In short, we are once again in the transitional period of a social revolution, a social paradigm shift, whereby the historical trajectory from modernity to post-modernity is now entering the phase of late post-modernity, in which algorithmic society governed by AI is emerging. The chosen research problem confirms, not only the appropriateness, but also the high relevance of the resulting research challenges. However, the research challenge is even more acute because it requires an interdisciplinary and comparative approach. Although the problem identified is global

¹J.H.H. Weiler and Joel P. Trachtman, *European Constitutionalism and its Discontents*, 17 NW. J. OF INT'L L. & BUS. 354, 359 (1996-1997).

²See CLOTILDE CORON AND PATRICK GILBERT, TECHNOLOGICAL CHANGE (2020); Judy Wajcman, *Addressing Technological Change: The Challenge to Social Theory*, 50 CURRENT SOCIOLOGY 347 (2002).

³See MARK COECKELBERGH, INTRODUCTION TO PHILOSOPHY OF TECHNOLOGY (2020). See also MARK COECKELBERGH, THE POLITICAL PHILOSOPHY OF AI: AN INTRODUCTION (2022); JEREMY RIFKIN, THE ZERO MARGINAL COST SOCIETY: THE INTERNET OF THINGS, THE COLLABORATIVE COMMONS, AND THE ECLIPSE OF CAPITALISM (2014).

⁴BRENDAN EDGEWORTH, LAW, MODERNITY, POSTMODERNITY 52 (2003); Sionaidh Douglas-Scott, LAW AFTER MODERNITY (2013).

⁵Dan Hendrycks, Mantas Mazeika, & Thomas Woodside, *An Overview of Catastrophic AI Risks*, ARXIV (Oct. 9, 2023) <https://arxiv.org/abs/2306.12001>.

⁶For a broad overview of the digital transformation, see Swen Nadkarni and Reinhard Prüg, *Digital Transformation: a Review, Synthesis and Opportunities for Future Research*, 71 MGMT. REV. Q. 233 (2021).

⁷THOMAS KUHN, THE STRUCTURE OF SCIENTIFIC REVOLUTIONS (1962).

⁸See e.g., G. Valenduc and P. Vendramin, *Digitalisation, Between Disruption and Evolution*, 23 TRANSFER: EUR. REV. OF LAB. AND RSCH. 121 (2017).

⁹*Id.*

in scope, it nevertheless resonates differently in the various national or regional contexts. Not unimportantly, the scope and depth of the research problem also comes with a strong democratic dimension, as technological changes through the transformation of constitutionalism ultimately also change the source of constitutionalism, namely us: We the people! For this reason, any research in the field of constitutionalism and AI, should pay close attention to the democratic engagement and participation of the people, firstly to understand the transformation of constitutionalism under the influence of AI, and secondly, to shape it.

B. Grasping the Nature and Scope of Constitutional Challenges in Context

It is important to place this transformation of our social paradigm in a broader historical context. To some extent, the path to this goal has already been paved in our earlier work, in which we looked at the meaning and function of constitutional law in times of transition.¹⁰ We thus traced the socio-legal developments from modernity to post-modernity.¹¹ In doing so, it was suggested that both modernity and post-modernity can be defined as temporal and spatial categories in which the processes of (post-)modernization—technological, economic, and social—take place, following and contributing to the (post-)modernist mindset.¹²

Modernity was thus a closely territorially bound phenomenon, constrained to the self-contained nation state dating back to the seventeenth century and lasting till the beginning of the second half of the 20th century.¹³ The process of modernization consequently involved historically distinct changes in the economy and society within the state.¹⁴ In economic terms, modernization went hand in hand with the rise and evolution of capitalism, involving industrialization, characterized by a technology of mass production reliant on a strict division of labor in huge industrial complexes, and with the protection of private property, with the market at its economic heart.¹⁵ Accordingly, modernity generated an optimistic mindset that postulated reason as the measure of all things and as the source of progress, in the belief that individuals and humanity as such can make the world over to their own design.¹⁶

Post-modernity has been modernity's antipode. It began to take roots in the 1960s, again through technological changes that paved the way for late capitalism,¹⁷ replacing the Fordist economy with much more flexible economic processes, transformed status of workers, resulting in a profoundly altered notion of space.¹⁸ The state, as a solipsistic container of democracy has been stretched and pulled, and eventually overgrown by the post-modern development of regionalization, denationalization, and ultimately deterritorialization.¹⁹ All of that, eventually, resulted in the replacement of the modernist mindset with a post-modernist one, consisting of questioning of reason, progress, and order.²⁰ As a result, the humanity in post-modernity has been portrayed and self-understood as existing in the world characterized by disorder, incoherence, lack of predictability, instability and fluidity, inequality, particularity, fragmentation and uncertainty.²¹

¹⁰Matej Avbelj, *Transnational Law Between Modernity and Post-modernity*, 7 *TRANSNAT'L LEGAL THEORY* 406 (2016).

¹¹*Id.*

¹²*Id.* at 2–9.

¹³*Id.* at 2.

¹⁴EDGEWORTH, *supra* note 4, at 53.

¹⁵*Id.*

¹⁶Neil Walker, *Four Visions of Constitutional Pluralism*, 1 *EUR. J. OF LEGAL STUD.* 325, 333 (2008).

¹⁷Avbelj, *supra* note 10, at 6.

¹⁸DAVID HARVEY, *THE CONDITION OF POSTMODERNITY*, 177 (1989).

¹⁹Saskia Sassen, *Neither Global nor National: Novel Assemblages of Territory, Authority and Rights*, 1 *ETHICS AND GLOB. POL.* 61 (2008).

²⁰Avbelj, *supra* note 10, at 8.

²¹BOAVENTURA DE SOUSA SANTOS, *TOWARD A NEW LEGAL COMMON SENSE. LAW, GLOBALIZATION AND EMANCIPATION*, 4 (2002).

The technological engineering thus needed more than 200 years to craft a fully-fledged modern society, which has in just few decades given way to post-modernity, which is just now, even after an even shorter period of time, entering its late phase. The time gap between the various social revolutions has thus narrowed considerably due to the significant acceleration of technological development,²² which has been given an even greater boost in the last two decades by increasing computerization, digitalization, robotization, and above all, the recent, unprecedented breakthroughs in the field of AI. All of this has led to the emergence of an algorithmic society in which power is mediated by algorithms,²³ employed by the means of AI.

The latter has developed through several stages, in which the enthusiasm for technological breakthrough has often been accompanied by technological setbacks.²⁴ Three paradigm shifts in the development of AI have, hence, been identified. The first period, between the 1950s and the 1970s, was the founding phase of AI. The second period, between the 1970s and the 1990s, was the symbolic AI phase, while the third period, the 1990s to the present day, is characterized by machine and deep learning.²⁵ The “seasonal” development of AI has been, practically and theoretically, divided into three possible types of AI. First, weak AI, which “can perform routine, repetitive, and mundane tasks that humans would prefer to avoid,”²⁶ which increases productivity in specialized domains, but is unable to generalize and reuse learned knowledge across domains.²⁷ This would be the capacity of the second type of AI, artificial general intelligence, also known as strong AI,²⁸ possessing human type of intelligence in the form of “machines that are conscious, sentient, and driven by emotion and self-awareness.”²⁹ Finally, there is a third type of AI, artificial superintelligence (ASI), defined as “any intellect that greatly exceeds the cognitive performance of humans in virtually all domains of interest.”³⁰

At the moment, we are still in the phase of weak AI, but it has become stronger, especially thanks to large language models such as ChatGPT. To the astonishment of its producers and users, it works amazingly well, while the booming AI industry, supported by huge investments, is racing towards strong, general AI, the development of which seems to be only a matter of time. When these technological predictions actually become reality, and “machines that are conscious, sentient and driven by emotion and self-awareness”³¹ are indeed developed, an entirely new, as of yet inexperienced social reality will have emerged in which humans no longer hold the exclusive monopoly over the construction of social reality.³² However, the human monopoly over the social construction of reality has already been weakened and challenged by weak AI. It is of course true, that AI, staying faithful to the matrix of man-made social reality, has been created by humans, and hence its functioning continues to be hampered by human shortcomings like biases and discrimination attributable to its human founders and administrators that call for regulation,³³ the AI has nevertheless already proven itself of being capable of creating new, original, previously non-existent content when fed with existing materials created by humans: Text, images, videos

²²Hendrycks, Mazeika, & Woodside, *supra* note 5, at 8.

²³MARC SCHUILENBURG, *THE ALGORITHMIC SOCIETY: TECHNOLOGY, POWER AND KNOWLEDGE* (Rick Peeters ed.) (2021).

²⁴See EUROPEAN COMMISSION, *AI WATCH, HISTORICAL EVOLUTION OF ARTIFICIAL INTELLIGENCE* (2020) (providing an overview).

²⁵*Id.* at 24.

²⁶*Id.* at 5.

²⁷*Id.* at 6.

²⁸*Id.*

²⁹*Id.*

³⁰*Id.*

³¹*Id.*

³²THOMAS LUCKMANN & PETER BERGER, *THE SOCIAL CONSTRUCTION OF REALITY* (1966).

³³The problematic of algorithm bias is especially acute. For a comprehensive report, see EU FUNDAMENTAL RIGHTS AGENCY, *BIAS IN ALGORITHMS - ARTIFICIAL INTELLIGENCE AND DISCRIMINATION* (FRA, Vienna 2022); E. Ntoutsis, et al, *Bias in data-driven artificial intelligence systems—An introductory survey*, 10 WIRE DATA MINING AND KNOWLEDGE DISCOVERY 1 (2020).

and voices. All these technological developments in the field of AI are pregnant with huge promises of progress for individual societies and humanity as a whole. At the same time, however, they also harbor considerable, even catastrophic risks that extend to the economy, the welfare state, privacy, a fair social order, and the military.³⁴

The reactions across the globe, which have of course varied greatly,³⁵ have understandably resulted in a push to regulate the new technology. This has led to a global race between the future “digital empires.”³⁶ So far, the EU, which has just passed a comprehensive AI legislation,³⁷ is winning the regulatory race, enacting its model of a risk-based approach to AI, based on years of research. The main research question raised by the need to regulate AI, across social sciences, but especially in the field of law, has therefore been why, how, and by whom AI should be regulated. Although the importance of the regulatory question cannot be overstated, the regulatory focus should also be complemented by a conceptual inquiry. Instead of limiting ourselves to the question of regulation of AI, we should examine how we can govern ourselves in the brave new transnational world of AI, with its help, under its threat, and under the influence of the transnational corporations that own and produce AI.³⁸ This conceptual investigation is necessary because we are moving from post-modernity to late post-modernity. The arrival of AI with its speed of technological change, great and growing opacity, and with increasingly autonomous machines³⁹ that not only complement, but also detract from or invisibly manipulate human agency,⁴⁰ has accentuated the features of post-modernity and propelled it into its mature, indeed late stage, the content of which is still emerging and has yet to be theoretically defined and evaluated.

Nevertheless, one characteristic of late post-modernity is already clearly recognizable. Unlike any other period in human history, late post-modernity will be uniquely characterized by the loss of the human monopoly over the social construction of reality. For the first time, our social reality will no longer be constructed exclusively by humans. With AI, especially as it becomes stronger and, even more, autonomous, a parallel source of construction of social reality—and thus a new source of normativity⁴¹—will emerge. Not only will this belie the modernist dogma that only humans can make the world over to their design, but humanity could also find itself in a world where a new, more intelligent artificial species will shape the social and natural world and perhaps even take it over in the end. By the time AI begins to dominate the world in the form of super-intelligent humanoid robots, an era of late post-modernity will extend until, in the worst-case scenario for humans, it finally enters the period of post-humanity.

³⁴Hendrycks Mazeika, Woodside, *supra* note 5.

³⁵See, e.g., H. Roberts, J. Cows, E. Hine, J. Morley, V. Wang, M. Taddeo, & L. Floridi, *Governing Artificial Intelligence in China and the European Union: Comparing Aims and Promoting Ethical Outcomes*, 39 THE INFO. SOC'Y 79 (2022); E. Hine and L. Floridi, *Artificial Intelligence with American Values and Chinese Characteristics: A Comparative Analysis of American and Chinese governmental AI policies*, 39 AI & SOC'Y 257 (2024).

³⁶ANU BRADFORD, DIGITAL EMPIRES (2023).

³⁷European Commission Press Release, Artificial Intelligence Act: MEPs Adopt Landmark Law (Mar. 13, 2024).

³⁸See Paul Nemitz, *Constitutional Democracy and Technology in the Age of Artificial Intelligence*, 376 PHILOSOPHICAL TRANSACTIONS OF THE ROYAL SOCIETY A: MATHEMATICAL, PHYSICAL, AND ENGINEERING SCIENCES, 2 (Oct. 15, 2018) (discussing “a unique concentration of power in the hands of digital internet giants which develop artificial intelligence”). [https://royalsocietypublishing.org/doi/10.1098/rsta.2018.0089#:~:text=,and%20strengthening%20of%20constitutional%20democracy](https://royalsocietypublishing.org/doi/10.1098/rsta.2018.0089#:~:text=,and%20strengthening%20of%20constitutional%20democracy.). See also Transatlantic Reflection Group on Democracy and the Rule of Law in the Age of “Artificial Intelligence”, *A Manifesto in Defense of Democracy and the Rule of Law in the Age of Artificial Intelligence* (June 14, 2024) <https://www.aia-thens.org/s/A-Manifesto-in-Defense-of-Democracy-and-the-Rule-of-Law-in-the-Age-of-Artificial-Intelligence.pdf> (claiming that the new AI rules “must go beyond technology-specific regulation, or the regulation of business practices”).

³⁹See SIMON CHESTERMAN, WE THE ROBOTS, REGULATING ARTIFICIAL INTELLIGENCE AND THE LIMITS OF THE LAW (2021); ORESTE POLLICINO, GIOVANNI DE GREGORIO, CONSTITUTIONAL LAW IN THE ALGORITHMIC SOCIETY, IN CONSTITUTIONAL CHALLENGES IN THE ALGORITHMIC SOCIETY (Micklitz, et al. eds.) (2021).

⁴⁰ROSTAM J. NEUWIRTH, THE EU ARTIFICIAL INTELLIGENCE ACT: REGULATING SUBLIMINAL AI SYSTEMS (2023).

⁴¹Giovanni de Gregorio, *The Normative Power of Artificial Intelligence*, 30 IND. J. OF GLOB. LEGAL STUD. 55 (2023), at 65.

To ensure that the latter does not happen, and that the human-centeredness of late post-modernity is preserved, constitutional theory is called upon to contribute its due. If, as we believe, Weiler and Trachtman are indeed right that constitutionalism is a discourse of imagination and conceptualization, and because the advent of AI has already, in its weak version, challenged the way we as individuals and societies conceive and imagine ourselves, our social existence, legal and political governance, and will do so even more in its stronger version, constitutional theory must respond to this challenge. To this end, this Article proposes to reconceptualize the status, role, object and purpose of constitutionalism in the algorithmic society. It should be noted that this conceptual approach to AI is a novelty in the field. Rather than focusing on the regulatory challenge posed by AI, which is admittedly very important and has consequently already received a lot of academic attention,⁴² the question of the conceptual challenge of AI to the existing theories and practices of constitutionalism has remained largely unexplored as the following discussion of the existing theoretical landscape will show.⁴³

C. Examining the Existing Theoretical Landscape

It has been correctly observed that “each new option introduced by technological evolution [. . .] affects the substance, eventually changing the way humans think and relate to each other.”⁴⁴ The AI has “affected the information and communication technologies”⁴⁵ which exert the strongest transformative influence on the society. All of this has gradually led to the emergence of an algorithmic society. Although the concept of the algorithmic society has, admittedly, attracted much of the attention among social scientists in general,⁴⁶ as we will see below, legal and especially constitutional scholarship with a pronounced theoretical, conceptual orientation has nevertheless remained relatively scarce.⁴⁷ As Lee and Larsen have demonstrated, social scientists have explored many, but still an inexhaustible number of practical ways in which algorithms are intertwined with our society and culture.⁴⁸ Yet these considerations have remained mainly at a practical, sociological level, without delving into more profound conceptual issues about the implicit normativity imputed to algorithms.⁴⁹ There is thus a notable gap in conceptual, meta-theoretical research on the roots, causes and consequences of the algorithmic society in the social sciences in general, while this lack is even more evident in the field of law.

The literature on law and AI, on the latter’s role in the algorithmic society, is, however, burgeoning. It can be divided into three groups. The first segment of AI literature is devoted to the practical challenges of the new AI technology. As Chesterman notes,⁵⁰ this discussion is “concentrated on the activities of legal practitioners, their potential clients or the machines themselves.”⁵¹ It describes recent

⁴²*Infra* Section C below.

⁴³But see Guillaume Tusseau, *Taking Chaos Seriously: From Analog to Digital Constitutionalism(s)*, SCIENCE PO, CHAIR DIGITAL, GOVERNANCE AND SOVEREIGNTY (2023) (discussing the conceptual challenge of AI to the existing theories of constitutionalism).

⁴⁴ANDREA SIMONCINI AND ERIK LONGO, FUNDAMENTAL RIGHTS AND THE RULE OF LAW IN THE ALGORITHMIC SOCIETY IN CONSTITUTIONAL CHALLENGES IN THE ALGORITHMIC SOCIETY (Micklitz et al eds., 2021).

⁴⁵*Id.*

⁴⁶Anupam Chander, *The Racist Algorithm?*, 115 MICH. L. REV. 1022 (2017); Keith Kirkpatrick, *Battling Algorithmic Bias: How do we Ensure Algorithms Treat us Fairly?*, 59 COMM’NS OF THE ACM 16, 17 (2016); VIRGINIA EUBANKS, AUTOMATING INEQUALITY: HOW HIGH-TECH TOOLS PROFILE, POLICE, AND PUNISH THE POOR (2017).

⁴⁷Tusseau *supra* note 43; See also HANS MICKLITZ, ORESTE POLLICINO, AMNON REICHMAN, ANDREA SIMONCINI, GIOVANNI SARTOR & GIOVANNI DE GREGORIO, CONSTITUTIONAL CHALLENGES IN THE ALGORITHMIC SOCIETY (2021) (showing an exception that proves the rule).

⁴⁸See Francis Lee and Ljota B. Larsen, *How Should We Theorize Algorithms? Five Ideal Types in Analyzing Algorithmic Normativities*, 6(2) BIG DATA & SOC’Y 1, 2 (Aug. 13, 2019).

⁴⁹*Id.*

⁵⁰CHESTERMAN, *supra* note 39, 2-4.

⁵¹*Id.*

advances in AI development, examines the effect of AI on the legal profession, and finally raises normative questions about specific AI technologies and their effect, particularly on the right to privacy.⁵² The second segment, which also currently dominates the field of AI and law, focuses on the legal regulation of AI, either in relation to specific technologies or more generally, structurally,⁵³ also taking into account the political race to create a global regulatory framework.⁵⁴ The third segment, in which this Article is specifically interested, covers the constitutional predicaments of AI in the algorithmic society.

However, constitutional scholarship on AI is still in its infancy.⁵⁵ As de Gregorio rightly points out, “the role of constitutionalism has not been central in the debate about Internet governance and regulation,” let alone on AI.⁵⁶ Only recently has this begun to change with the emergence of an academic field known as digital constitutionalism:⁵⁷ Thin and thick.⁵⁸ Once again, a constitutional tag, endowed with strong claims to legitimacy, regardless of its exact environment, is being invoked to respond to new societal challenges within and beyond the state. Accordingly, digital constitutionalism has been defined as a reaction of traditional constitutionalism to the emergence of the internet and associated digital technologies.⁵⁹ As Tusseau notes,⁶⁰ the normative orientation of digital constitutionalism as a *mode de pensé* has been twofold: “[S]ome want to constitutionalize the digital, whereas others propose to digitalize the constitutional.”⁶¹ But in any case, “digital constitutionalism” does not lead “to revolutionizing the pillars of modern constitutionalism,” but “it aims to understand how to interpret the, still hidden, role of constitutional law in the algorithmic society.”⁶²

This is precisely the starting of the present Article, which sympathizes with the overall approach of digital constitutionalism, albeit with two important caveats. First, the Article resists the temptation of constitutional nominalism, that is, the temptation to add another constitutional label to the field already planted with many constitutionalisms.⁶³ If digital constitutionalism does not seek to revolutionize conventional constitutionalism, as it claims, then there is no need for new labels, even if these are literally flourishing: Hybrid constitutionalism,⁶⁴ algorithmic constitutionalism,⁶⁵ informational constitutionalism.⁶⁶ Especially. when most of the academic concerns

⁵²*Id.* See also Symposium Video: Constitutional Values and the Rule of Law in the AI Era: Confronting a Changing Threat Landscape, available at <https://cyber.harvard.edu/events/constitutional-values-and-rule-law-ai-era-confronting-changing-threat-landscape>. But see MARCELO CORRALES, MARK FENWICK, & NIKOLAUS FORGO, *ROBOTICS, AI AND THE FUTURE OF LAW* (2018); KEVIN D. ASHLEY, *ARTIFICIAL INTELLIGENCE AND LEGAL ANALYTICS: NEW TOOLS FOR LAW PRACTICE IN THE DIGITAL AGE* (2017); HANNAH YEEFEN LIM, *AUTONOMOUS VEHICLES AND THE LAW: TECHNOLOGY, ALGORITHMS AND ETHICS* (2018).

⁵³CHESTERMAN, *supra* note 39; Matjaž Perc, Mahmut Ozer & Janja Hojnik, *Social and Juristic Challenges of Artificial Intelligence*, 61 PALGRAVE COMMUNICATIONS 1 (2019).

⁵⁴BRADFORD, *supra* note 36.

⁵⁵See, e.g., Paul Nemitz, *Constitutional Democracy and Technology in the Age of Artificial Intelligence*, 376 PHIL. TRANSACTIONS OF THE ROYAL SOC'Y A: MATHEMATICAL, PHYSICAL AND ENG'G SCIENCES 1 (2018).

⁵⁶Giovanni de Gregorio, *DIGITAL CONSTITUTIONALISM IN EUROPE: REFRAMING RIGHTS AND POWERS IN ALGORITHMIC SOCIETY*, 11 (2022).

⁵⁷Giovanni de Gregorio, *The Rise of Digital Constitutionalism in the European Union*, 19 INT'L J. OF CONST. L. 41 (2021); Oreste Pollicino, *JUDICIAL PROTECTION OF FUNDAMENTAL RIGHTS ON THE INTERNET. A ROAD TOWARDS DIGITAL CONSTITUTIONALISM?* (2021).

⁵⁸Tusseau, *supra* note 43, at 18. According to the author, thin digital constitutionalism is more conservative and traces the impact of digitalization on constitutionalism, without claiming or attempting to change the constitutional paradigm in a digital age. The thick digital constitutionalism attempts to do exactly that.

⁵⁹de Gregorio, *supra* note 56, at 11.

⁶⁰Tusseau, *supra* note 43, at 15.

⁶¹*Id.*

⁶²de Gregorio, *supra* note 56, at 4.

⁶³See Matej Avbelj, *Questioning EU constitutionalisms*, 9 GERMAN. L.J. 1 (2009) (critiquing the EU constitutional discourse).

⁶⁴Simoncini & Longo, *supra* note 44, at 41.

⁶⁵Oren Perez and Nurit Wimer, *Algorithmic Constitutionalism*, 30 IND. J. OF GLOB. LEGAL STUDIES 81 (2023).

⁶⁶Brian Fitzgerald, *Software as Discourse? The Challenge of Information Law*, 22 EUR. INTELL. PROP. REV. 47 (2000).

currently expressed under digital constitutionalism have long been addressed under the notion of *lex informatica*⁶⁷ within the broader framework of transnational law.⁶⁸

Second, a much more critical conceptual approach to constitutionalism should be adopted.⁶⁹ Beyond the lure of the mere label “constitution,” the algorithmic society requires not only practical adaptations of constitutionalism to the new societal challenges—which most of the current constitutional scholarship on AI has addressed, such as the effect of AI on fundamental rights,⁷⁰ the rule of law⁷¹ and democracy⁷²—but a more profound metatheoretical rethinking of the concept of constitutionalism itself. Building in particular, on Teubner’s work on societal constitutionalism,⁷³ as well as incorporating scholarly contributions on global constitutionalism,⁷⁴ global law⁷⁵ and legal pluralism,⁷⁶ transnational law⁷⁷ and principled legal pluralism,⁷⁸ we should, as Golia emphasizes,⁷⁹ do much more than digital constitutionalism has done so far to question “the several assumptions of liberal, state-centered constitutional theory.”⁸⁰ We should, eventually, explore whether the constitutional framework as such is at all suitable for describing, analyzing and normatively guiding the functioning of an algorithmic society in and beyond the state, in an infranational, transnational and global realm.⁸¹ Recognizing that approaching the novel technological challenges through a constitutional lens is clearly a normative choice,⁸² this Article is not motivated to advance the constitutional agenda for an algorithmic society, but rather to examine how the latter has impacted modern constitutionalism and to what extent constitutionalism can or should be reformed to continue fulfilling its conventional functions.

D. Peering into the Future of Reformed Constitutionalism

Having explained the motivation for this Article, it is now time to address the research question and anticipate some possible answers. As a reminder, this Article is about how technological advances in AI challenge constitutionalism conceptually and how constitutionalism could or should be reformed to respond to these challenges. As implied in the question itself, drawing on our previous work, we have suggested that our modern constitutionalism, as conventionally

⁶⁷Joel R. Reidenberg, *Lex Informatica: The Formulation of Information Policy Rules through Technology*, 76 TEX. L. REV. 555 (1998).

⁶⁸MATEJ AVBELJ, *THE EUROPEAN UNION UNDER TRANSNATIONAL LAW* (2018).

⁶⁹*But see* Roisin Á Costello, *Faux amis? Interrogating the Normative Coherence of “Digital Constitutionalism,”* 12 GLOB. CONSTITUTIONALISM 326 (2023).

⁷⁰Carlo Casonato, *AI and Constitutionalism: The Challenges Ahead in B. Braunschweig*, in REFLECTIONS ON AI FOR HUMANITY (Ghallab ed., 2021).

⁷¹See Stanley Greenstein, *Preserving the Rule of Law in the Era of Artificial Intelligence (AI)*, 30 A.I. AND L. 291 (2022); Sebastian Rosengrun, *Why AI is a Threat to the Rule of Law*, 1 DIGITAL SOC. 9 (2020).

⁷²See Andreas Junghert, *Artificial Intelligence and Democracy: A Conceptual Framework*, 9 SOC. MEDIA + SOC. 1 (2023); Aviv Ovadya, *Reimagining Democracy for AI*, 34 J. OF DEMOCRACY 162 (2023).

⁷³GUNTHER TEUBNER, *CONSTITUTIONAL FRAGMENTS: SOCIETAL CONSTITUTIONALISM AND GLOBALIZATION* (2012).

⁷⁴Antje Wiener, Anthony F. Lang, James Tully, Miguel Poirares Maduro, & Mattias Kumm, *Global Constitutionalism: Human Rights, Democracy and the Rule of Law*, 1 GLOB. CONSTITUTIONALISM 1 (2012).

⁷⁵NEIL WALKER, *INTIMATIONS OF GLOBAL LAW* (2014); RAFAEL DOMINGO, *THE NEW GLOBAL LAW* (2010).

⁷⁶Paul Schiff Berman, *Global Legal Pluralism*, 80 S. CAL. L. REV. 1166 (2007); Isiksel Turkuler, *Global Legal Pluralism as Fact and Norm*, 2 GLOB. CONSTITUTIONALISM 160 (2013); VICTOR M. MUNIZ-FRATICELLI, *THE STRUCTURE OF PLURALISM – ON THE AUTHORITY OF ASSOCIATIONS* (2014).

⁷⁷AVBELJ, *supra* note 68.

⁷⁸*Id.* at Ch. 2.

⁷⁹Angelo Golia, *The Critique of Digital Constitutionalism: Deconstruction and Reconstruction From a Societal Perspective*, 1 GLOB. CONSTITUTIONALISM 1 (2023).

⁸⁰*Id.*

⁸¹AVBELJ, *supra* note 68, at 33 (arguing that constitutionalism shows great “conceptual difficulties, but also ideological and utopian features, exhibited in its ambition to serve as the theory for the post-statist legal polycentricity”).

⁸²Tusseau, *supra* note 43.

understood,⁸³ could be defined by holistically integrating three dimensions: The legal-institutional, the socio-political, and the philosophical.

In a nutshell, a constitutional system in legal-institutional terms, is a legal-institutional system of a sovereign and independent state, that claims complete legal and political monopoly over its territory. A constitutional system is typically based on a single, written document, usually called a constitution, which erects a hierarchical legal order, itself being the supreme law of the land. Institutionally, a constitution creates separation of powers between the legislative, executive, and judicial branch, so that the latter are involved in an almost self-sustaining mechanism of checks and balances. The functioning of all legal and political authorities under the constitution is subject to the substantive standards of fundamental rights protections, as enshrined in the constitution.⁸⁴

The socio-political dimension of constitutionalism is expressed through a deeply symbolic language, according to which a constitution is of the people, for the people and by the people.⁸⁵ Constitutionalism, therefore, establishes and stands for a political system of popular self-rule.⁸⁶ In this sense, a constitution is seen as a document of the people, an act of many individuals coming together as a constituent power, giving themselves a constitution and thus constituting themselves as one people,⁸⁷ a demos, a living fiber of personified political community of equals created thereby.⁸⁸ The people is thus a sovereign; the ultimate source of all legal and political authority, and it is only by virtue of its original consent in the creation of a constitution that a political system based on it, is considered legitimate and rightful. All branches of government (*pouvoir constitué*) are therefore directly or indirectly responsible to the people (*pouvoir constituant*), who have authorized them and delegated to them their sovereign powers, which they exercise continuously in the name of the people for their general benefit.

However, the legal-institutional and socio-political dimensions of conventional constitutionalism are underpinned by a specific constitutional philosophy that provides a register, an intellectual framework, within which we have thought about constitutionalism and by which we determine its *telos*. Its roots are profoundly wedded to modernity and are based on a positive belief in progress and emancipation, with a strong commitment to the common good to be achieved through an increasingly uniform and universalizable order.⁸⁹ At the philosophical and value-based center of modern constitutionalism is thus an individual,⁹⁰ with his or her equal human dignity, which gives each individual an equal right to self-realization within the framework of the equal rights of others.⁹¹ The task of public authority, in particular the state, is to refrain from interfering with this right and simultaneously to promote its goals. The modalities of this not infrequently conflictual relationship of calibrating the horizontal and vertical rapports of self-realization, collective action problems, free-riding, use, misuse and abuse of private and public power should ideally be determined in a dialogical, discursive way in a public sphere, that is as inclusive, open and fair as possible.⁹²

⁸³Matej Avbelj, *Can European Integration Be Constitutional and Pluralist – Both at the Same Time?*, in CONSTITUTIONAL PLURALISM IN THE EUROPEAN UNION AND BEYOND (Avbelj and Komarek eds., 2012).

⁸⁴*Id.* at 386–92.

⁸⁵President Abraham Lincoln, The Gettysburg Address (Nov. 19, 1863).

⁸⁶See Ulrich Preuss, CONSTITUTIONAL REVOLUTION, THE LINK BETWEEN CONSTITUTIONALISM AND PROGRESS (1995).

⁸⁷See IMMANUEL KANT, ZUM EWIGEN FRIEDEN, 128 (1959) (defining a constitution in these terms as “der Akt des allgemeinen Willens, wodurch die Menge ein Volk wird” “[a democracy is] [the act of the general will, by which the multitude becomes one people.]”)

⁸⁸RONALD DWORKIN, LAW’S EMPIRE (1986).

⁸⁹Miguel P. Maduro, *Contrapunctual Law: Europe’s Constitutional Pluralism in Action*, in SOVEREIGNTY IN TRANSITION, 502 (Walker ed, 2003).

⁹⁰LARRY SIEDENTOP, INVENTING THE INDIVIDUAL (2014).

⁹¹Ustavno Sodišče Republike of Slovenije, US RS [Constitutional Court], Oct. 2011., No. U-I-109/10 (Republic of Slovenia).

⁹²JURGEN HABERMAS, THE STRUCTURAL TRANSFORMATION OF THE PUBLIC SPHERE (1991); JOHN RAWLS, THE IDEA OF PUBLIC REASON REVISITED, 573 (1999).

The described tenets of the modern, conventional constitutionalism have undergone significant change in recent decades. As Teubner rightly points out, this has taken place not because of ideational superstructure of legal theory,⁹³ but it derives from the profound alterations in the material structure of the world.⁹⁴ Three material processes have contributed to this result: Globalization, digitalization, and the growth of AI. Globalization with early digitalization in the form of computers and the internet has caused a shift from modernity to post-modernity, which has moved to late post-modernity with the advent and growth of AI, which is a product of advanced and accelerated digitalization. Before we turn to the actual changes, however, it should be noted that each new transformation does not –necessarily– mean the replacement of the constitutional features of the previous era, but that the new practices, institutions, and concepts often coexist with the pre-existing ones. In other words, the old does not necessarily disappear, it mutates, is sometimes weakened, sometimes strengthened, and grows into new institutions and practices that complement the existing ones. From a theoretical point of view, this requires an increasingly comprehensive and holistic approach, capable of prudently navigating between the “affirmative continuity” and the “negative discontinuity”⁹⁵ with the modern, statist constitutional paradigm.

As far as the legal-institutional dimension of constitutionalism is concerned, ultimate legal and political authority, which is another word for the conventional meaning of sovereignty,⁹⁶ was first exercised over territory, then over specific competencies, and today also over cyberspace. Sovereignty in late post-modernity thus consists of three forms: Territorial, functional, and digital sovereignty.⁹⁷ These forms of sovereignty, sometimes co-existing in harmony, sometimes in tension, constitute what has been termed pluralist sovereignty.⁹⁸ This reflects the fact that the statist public monopoly over legal and political spheres of social existence, which also guaranteed control over economic power, has been considerably weakened. Instead, as a paradigmatic feature of postmodernity, a new power constellation has emerged that blurs the distinction between public and private, so that the private has grown at the expense of the public, mainly thanks to the neoliberal conquest of globalization, which has given rise to transnational and global corporations whose economic power is often on a par with that of states.⁹⁹ However, the decline of the state in globalization could be reversed in late post-modernity. AI has technologically strengthened the state, especially its surveillance capabilities, while global corporations, in particular the so-called very large platforms, have also increased their influence on social relations through the rise of surveillance capitalism.¹⁰⁰ This has led to a new “digital political economy,”¹⁰¹ in which the public and the private now form a duopoly, that through maximization of political power and private profit carries out a double colonization of “lifeworld”¹⁰² of the individuals, whose freedom, autonomy, and capacity for self-realization have shrunk considerably.¹⁰³

⁹³Gunther Teubner, *The King's Many Bodies: The Self-Deconstruction of Law's Hierarchy*, 31 L. AND SOC. REV. 763, 770 (1997).

⁹⁴*Id.*

⁹⁵See AVBELJ, *supra* note 68, at 21 (providing a detailed discussion drawing on N. Walker).

⁹⁶For a discussion, see Matej Avbelj, *Theorizing Sovereignty and European Integration*, 27 RATIO JURIS 344 (2014).

⁹⁷See, e.g., European Union Commission Communication, *2030 Digital Compass: The European way for the Digital Decade* (Mar. 9, 2021) (emphasizing that “the Union’s path to the digital transformation of the economy and society should encompass digital sovereignty in an open manner”).

⁹⁸Matej Avbelj, *A Sovereign Europe as a Future of Sovereignty*, 5 EUR. PAPERS 299 (2020).

⁹⁹Gunther Teubner and Angelo Golia, *Societal Constitutionalism in the Digital World: An Introduction*, 30 IND. J. OF GLOB. LEGAL STUDIES 1 (2023).

¹⁰⁰SHOSHANA ZUBOFF, *THE AGE OF SURVEILLANCE CAPITALISM: THE FIGHT FOR A HUMAN FUTURE AT THE NEW FRONTIER OF POWER* (2019).

¹⁰¹Teubner & Golia, *supra* note 99, at 4.

¹⁰²JURGEN HABERMAS, *THE THEORY OF COMMUNICATIVE ACTION* (1991).

¹⁰³*Id.* at 4.

All these developments have also left an indelible mark on the constitution as a document. Its exclusivity and exhaustiveness in relation to the legal regulation of a particular territory has become impaired by functionally parallel documents or at least pseudo constitutional practices of infranational and transnational legal orderings in post-modernity.¹⁰⁴ This centrality of a written statist constitution is to be further weakened in late post-modernity by a process of societal constitutionalization¹⁰⁵ that leads to many “civil constitutions.”¹⁰⁶ Of course, the plurality of autonomous legal—quasi—constitutional orderings has transformed the traditional hierarchy of norms, which has been a distinctive characteristic of modern constitutionalism, into heterarchy that is to become a norm of late post-modernity.

Another central legal-institutional tenet of modern constitutionalism, the principle of the separation of powers, has been affected as well. The modern triangle of the legislature, executive, and judiciary has been subject to the processes of judicialization,¹⁰⁷ the growth of the executive,¹⁰⁸ the irreversible decline of the legislative branch, and the rise of the regulatory state through “independent agencies”¹⁰⁹ and other “para-state institutions,” and, more importantly, the growth of the normative powers of the private sector.¹¹⁰ For this reason, post-modernity has been seen as a period in which there are no longer three, but five branches,¹¹¹ not of a centralized government, but of decentralized governance.¹¹² In late post-modernity, the five branches of power are to be joined by a sixth, AI, which, in a rather dystopian scenario, leads some to believe in the end of ‘separation of powers’ and the emergence of a digital despotism,¹¹³ especially in the hands of transnational and global corporations and very large platforms. In this context, the classical rule of law, with its underlying formal, substantive, and sociological elements that form the core of the legal-institutional dimension of modern constitutionalism, which has already come under severe pressure in the post-modern environment beyond the state, will be further challenged in late post-modernity by the “new sources of normativity”¹¹⁴ that drive “the rule of tech,”¹¹⁵ possibly at the expense of the rule of law. It goes without saying that this will have resounding implications for the protection of fundamental rights, both positive and negative, and that the contemporary inflation of human rights in a multi-level system of protection¹¹⁶ brings new challenges and opportunities for the development of “digital human rights,” as well as, for the time being, not to be excluded from our imagination: The digital rights of artificial, non-biological entities in late post-modernity.

As for the socio-political dimension of modern constitutionalism, this too has undergone major changes. Popular sovereignty, the constituent power of “we the people”, that inspires the idea(l) of popular self-government, that has been at the core of the modern constitutionalism, has been partly eroded and partly supplemented by functional sovereigns: factional experts and

¹⁰⁴ AVBELJ, *supra* note 68 at Ch. 2.

¹⁰⁵ Teubner & Golia, *supra* note 99, at 2.

¹⁰⁶ *Id.* at 30.

¹⁰⁷ Ran Hirschl, *The Judicialization of Politics*, in THE OXFORD HANDBOOK OF POLITICAL SCIENCE, 253 (Goodin ed., 2013).

¹⁰⁸ Martin S. Flaherty, *The Most Dangerous Branch*, 105 YALE L.J. 1725 (1995-1996).

¹⁰⁹ M. TUSHNET, *THE NEW FOURTH BRANCH: INSTITUTIONS FOR PROTECTING CONSTITUTIONAL DEMOCRACY* (2021).

¹¹⁰ See M. Leiser, A. Murray, *The Role of Non-State Actors and Institutions in the Governance of New and Emerging Digital Technologies*, in THE OXFORD HANDBOOK OF LAW, REGULATION AND TECHNOLOGY, 670–704 (Brownsword, Scotford, Yeung eds, 2016); P. Hacker, J. Cordes, & J. Rochon, *Regulating Gatekeeper Artificial Intelligence and Data: Transparency, Access and Fairness under the Digital Markets Act, the General Data Protection Regulation and Beyond*, 15 EUR. J. OF RISK REGUL. 49 (2023); S. KREPS, *DEMOCRATIZING HARM: ARTIFICIAL INTELLIGENCE IN THE HANDS OF NON-STATE ACTORS* (2021).

¹¹¹ Harold I. Abramson, *A Fifth Branch of Government: The Private Regulators and Their Constitutionality*, 16 HASTINGS CONST. L. Q. 165, 168, 171 (1989).

¹¹² RICHARD BELLAMY, *FROM GOVERNMENT TO GOVERNANCE* (2010).

¹¹³ Tusseau, *supra* note 43, at 92.

¹¹⁴ de Gregorio, *supra* note 41, at 65.

¹¹⁵ *Id.* at 65.

¹¹⁶ Matej Avbelj, *The Human rights inflation in the European Union*, in THE FRAGMENTED LANDSCAPE OF FUNDAMENTAL RIGHTS PROTECTION IN EUROPE (2018).

business groups. With the advent and growth of AI, popular sovereignty and functional sovereignty, as indicated above, will gradually be transformed and accompanied by a digital sovereignty exercised by intelligent machines, robots, and perhaps in due course, by new artificial, non-biological subjects. This means that popular self-government, which in the post-modern era was already often confronted with *de facto* domination of functional powers in the economic sphere, leaving little or no alternative to popular “self-determination” in political decision-making,¹¹⁷ will be further weakened by the algorithmic governance of machines, which embody an “artificially created form of necessity”¹¹⁸ through their technological design, leaving their users “no space for disobedience, [. . .] no [. . .] individual autonomy or choice” which have been “the hallmarks of law in a [modern] constitutional democracy.”¹¹⁹

Assuming that AI does indeed lead to artificial subjects, equal to humans, popular self-government could in the future be exercised side by side with artificial subjects, so that late post-modern constitutionalism must accommodate not only “we the people,” but also “we the robots”¹²⁰ under its umbrella. This means, that the conventional statist demos as a source of constitutional authority, which has already witnessed the emergence of multiple demoi¹²¹ and the competition of functional, technocratic and business, interest-based constituencies, may soon face AI machines as a parallel constituent power. The modern concept of equal citizenship, *homo politicus*, regardless of status, will, following the trend of differentiating the status of individuals who in post-modernity are increasingly treated not as citizens but as consumers or economic producers, *homo economicus* for short, evolve into and perhaps partly give way to a *homo digitalis*,¹²² that co-exists and eventually competes with artificial non-biological subjects.

It goes without saying that such a development will continue to have a very strong effect on the modern system of legitimizing power: Democracy. Although post-modernity has already shifted the focus of democracy from input and throughput legitimacy to output legitimacy,¹²³ underpinning the increasingly utilitarian nature of the current system of government, the rise of algorithmic governance through ever more powerful AI could lead to a new model of government by algorithms, referred to as “algocracy.”¹²⁴ In this model individual agency, popular self-government, transparency and accountability will be increasingly replaced by automated decision-making and black-box algorithms, which are characterized by the opacity and incomprehensibility of the decisions and rules made. All of this will ultimately have a massive effect on the philosophical dimension of modern constitutionalism.

The commodification of the individual with inherent equal human dignity, which has been taking place in post-modernity, will receive an additional boost from the technological progress of AI. The humanistic foundation of Western philosophy, including in its constitutional leg, will continue to dwindle and lead to the so-called technological singularity,¹²⁵ in which the human and

¹¹⁷Matej Avbelj, *Integral Pre-emption of EU Democracy in Economic Crisis under Transnational Law*, 4 CAMBRIDGE J. OF INT'L AND COMP. L. 242 (2015).

¹¹⁸Tusseau, *supra* note 43, at 47.

¹¹⁹*Id.*

¹²⁰CHESTERMAN, *supra* note 39.

¹²¹J.H.H. Weiler, *Does Europe Need a Constitution? Demos, Telos and the German Maastricht Decision*, 1 EUR. L. J. 219 (1995).

¹²²Teubner & Golia, *supra* note 99, at 9 (referring to Thomas Vesting, GENTLEMAN, MANAGER, HOMO DIGITALIS: DER WANDEL DER RECHTSBUJEKTIVITÄT IN DER MODERNE, ch. 9 (2021)).

¹²³Fritz W. Scharpf, *Problem-Solving Effectiveness and Democratic Accountability in the EU*, 3 MPIFG WORKING PAPER 1 (2003).

¹²⁴Giovanni de Gregorio and John Danaher, *Rule By Algorithm? Biga Data and the Threat of Algocracy*, PHILOSOPHICAL DISQUISITIONS (Jan 6, 2014, 9:55 AM) <https://philosophicaldisquisitions.blogspot.com/2014/01/rule-by-algorithm-big-data-and-threat.html>; John Danaher, *The Threat of Algocracy. Reality, Resistance and Accommodation*, 29 PHIL. AND TECH. 245 (2016); Nicholas Wright, *How Artificial Intelligence will Reshape the Global Order*, FOREIGN AFFAIRS (July 10, 2018).

¹²⁵Antonio Diéguez and Pablo García-Barranquero, *The Singularity, Superintelligent Machines, and Mind Uploading: The Technological Future? in ETHICS OF ARTIFICIAL INTELLIGENCE, part of THE INTERNATIONAL LIBRARY OF ETHICS, LAW AND TECHNOLOGY* (2023).

digital dimensions merge. In the worst, but for some also in the best case, humans and machines will become interchangeable, merging into a single entity, if necessary, through digital implants directly into human brains.¹²⁶ This profound transformation of the individual as the main constitutional subject, places constitutional philosophy on completely new, previously untested terrain. The fact that the emergence of algorithmic governance is also changing the model of reasoning itself will reinforce this trend further. As has already been noted, the causality-based reasoning that has dominated human history, will increasingly give way to algorithmic rationale based on probability and correlation.¹²⁷

All the building blocks of modern constitutional philosophy, from the constitutional subjects, their way of thinking and reasoning, to the primordial humanist goals, will therefore be subject to major change in the late post-modern age of an algorithmic society. The grand ideals of modernity: Order, unity, and stability, already undermined in post-modernity and even replaced by—a perception?—of disorder, fragmentation and instability, could regain strength by being transformed into the system of total algorithmic prediction, in which there will be less and less room, if any, for privacy, spontaneity, contingency and thus for human agency and freedom. In a sense, the AI based algorithmic society could perfect Bentham's panopticon to a degree that its author could not even have imagined.¹²⁸ It remains to be seen whether this will be a sign of the progress and emancipation sought by modern constitutional philosophy, that has been undermined by the post-modern obsession with skepticism, stagnation, or even decadence.

Finally, the object and purpose of general, and with it also constitutional, philosophy might change too. Traditionally this has been based on the idea of a common good, consisting in the improvement of human living conditions through scientific and humanistic progress towards the truth. Post-modernism has already undermined this goal by exchanging the truth for narratives, replacing the common good with particular goods and—as the future may show in the algorithmic society—with the maximization of profit: Private and public. It is therefore not unlikely that late post-modernity will lay to rest the key building blocks of modern constitutional philosophy: The concept of public space, public reason, and dialogic deliberation as a procedural means of arriving at the right answers for fair governance. The public space could either become entirely private property,¹²⁹ or shrink to the extent that it is dominated by many fragmented private forums, that act as echo chambers, “filter bubbles,”¹³⁰ in which the discourse is unreflexively hegemonized. This would lead to the irreversible collapse of public reason, a trend which can be observed already today,¹³¹ with paradigm changing consequences not just for a constitutional philosophy, but also constitutional practices. The social fabric that has made modern constitutionalism possible could be torn apart.

E. Instead of a Conclusion

The preceding discussion has demonstrated with full force that recent and forthcoming technological developments in the field of AI have indeed undermined all the main tenets of the conventional modern constitutionalism. Constitutionalism is, apparently, undergoing profound changes in its legal-institutional, socio-political, and philosophical dimensions. The trend has taken a turn for the worse. The transformation of conventional constitutionalism has led to the

¹²⁶Diksha Madhok, *Elon Musk Says his Neuralink Startup Has Implanted a Chip in its First Human Brain*, CNN (Jan. 30, 2024) <https://www.cnn.com/2024/01/30/business/elon-musk-brain-implant-neuralink-intl-hnk/index.html>.

¹²⁷de Gregorio, *supra* note 41, at 65.

¹²⁸*Internalized Authority and the Prison of the Mind: Bentham and Foucault's Panopticon*, JLAAW WORKPLACE, https://www.brown.edu/Departments/Joukowsky_Institute/courses/13things/7121.html.

¹²⁹Frederick Mostert, *Free Speech and Internet Regulation*, 14 J. OF INTELL. PROP. L. 8 (2019).

¹³⁰Eli Pariser, *THE FILTER BUBBLE. WHAT THE INTERNET IS HIDING FROM YOU* (2011).

¹³¹Matej Avbelj, *The Rule of Law, Comprehensive Doctrines, Overlapping Consensus, and the Future of Europe*, 36 RATIO JURIS VOLUME 242 (2023).

weakening of its four conventional functions: The constitutive function, the self-rule function, the power-limiting function, and the positive normative function of hope of modern constitutionalism. However, and paradoxically, these four functions, though fundamentally weakened, are more than ever before indispensable for continued human flourishing, lest we move into the era of post-humanity.

The scale of natural, man-made, and technological challenges will continue to grow and with them the need to solve them collectively. This requires a collective entity, a state, a supranational federation, a functioning international community or even a global government, or even all of them at once. Therefore, the constitutive function of constitutionalism—for the constitution of any kind of government—is necessary. This place of government, regardless of its actual location and modality of exercise, must respond to the will, wishes, interests and rights of the people. To this end, the self-rule function of constitutionalism is also essential. The more the exercise of powers moves away from the individual and collective communities actually affected, the more the need for effective control grows. This, of course, makes the power-limiting function of constitutionalism more than pertinent. Finally, with the increasing complexity of our late post-modern age, anxiety, feeling of helplessness, loss of control, and a sense of dystopia will also grow. More than ever before, the need for hope, for meaning, for a brighter future will increase in the public sphere, in our civic identity. No secular narrative, other than constitutionalism, has stood more for “a good word”¹³² over the centuries and has been better able to convey the message of securing liberty, being pregnant with promises of responsible self-rule, political emancipation, and well-being of the individual.¹³³ This positive normative function of constitutionalism will obviously be in demand more than ever.

Perhaps constitutional theory can indeed contribute to reforming constitutionalism so that it can still fulfil these functions in and beyond the state in the late post-modern era. However, there may be socially constructed limits beyond which the entrenched concept of modern constitutionalism can no longer be persuasively translated. It may be that reformed constitutionalism can play a virtuous role in the statist and supranational environment, while in the transnational and global realm it would need to be complemented by a new theoretical approach that could gradually grow into a new narrative, institutions and practices, for a well-ordered, fair and sustainable algorithmic society in the late post-modern times. Time, and most importantly, our intellectual endeavors, will tell what the future for constitutionalism in the algorithmic society governed by AI ultimately brings.

Acknowledgments. The author would like to thank the EUI Law Department, where an earlier version of this paper was presented, as well as the anonymous reviewers for their constructive comments. All the remaining mistakes are, of course, mine.

Competing Interests. The author declares none.

Funding Statement. The research for this Article has also been supported by the European Commission within the framework of the Jean Monnet Chair PluralEU as well as by the Slovenian Study Centre for National Reconciliation.

¹³²Giovanni Sartori, *Constitutionalism: A Preliminary Discussion*, 56 THE AM. POL. SCI. REV., 853, 855 (1962).

¹³³TRANSNATIONAL CONSTITUTIONALISM, 1 (Nicholas Tsagourias, ed. 2007).