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## THE *CONSTITUTIONAL* DIMENSION OF AI: A PHENOMENOLOGY OF CYBERNETIC POWER

ANDREA SIMONCINI\*

### I. SOVEREIGNTY, POWER AND FREEDOM

*Sovereignty, power, and freedom* are three terms that, by nature (i.e. as empirical findings), are conflicting and divergent. Whatever you may define as freedom, it is in permanent tension with any kind of power, especially that supreme power we call “sovereignty.” Sovereignty, for its part, classically, is *superiorem non recognoscens*, that is it recognizes no superior power.<sup>1</sup> Only the historical practice of constitutionalism—in its modern and contemporary sense<sup>2</sup>—has attempted to reasonably reconcile these terms. As an offspring of the French and American Revolutions of the late eighteenth

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1. There is extensive literature on the genesis of the Latin formula “*superiorem non recognoscens*.” JEAN RIVIÈRE, *LE PROBLÈME DE L'ÉGLISE ET DE L'ÉTAT AU TEMPS DE PHILIPPE LE BEL: ÉTUDE DE THÉOLOGIE POSITIVE* [THE PROBLEM OF CHURCH AND STATE IN THE TIME OF PHILIP THE BEL: STUDY OF POSITIVE THEOLOGY] 424–30 (1926), “has shown that not the exact wording, but the essential meaning of the formula, can be traced to the beginning of the 13th century, namely to [Pope] Innocent III and, especially, to the canonist Alanus Anglicus. . . .” even if “the doctrine according to which the Empire is *the* world-state, superior to all kingdoms, maintained itself vigorously in the thirteenth and fourteenth centuries.” Gerhart B. Ladner, *Aspects of Mediaeval Thought on Church and State*, 9 THE REVIEW OF POLITICS 403, 418 n.50 (1947). For the genesis of the sentence, see Francesco Ercole, *Sulla Origine Francese e le Vicende in Italia della Formola: “Rex Superiorem non Recognoscens est Princeps in Regno Suo . . .”* [On the French Origin and Events in Italy: A King Who Does Not Recognize His Superior is a Prince in his Kingdom], 89 ARCHIVIO STORICO ITALIANO 197 (1931); see also CECIL N. SIDNEY WOOLF, *BARTOLUS OF SASSOFERRATO: HIS POSITION IN THE HISTORY OF MEDIEVAL POLITICAL THOUGHT* 134–44 (1913); Gerhart B. Ladner, *Aspects of Mediaeval Thought on Church and State*, 9 THE REVIEW OF POLITICS 403, 417–20 (1947).

2. See Maurizio Fioravanti, *Constitutionalism*, in A TREATISE OF LEGAL PHILOSOPHY AND GENERAL JURISPRUDENCE: A HISTORY OF THE PHILOSOPHY OF LAW IN THE CIVIL LAW WORLD, 1600–1900 263 (Enrico Pattaro et al. eds., 9th ed. 2009). See generally Benjamin Constant, *De la Liberté des Anciens Comparée à celle des Modernes* [Of the Freedom of the Ancients Compared to the Moderns], in COLLECTION COMPLÈTE DES OUVRAGES PUBLIÉS SUR LE GOUVERNEMENT REPRÉSENTATIF ET LA CONSTITUTION ACTUELLE, OU COURS DE POLITIQUE CONSTITUTIONNELLE [COMPLETE PUBLISHED WORKS ON REPRESENTATIVE GOVERNMENT AND THE CURRENT CONSTITUTION, OR CONSTITUTIONAL POLICY COURSES] (1820) (contrasting the freedom of the *ancients* (understood as direct participation and collective sovereignty) with the emerging freedom of moderns with the revolutions of the 19th century (understood as individual independence and indirect representation)).

century, constitutional law emerged as an attempt to “keep the wolf” of sovereignty “out of the fold,”<sup>3</sup> delimiting the area of “legitimate” powers through law, in order to protect and promote individual freedom. In this sense, constitutional law has always adapted and adjusted its rules to the evolution of power. The central argument of this Article is that—if we accept this broad definition of constitutionalism, whereby institutional systems for the legal protection of liberty always mirror the concrete allocation of power—we are currently facing a new phenomenology of power, and this requires a corresponding evolutionary leap in the protection of constitutional freedoms.

The traditional instruments and conceptual schemes established for interpreting and safeguarding rights are proving inadequate against a new diffused, personalized, and less-transparent configuration of governance and control. This requires not merely an update but a fundamental re-conceptualization of how constitutional rights are defined, interpreted, and, moreover, effectually enforced in contemporary social life. Otherwise, we risk losing the meaning and effectiveness of what we know as the “democratic constitutional state.”<sup>4</sup> In Part II, the Article intends to briefly outline the two main constitutional “waves” that occurred after the Middle Ages.<sup>5</sup> The hypothesis is that the second wave ended at the turn of the twenty-first century, opening a new era defined by *technological* power. Part III focuses on the emergence of what it is called “*cybernetic*” power, tracing its origins back to Norbert Wiener’s development of cybernetics.<sup>6</sup> This form of power is defined as the ability to govern human behavior by controlling information flows and induces a “Copernican revolution,” as technology shifts from being an *instrument* for automation to becoming an autonomous decision-making *agent*. Part IV delves analytically into the phenomenology of cybernetic power, outlining three ways in which artificial intelligence (“AI”) systems substantially interact with human freedom: *decision-making*, *persuasive* and *cognitive* technology.<sup>7</sup> In the final Part, the article discusses *hybrid* constitutionalism.<sup>8</sup> Given the new and unprecedented features of cybernetic power—acting from *inside* the human’s will—protection must occur at the early design stage, before the technology is created. This is why a hybrid constitutionalism is necessary, as it can be expressed and enforced through both the language of technology and law. As a new regulatory model,

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3. See THOMAS JEFFERSON, THE WORKS OF THOMAS JEFFERSON 22, 48 (Paul Leicester Ford ed.), (Fed. ed. vol. 4, New York and London, G.P. Putnam’s Sons 1904–05).

4. See Fioravanti, *Constitutionalism*, *supra* note 2.

5. See *infra* Part II.

6. See *infra* Part III.

7. See *infra* Part IV.

8. See *infra* Part V.

it requires protection by education, which involves training legal and technical professionals in shared principles.

## II. THE CONSTITUTIONAL “WAVES”

After the Middle Ages, that is, after a millennium in which the very idea of absolute power did not exist,<sup>9</sup> two main *waves* of constitutionalism emerged. During the first one, from the end of the eighteenth century to the beginning of the twentieth century, the power to be limited was primarily that of the sovereign as an absolute monarch. The legal instrument through which this was achieved was *la loi* (the law)—i.e. an act of general and abstract that Parliament expresses and, consequently, *l’Etat* (the State) as its expressive institution. At least within continental Europe, the result of the first wave of post-revolutionary constitutions of the late 1700s was not the real “transformation” of sovereign power, but rather the “re-location” of absolute power from the king to the state and parliamentary law.<sup>10</sup>

During its second wave, the continental European constitutionalism had to process the trauma of the totalitarian degeneration of the legislative state in the early twentieth century.<sup>11</sup> Paradoxically, the new sovereign power to

9. See PAOLO GROSSI, *L’ORDINE GIURIDICO MEDIEVALE* [THE MEDIEVAL ORDER] (Laterza 1997). For an English translation of parts of Grossi’s analysis of medieval legal history, see PAOLO GROSSI, *A HISTORY OF EUROPEAN LAW* (2010).

10. In this perspective, despite both deriving from the same constitutional revolution, a central divergence lies between the German notion of *Rechtsstaat* and the Anglo-Saxon *Rule of Law*. In the United Kingdom’s history, no comparable experience has produced a structural mistrust of parliamentary majorities. Accordingly, the *Rule of Law* persists as an unwritten constitutional principle, ultimately subordinate to Parliament’s theoretically unlimited legislative authority within the Westminster model. By contrast, the *Rechtsstaat* constitutes, alongside democracy, federalism, and social welfare, a foundational principle of the German constitutional order. It has generated an extensive body of derivative sub-principles through judicial and scholarly interpretation, functioning not merely as a constraint on state power but as a systematic framework for legitimizing and structuring it. See Jens Meierhenrich, *Rechtsstaat Versus the Rule of Law*, in *THE CAMBRIDGE COMPANION TO THE RULE OF LAW* 39, 39–42, 46, 48, 54, 56–57, 62, 65 (Jens Meierhenrich & Martin Loughlin eds., 2021); Christoph-Eric Mecke, *The “Rule of Law” and the “Rechtsstaat”: A Historical and Theoretical Approach from a German Perspective*, 79 *STUDIA IURIDICA* 29, 35–36 (2019); Bernardo Sordi, *Révolution, Rechtsstaat and the Rule of Law: Historical Reflections on the Emergence and Development of Administrative Law*, in *COMPARATIVE ADMINISTRATIVE LAW* 23, 23, 27–30, 32 (Susan Rose-Ackerman et al. eds., 2d ed. 2017); Martin Krygier, *Rule of Law (and Rechtsstaat)*, in *THE LEGAL DOCTRINES OF THE RULE OF LAW AND THE LEGAL STATE (RECHTSSTAAT)* (James R. Silkenat et al. eds., 2014); Danilo Zolo, *The Rule of Law: A Critical Reappraisal*, in *THE RULE OF LAW: HISTORY, THEORY AND CRITICISM* 3, 3, 7–9, 11–13, 15–16 (Pietro Costa & Danilo Zolo eds., 2007); BRIAN Z. TAMANAHA, *ON THE RULE OF LAW: HISTORY, POLITICS, THEORY* 92, 108–110, 113–126 (2004). For the connections with “constitutionalism,” see Fioravanti, *Constitutionalism*, *supra* note 2; Ulrike Müßig, *A New Order of the Ages. Normativity and Precedence*, in *RECONSIDERING CONSTITUTIONAL FORMATION II DECISIVE CONSTITUTIONAL NORMATIVITY: FROM OLD LIBERTIES TO NEW PRECEDENCE* 1, 1–87 (Ulrike Müßig ed., 2018).

11. See Luigi Lacchè, *Rule of Law Metamorphoses in the Twentieth Century*, in *RULE OF LAW VS MAJORITARIAN DEMOCRACY* 25, 30–41 (Giuliano Amato et al. eds., 2021); Dieter Gosewinkel,

be “tamed” became precisely that of the state and its main expression: the law. Thus, the so-called “rigid” constitutions of the postwar period were introduced, substantially trying to imitate the American judicial review of legislation<sup>12</sup> and, at the same time, new international law instruments were introduced to defend fundamental rights and democracy.<sup>13</sup>

Unlike the first wave, a deep transformation of the concept of sovereignty occurred during the second wave. Sovereignty was no longer merely transferred from the king to the state;<sup>14</sup> instead, it was *transformed* through the notion of “popular” sovereignty: a new kind of public power that could only be exercised “*within the limits and forms set by the Constitution.*”<sup>15</sup> Many existing constitutional systems emerged in this context.<sup>16</sup> These systems are characterized by constitutions that are the

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*The Constitutional State*, in THE OXFORD HANDBOOK OF EUROPEAN LEGAL HISTORY (Heikki Pihlajamäki et al. eds., 2018); Stanley L. Paulson, *The Theory of Public Law in Germany 1914–1945*, 25 OXFORD J. LEGAL STUD. 525, 542–43 (2005); HANNAH ARENDT, THE ORIGINS OF TOTALITARIANISM (1st ed. 1951).

12. Following *Marbury v. Madison*, 5 U.S. 137 (1803). See MAURO CAPPELLETTI, JUDICIAL REVIEW IN THE CONTEMPORARY WORLD 45–51, 53–66 (1971); Bruce Ackerman, *The Rise of World Constitutionalism*, 83 VA. L. REV. 771, 771–72, 772–73 n.4, 774–81, 787–97 (1997); JAN-WERNER MÜLLER, CONTESTING DEMOCRACY: POLITICAL IDEAS IN TWENTIETH-CENTURY EUROPE 146–49 (2011); SAMUEL ISSACHAROFF, FRAGILE DEMOCRACIES: CONTESTED POWER IN THE ERA OF CONSTITUTIONAL COURTS 190, 193, 197–98 (2015).

13. This transformation was further institutionalized in Europe through the creation of supranational legal orders, most notably the Council of Europe, with the adoption of the European Convention on Human Rights in 1950, and the European Communities, established by the Treaty of Paris (1951) and the Treaties of Rome (1957), which embedded the protection of fundamental rights and the rule of law into the emerging European legal framework. See J.H.H. WEILER, THE CONSTITUTION OF EUROPE: “DO THE NEW CLOTHES HAVE AN EMPEROR?” AND OTHER ESSAYS ON EUROPEAN INTEGRATION 102–128 (1999); Christopher McCrudden, *A Common Law of Human Rights?: Transnational Judicial Conversations on Constitutional Rights*, 20 OXFORD J. LEGAL STUD. 499, 500–01 (2000); Paul Blokker, *Constitutionalism, Judicialisation and Human Rights in the Integration of European Society*, in EUROPEAN INTEGRATION: HISTORICAL TRAJECTORIES, GEOPOLITICAL CONTEXTS 118, 119, 129–32 (Johann P. Arnason ed. 2019). See generally MICHAEL A. WILKINSON, AUTHORITARIAN LIBERALISM AND THE TRANSFORMATION OF MODERN EUROPE (2021) (criticizing the “constitutionalization” of the European Union).

14. See HAROLD J. LASKI, A GRAMMAR OF POLITICS (2d ed. 1930); MARTIN LOUGHLIN, THE IDEA OF PUBLIC LAW (2004); DIETER GRIMM, SOVEREIGNTY: THE ORIGIN AND FUTURE OF A POLITICAL AND LEGAL CONCEPT 35, 36, 41 (Belinda Cooper trans., 2015).

15. See Vezio Crisafulli, *La Sovranità Popolare nella Costituzione Italiana [Popular Sovereignty in the Italian Constitution]*, in STATO, POPOLO, GOVERNO: ILLUSIONI E DELUSIONI COSTITUZIONALI [STATE, PEOPLE, GOVERNMENT: CONSTITUTIONAL ILLUSIONS AND DISSAPPOINTMENTS] 89 (1985) (emphasis added) (author’s translation); Gaetano Silvestri, *La Parabola della Sovranità: Ascesa, Declino e Trasfigurazione di un Concetto [The Parable of Sovereignty: Rise, Decline, and Transfiguration of Concept]*, 1 RIVISTA DI DIRITTO COSTITUZIONALE [J. OF CONST. L.] 3, 23–26 (1996); Bruno de Witte, *Sovereignty and European Integration: The Weight of Legal Tradition*, 2 MAASTRICHT J. EUR. & COMPAR. L. 145, 147–48 (1995); Luigi Lacchè, *The Sovereignty of the Constitution: A Historical Debate in a European Perspective*, 34 GIORNALE DI STORIA COSTITUZIONALE 83, 95 (2017).

16. See Crisafulli, *supra* note 15, at 23–26; de Witte, *supra* note 15; Lacchè, *supra* note 15.

“supreme law of the land,” thus superior to parliamentary laws and political majorities and guaranteed by systems of judicial review of laws and powers.<sup>17</sup>

I believe that this notion of so called “democratic constitutionalism”<sup>18</sup> that emerged after World War II, although still dominating the juridical-political narrative, ended in the twentieth century. With the advent of the twenty-first century and the so-called “digital age,” we are, indeed, at the dawn of a new era for the constitutional protection of rights and the separation of powers, due to the rise of a new kind of *sovereign* power.<sup>19</sup> Sovereignty today is no longer necessarily private or public, personal or collective, economic or military, but essentially *technical*.<sup>20</sup> Consequently, the new “force” that constitutional law should govern is neither the private power of the king nor the public power of the state. Rather, it is a new type of dominance that is substantially indifferent to the nature—public or private—of its holder. The increasingly dominant techno-social paradigm portrays technology as an *indispensable resource* for human growth and flourishing, expressing this performative capacity as a key factor of personal liberation.<sup>21</sup> We are confronted, then, with this latest “mask” of sovereign power, *superiorem non recognoscent*. This increasingly dominant techno-social paradigm raises entirely new challenges to constitutional frameworks that are still aiming to establish clear limits on power and build a legal foundation for it.<sup>22</sup>

17. See Crisafulli, *supra* note 15.

18. See Robert C. Post & Reva B. Siegel, *Democratic Constitutionalism*, in Jack M. Balkin and Reva B. Siegel, *THE CONSTITUTION IN 2020* 25–26 (2009).

19. See Andrea Simoncini & Erik Longo, *Fundamental Rights and the Rule of Law in the Algorithmic Society*, in *CONSTITUTIONAL CHALLENGES IN THE ALGORITHMIC SOCIETY* 427–41 (Hans-W. Micklitz et al. eds., 2021); Andrea Simoncini, *Sovranità e Potere nell'era Digitale [Sovereignty and Power in the Digital Age]*, in *DIRITTI E LIBERTÀ IN INTERNET [RIGHTS AND FREEDOMS ON THE INTERNET]* (Tommaso Edoardo Frosini et al. eds., 2017); Oreste Pollicino, *Potere Digitale [Digital Power]*, in *ENCICLOPEDIA DEL DIRITTO [ENCYCLOPEDIA OF LAW]* (2023).

20. The issue is not confined only to the domain of “digital” or “data”; it extends broadly to the whole picture of technological power. See Mario Draghi, *Speech by Mario Draghi, President of the ECB, on the Award of Laurea Honoris Causa in Law from Università degli Studi di Bologna, Bologna, 22 February 2019*, EUR. CENT. BANK (Feb. 22, 2019), <https://www.ecb.europa.eu/press/key/date/2019/html/ecb.sp190222~fc5501c1b1.en.html> [<https://perma.cc/XAA8-7TYP>] (“True sovereignty is reflected not in the power of making laws—as a legal definition would have it—but in the ability to control outcomes and respond to the fundamental needs of the people.”).

21. See Lesley Jolly et al., *Techno-Social Systems in Organizations*, 1 INT’L J. TECH., KNOWLEDGE & SOC’Y 12 (2006); Alessandro Vespignani, *Predicting the Behavior of Techno-Social Systems*, 325 SCIENCE 425, 425–28 (2009); Gordon Baxter & Ian Sommerville, *Socio-Technical Systems: From Design Methods to Systems Engineering*, 23 INTERACTING WITH COMPS. 4, 4–17 (2010).

22. Simoncini & Longo, *supra* note 19; Richard Susskind, *THE FUTURE OF LAW: FACING THE CHALLENGES OF INFORMATION TECHNOLOGY* (1998); Stefano Rodotà, *La Sovranità nel tempo della Tecnopolitica. Democrazia Elettronica e Democrazia Rappresentativa [The Sovereignty in*

III. THE NEW *LEVIATHAN*: FROM DIGITAL TO “CYBERNETIC” POWER

To understand the current configuration of the new power that has emerged from society’s digital transformation, we must trace it back to its genesis. If Alan Turing is the true father of computer science because of his hypothesis of universal computing machines,<sup>23</sup> the decisive contribution to bridge this hypothesis with the rest of the life sciences comes from Norbert Wiener.<sup>24</sup> To him, in fact, we owe the invention of “*cybernetics*” as a science. In 1948, the American mathematician wrote the seminal book *Cybernetics: Or Control and Communication in the Animal and the Machine*,<sup>25</sup> opening a brand-new stream of research that would decisively change scientific inquiry and affect moral and legal doctrine.<sup>26</sup> The core idea of this new scientific hypothesis is that the mechanisms of communication and control in machines and in living organisms are substantially analogous.<sup>27</sup> Therefore, we may study and understand the patterns of communication and control in both biological organisms and machines, through statistics and logic.<sup>28</sup>

As Wiener himself says in the introduction to the first 1948 edition of his volume: “*We have decided to call the entire field of control and communication theory, both in machines and in animals, by the name ‘cybernetics’, which we have taken from the Greek κυβερνήτης, that is, ‘pilot of the ship.’*”<sup>29</sup> In my perspective, the choice of this expression taken from ancient Greek—*κυβερνητική τέχνη*—is extremely interesting because it not only gives rise to the term “*cybernetics*,” but it is also at the root of the Latin word *gubernum*, meaning “government”—how to govern the city (*civitas*), how to rule the *polis* (political power)—the same etymology that, from Fortescue onwards, distinguishes “*iurisdictio*” from “*gubernaculum*.”<sup>30</sup> From

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*Time of Technopolitics. Electronic Democracy and Representative Democracy*], 4 POLITICA DEL DIRITTO [POLITICS OF LAW] 569 (1993).

23. See Alan M. Turing, *On Computable Numbers, with an Application to the Entscheidungsproblem*, 42 PROCS. LOND. MATHEMATICAL SOC’Y 230 (1936); Alan M. Turing, *Computing Machinery and Intelligence*, 59 MIND 433 (1950) (establishing the hypothesis of universal computing machines).

24. On Wiener’s intellectual trajectory, see NORBERT WIENER, *A LIFE IN CYBERNETICS: EX-PRODIGY: MY CHILDHOOD AND YOUTH AND I AM A MATHEMATICIAN: THE LATER LIFE OF A PRODIGY* (2018).

25. NORBERT WIENER, *CYBERNETICS: OR CONTROL AND COMMUNICATION IN THE ANIMAL AND THE MACHINE* (1948).

26. For the fundamental contribution of Vittorio Frosini, see VITTORIO FROSINI, *CIBERNETICA, DIRITTO E SOCIETÀ* [LAW AND SOCIETY], in *DIRITTO E CULTURA MODERNA* [LAW AND MODERN CULTURE] (Edizioni di Comunità 1968).

27. See WIENER, *supra* note 25.

28. *Id.*

29. *Id.* at 11–12 (emphasis added); JACQUES ELLUL, *THE TECHNOLOGICAL SOCIETY* 136, 138 (John Wilkinson trans., 1964).

30. CHARLES HOWARD MCILWAIN, *CONSTITUTIONALISM: ANCIENT AND MODERN* 77–146 (1947).

its very beginning, therefore, there has been a sort of original convergence between *cybernetics* and *social science*, because both aim to study and predict patterns of collective behavior,<sup>31</sup> to quote the forerunner André-Marie Ampère in 1834.<sup>32</sup> This is the core distinctive feature of the new emerging power: The ability to govern human behavior as machines are governed, i.e., by controlling their information flows. This is how I define “cybernetic” power.<sup>33</sup>

When we think about where we get information today—from trivial matters to those that are relevant and decisive—we realize that almost all of these sources are managed by technological platforms powered by AI algorithms.<sup>34</sup> Thus, technology profoundly impacts our lives mainly by providing us with information. This is a “Copernican revolution” in our engagement with technology.<sup>35</sup>

Indeed, we have always thought of technology as a tool—a means to achieve our goals. Technology’s added value has always been its ability to help people achieve their objectives more quickly, accurately, powerfully, effectively, and with less effort.

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31. FROSINI, *supra* note 26. Bernard Scott, *Cybernetics and the Social Sciences*, 18 SYS. RSCH. & BEHAV. SCI. 411, 411–19 (2001); Felix Geyer & Johannes van der Zouwen, *Cybernetics and Social Science: Theories and Research in Sociocybernetics*, 20 KYBERNETES 81, 81–90 (1991).

32. See ANDRE-MARIE AMPERE, ESSAI SUR LA PHILOSOPHIE DES SCIENCES, OU EXPOSITION ANALYTIQUE D’UNE CLASSIFICATION NATURELLE DE TOUTES LES CONNAISSANCES HUMAINES [ESSAY ON THE PHILOSOPHY OF SCIENCE, OR ANALYTICAL EXPOSITION OF A NATURAL CLASSIFICATION OF ALL HUMAN KNOWLEDGE] 140 (Chez Bachelier 1834).

33. Obviously, the idea that the government can be described as an information-based organism is not new. KARL W. DEUTSCH, THE NERVES OF GOVERNMENT: MODELS OF POLITICAL COMMUNICATION AND CONTROL (1963). The cybernetic hypothesis adds an entirely new perspective to the question. See TIQQUN, THE CYBERNETIC HYPOTHESIS 7–17 (Robert Hurley trans., 2020).

34. Simon Kemp, *Digital 2025: Global Overview Report*, DATAREPORTAL (Feb. 5, 2025), <https://datareportal.com/reports/digital-2025-global-overview-report> [https://perma.cc/895Z-V8M5]. The Report provides the general review of the world use of social media; as of early 2025, 63.9% of the total world population (approximately 5.24 billion people) are active social media users; 62.8% of all internet users state that “finding information” is their primary reason for being online—ranking higher than staying in touch with friends or entertainment; over 90% of the population in Northern Europe or North America uses these systems for life information, while the “techno-social” impact is still growing in regions like Southern Asia and Africa, where mobile-first social media is the *only* source of information for many. *Id.* It should be noted that, as it is described in the Report, given their size and the volume of services they provide, all these companies can only be managed by AI systems. In fact, it is not enough to rely solely on automated systems; instead, autonomous agents powered by AI systems integrated into the platforms must be used.

35. It is usually called “Copernican Revolution,” the 16th-century paradigm shift from an Earth-centered to a Sun-centered planetary system, initiated by Nicolaus Copernicus with the 1543 publication, *De revolutionibus Orbium Coelestium*. It established Earth as a moving planet and not the center of the universe anymore, challenging established scientific, religious, and philosophical doctrines.

Galileo Galilei's greatest contribution to modern science was bringing the "wonder" of machines back to the laws of physics and mathematics by introducing "rational mechanics."<sup>36</sup> Since then, Galilean science has confirmed the "golden" ethical paradigm, which dates back to Aristotelian philosophy and has always inspired and justified the principle of legal liability. This paradigm has also inspired the mechanization of processes: The person responsible for an action (and, therefore, legally liable) is whoever designed the "machine" and activated it. The means are morally *neutral* and they blindly "obey" the laws of physics and mathematics; laws that the author may or may not be aware of, but which nevertheless exist and cause—i.e. *explain*—the event. A knife is neither good nor bad in itself; it can be used for eating or killing. This principle remains true even if the "knife" becomes a technologically complex cutting machine. "Good" or "bad" are attributes of the human who acts. Consequently, the technical instruments used to carry out an action can never be held responsible, whether morally or legally. Only the person who decided to use those means can be held responsible.

Let us take the example of automotive technology. In the case of a car accident, no one would sue the vehicle itself for damages since the pedestrian was concretely hit by the "car." Clearly, only the driver of the vehicle could be held liable for any consequences of the collision. The emergence of driverless vehicles, due to technological advancements, has fundamentally transformed this scenario; now technological devices work as *agents* rather than mere *means*. It is the transition from *automation* to *autonomy*. The *European Charter of Robotics*, an important legal document that the European Parliament approved, foresaw this transition, stating that:

a robot's autonomy can be defined as the ability to take decisions and implement them in the outside world, independently of external control or influence . . . .

. . . .

. . . [I]n the scenario where a robot can take autonomous decisions, the *traditional rules will not suffice to give rise to legal liability for damage caused by a robot*, since they would not make it possible to identify the party responsible for providing

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36. REMO BODEI, DOMINIO E SOTTOMISSIONE: SCHIAVI, ANIMALI, MACCHINE, INTELLIGENZA ARTIFICIALE [DOMINATION AND SUBMISSION: SLAVES, ANIMALS, MACHINES: ARTIFICIAL INTELLIGENCE] 225 (2019). Rational mechanics is a branch of theoretical physics and applied mathematics that provides a rigorous, mathematical formulation of classical mechanics. It studies the motion and equilibrium of systems using strict mathematical deduction from fundamental principles, bridging mathematics, physics and engineering.

compensation and to require that party to make good the damage it has caused.<sup>37</sup>

Similarly, the definition provided by the recent new European Regulation, called “*Artificial Intelligence Act*,”<sup>38</sup> states that an *AI system* is “a machine-based system that is designed to operate *with varying levels of autonomy*.”<sup>39</sup> Therefore, speaking of AI systems today, we must consider “varying levels of *autono[mous]*” machines designed not to execute our decisions, but to *make* those decisions.

For quite a long time, legal scholars, particularly those engaged with law and economics, have considered the dimensions of civil liability and tort law as the most challenging question presented by these new technologies.<sup>40</sup> And this perspective is well epitomized by the aforementioned European Resolution.<sup>41</sup>

While undoubtedly a significant question, this does not constitute the real and most relevant issue. Indeed, the question of autonomous machines’ civil liability can conveniently be addressed by applying the general principles of tort law to various forms of strict or negligence-based liability and compulsory insurance policies.<sup>42</sup> The fundamental, and largely overlooked, issue at hand is the transformation of our relationship with technology. In an autonomous vehicle, the real key modification occurs in the user’s subjective framework: The *driver* becomes a *passenger*. Once the destination is chosen, humans no longer have to make decisions; the “instrument” makes all the relevant decisions (e.g., which safety controls to perform, which route to take, and at what speed).

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37. European Parliament Resolution of 16 February 2017 with Recommendations to the Commission on Civil Law Rules on Robotics, (2015/2103(INL)), 2018 O.J. (C 252) 242 (2018) (emphasis added).

38. Regulation (EU) 2024/1689 of the European Parliament and of the Council of 13 June 2024 Laying Down Harmonised Rules on Artificial Intelligence, 2024 O.J. (L, 2024/1689)) 1.

39. *Id.* at 46 (emphasis added) (“[A]nd 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.”). *Id.* (emphasis added).

40. See Ugo Pagallo, *Vital, Sophia, and Co.—The Quest for the Legal Personhood of Robots*, 9 INFO. 230, 234–37 (2018). For the American legal debate, see David C. Vladeck, *Machines Without Principals: Liability Rules and Artificial Intelligence*, 89 WASH. L. REV. 117 (2014); Ryan Calo, *Robotics and the Lessons of Cyberlaw*, 103 CALIF. L. REV. 513 (2015); F. Patrick Hubbard, “Do Androids Dream?”: *Personhood and Intelligent Artifacts*, 83 TEMP. L. REV. 405 (2011).

41. See European Parliament Resolution of 16 February 2017 with Recommendations to the Commission on Civil Law Rules on Robotics, (2015/2103(INL)), 2018 O.J. (C 252) 242 (2018); ANDREA BERTOLINI, EUROPEAN PARLIAMENT, ARTIFICIAL INTELLIGENCE AND CIVIL LIABILITY 99–102, 122–25 (2020), [https://www.europarl.europa.eu/RegData/etudes/STUD/2020/621926/IPOL\\_STU\(2020\)621926\\_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/STUD/2020/621926/IPOL_STU(2020)621926_EN.pdf) [<https://perma.cc/7K5F-VVR6>].

42. See *supra* note 40.

To reiterate the definition found within the EU AI Act, an AI system is purposed “to generate outputs, such as predictions, content, recommendations, or decisions, that can influence physical or virtual environments.”<sup>43</sup> It is a Copernican revolution: humans are no longer at the center of the system; rather, the technical system is. If we enlarge the picture of self-driving cars and look at the general phenomenon, the increasingly pervasive use of cybernetic power is producing a deep transformation of our practical life: We no longer ask technology to execute what we have decided; we ask it to decide.<sup>44</sup>

#### IV. PHENOMENOLOGY OF “CYBERNETIC” POWER: TECHNOLOGY AS A PHARMAKON

What are the main characteristics of this emergent form of power or its phenomenology? To what extent does it affect our constitutional liberties, either by expanding or constraining them? A preliminary caveat should be stated.

Technology has always had an ambivalent relationship with human freedom<sup>45</sup> by its very nature, being a “*pharmakon*,” as Derrida and Stiegler would say (in ancient Greek, the word “*pharmakon*” could mean both “medicine” and “poison”).<sup>46</sup>

In other words, technology is a double-edged sword: It allows us to meet our needs and extend our faculties, but it also carries lethal risks. My focus on the dangerous aspects of digital power, rather than the beneficial ones, does not align with neo-Luddite<sup>47</sup> or catastrophist hypotheses about new technologies.<sup>48</sup> Rather, this approach suggests a critical position—a necessary intellectual stance—with which to navigate the complexity of our

43. Regulation (EU) 2024/1689, *supra* note 38, at 46 (emphasis added).

44. See generally SHOSHANA ZUBOFF, *THE AGE OF SURVEILLANCE CAPITALISM: THE FIGHT FOR A HUMAN FUTURE AT THE NEW FRONTIER OF POWER* (2019) (discussing the rise in the reliance on AI decision-making); Jennifer M. Logg, Julia A. Minson & Don A. Moore, *Algorithm Appreciation: People Prefer Algorithmic to Human Judgment*, 151 *ORG. BEHAV. & HUM. DECISION PROCESSES* 99–101 (2019).

45. See generally ZYGMUNT BAUMAN, *MODERNITY AND AMBIVALENCE* (1991) (clarifying that for modernity, ambivalence is a threat because it represents a lack of control in the meaning of things).

46. JACQUES DERRIDA, *DISSEMINATION* 95–117 (Barbara Johnson trans., University of Chicago Press, 1981) (explaining the origin of the term *pharmakon*). See generally BERNARD STIEGLER, *TECHNICS AND TIME, 1: THE FAULT OF EPIMETHEUS* (Richard Beardsworth & George Collins trans., Stanford University Press 1998) (where the author, moving from Derrida’s reading of Plato, argues that technology has a dual nature of cure and poison).

47. CHELLIS GLENDINNING, *NOTES TOWARD A NEO-LUDDITE MANIFESTO 3* (1990) (shedding positive light on the neo-Luddite movement, which consisted of people who were skeptical of modern advances in technology).

48. See generally NICK BOSTROM, *SUPERINTELLIGENCE: PATHS, DANGERS, STRATEGIES* (2014) (arguing that “superintelligence” would be hard to control and, thus, risks world domination).

increasingly technologized world. This critical approach involves analyzing the complex interplay between technology, sovereignty, and power dynamics, trying to assess the effective impact of new digital tools on our freedom. When examining how AI systems are used today, three dimensions of the interaction between technology and human freedom emerge as the most relevant: *decision-making*, *persuasion*, and *cognition*.

#### A. Decision-Making Technology

An ever-increasing number of *decisions* that can “produce[] legal effects . . . or similarly significantly affect[]”<sup>49</sup> the personal, individual, and collective spheres are made or supported by “social machines,” that is, automated systems governed by AI algorithms interacting with social functions.<sup>50</sup> This unprecedented technological shift presents entirely new constitutional questions. Let us explore the legal dimensions of this phenomenon through some cases.

In most cases, a judge must decide what punishment to inflict on a guilty defendant.<sup>51</sup> An AI algorithm, based on the personal data of the defendant, provides a score of the defendant’s recidivism risk (Low – Medium – High); the judge makes a final decision, also based on this scoring.

A bank director must decide whether to grant a client a loan.<sup>52</sup> The director receives a creditworthiness profile of the applicant from an AI algorithm; he should make the final decision taking into account the credit score and must ask for an upper-level authorization if he intends to deviate from the algorithmic profile.

A radiologist must write a report on a CT scan, or a pathologist must write a report on a biopsy. An AI algorithm embedded in the diagnostic machine provides the doctors with a preview of the possible report based on a dataset of previous reports.<sup>53</sup>

A share-economy company (such as Uber, Deliveroo, or Glovo) must decide which of its registered workers will have priority access to service

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49. See Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016, 2016 J.O. (L 119) 46; see Francesca Lagioia, Giovanni Sartor & Andrea Simoncini, *Processo Decisionale Automatizzato Relative alle Persone Fisiche, Compresa la Profilazione* [Automated Decision-Making Process Relating to Physical People, Including Profiling], in CODICE DELLA PRIVACY E DATA PROTECTION [PRIVACY CODE AND DATA PROTECTION] 378 (Raffaele D’Orazio et al. eds., 2021).

50. For more on the definition of “social machine,” see Nello Cristianini & Teresa Scantamburlo, *On Social Machines for Algorithmic Regulation*, 35 AI & SOC’Y 645, 647 (2020).

51. See *State v. Loomis*, 881 N.W.2d 749, 765 (Wis. 2016).

52. See *Joined Cases C-634/21 et al., SCHUFA Holding AG*, ECLI:EU:C:2023:957 16 (Dec. 7, 2023).

53. *Mracek v. Bryn Mawr Hosp.*, 363 F. App’x. 925, 926 (3d Cir. 2010).

requests submitted via the application. An AI algorithm autonomously ranks these workers and assigns services.<sup>54</sup>

The State Education Department should recruit and appoint thousands of new teachers. This process is particularly complex, so the department has asked a specialized company to develop an algorithm that will automatically assign teachers to schools.<sup>55</sup>

A college student is asked to write an essay on a given topic. Many available generative AI chatbots can answer any kind of question posed in natural language.<sup>56</sup> The student then uses the chatbot to write the essay—either by copying its answer or drawing inspiration from it.

During a trial, a lawyer must write a defense brief for a client. Many available generative AI tools provide the legal profession with the groundwork necessary for researching precedents, studying contracts, and drafting texts. The lawyer then incorporates the AI-generated document into his or her defense brief.<sup>57</sup>

Finally, a parliamentary committee examines various legislative bills; a generative AI algorithm trained on a dedicated Large Language Model provides one (or more) unified texts, analyzes the quality of the drafting, evaluates the impact on existing regulation, and compatibility with budgetary guardrails.<sup>58</sup>

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54. Trib. Bologna, Sez. Lavoro [Bologna Court, Labor Section], 31 December 2020, n. 2949 (It.).

55. Cons. Stato [Council of State], Sez. VI, 13 December 2019, n. 8472 (It.).

56. According to OpenAI's own description, ChatGPT is capable of processing natural language and providing answers to users' questions. *See Introducing ChatGPT*, OPENAI (Nov. 30, 2022), <https://openai.com/index/chatgpt/> (on file with the Maryland Law Review).

57. In a recent Italian case, an attorney explicitly relied on ChatGPT to draft a written submission filed before the Tribunal of Florence. Trib. Ordinario Di Firenze, Sez. Imprese [Ordinary Court of Florence, Business Section], 14 March 2025, recl. n. RG 11053/2024 (It.). The pleading contained citations to several purported decisions of the Italian Supreme Court of Cassation that, upon verification by the opposing party, proved to be entirely nonexistent—an instance of so-called *AI hallucinations*. *Id.* The opposing party sought the imposition of aggravated liability for abuse of process under Italian procedural law. *Id.* The court declined to impose sanctions, holding that the uncritical reliance on a generative AI system, while problematic, did not in itself establish bad faith or gross negligence, nor did it cause demonstrable procedural harm. *Id.* For analogous U.S. case law, see *Mata v. Avianca, Inc.*, 678 F. Supp. 3d 443, 448 (S.D.N.Y. 2023); *Park v. Kim*, 91 F.4th 610, 612 (2d Cir. 2024).

58. The Italian Chamber of Deputies presented three generative AI prototypes—including systems for analyzing legislative production and drafting amendments—developed under the supervision of the Parliamentary Documentation Oversight Committee to assist parliamentary work, enhance transparency, and support analysis of legislative texts. *See Italian Chamber of Deputies, The Chamber Presents the First Three Artificial Intelligence Prototypes to Parliament*, ITALIAN PARLIAMENT (July 9, 2025), <https://comunicazione.camera.it/archivio-prima-pagina/19-51129> [<https://perma.cc/ZFD8-ADK2>] (describing the prototypes NORMA, MSE, and DEPUCHAT, designed to support legislative drafting, committee research, and citizen engagement through generative AI). *See generally* Luciano Floridi & Anna Ascani, *Augmented Democracy in Action: AI Systems for Legislative Innovation in the Italian Parliament*, 35 MINDS & MACH. 42 (2025).

I could provide many more examples. All of these cases have two key features in common. First, they are not merely theoretical scenarios; they are all real-world occurrences and are already widely debated. Second, more pivotally, these scenarios share a common, critical characteristic: They all illustrate a situation where the human actor—willingly or implicitly—gives up their decision-making authority to a technical system.<sup>59</sup> This surrender of authority can manifest in varying degrees—it may be a partial delegation of single steps of the decision-making process, or it could involve the complete transfer of the decision. The core issue remains the devolution of a fundamental human faculty—the capacity to decide—to a non-human, technical system.

This kind of technology raises deep questions about autonomy, responsibility, and the future of human agency in an increasingly machine-supported world.

### B. Persuasive Technology

There is a second essential dimension of the interaction between technology and freedom: It is what Daron Acemoglu and Simon Johnson call the power of *persuasion*.<sup>60</sup> The starting point is quite intuitive: Human decisions, whether simple or complex, fundamentally rely on the information available to the individual. Practical choices are always contingent upon the knowledge of the existing alternatives. Consequently, the most impactful (and efficient) method for influencing and directing human choices is through the provision of information.

This principle is clearly illustrated in the field of commercial marketing, where a substantial effort is dedicated to informing potential buyers about a good or service to heighten their interest and promote its acquisition. We all know how important *advertising* and *marketing* have been—and still are—in the prevailing business model, and in the R&D perspectives, of the main

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(describing how AI can impact democratic processes using the Italian Chamber of Deputies' AI initiative as a case study); Erik Longo, *Legislating in the Age of AI: Key Challenges in Implementing Large Language Models Within Legislative Assemblies*, in DIGITALISIERUNG UND REGIONALE AUTONOMIE 105 (Esther Happacher, et al. eds., 2025) (exploring the challenges of using Large Language Models in legislative assemblies).

59. FRANK PASQUALE, NEW LAWS OF ROBOTICS: DEFENDING HUMAN EXPERTISE IN THE AGE OF AI 1 (2020).

60. See generally DARON ACEMOGLU & SIMON JOHNSON, POWER AND PROGRESS: OUR 1000-YEAR-STRUGGLE OVER TECHNOLOGY & PROSPERITY (2023) (coining the power of *persuasion*); AMEDEO SANTOSUOSSO & GIOVANNI SARTOR, DECIDRE CON L'IA. INTELLIGENZE ARTIFICIALE E NATURALI NEL DIRITTO [Deciding with Artificial Intelligence and Natural Intelligence in Law] (2024) (drawing on and further developing Acemoglu and Johnson's analysis in the context of legal decision-making and artificial intelligence).

technology platforms currently in operation.<sup>61</sup> It is the “economy of attention.”<sup>62</sup> This economic model is fundamentally built on the premise that user attention is the most valuable commodity. Platforms are ingeniously designed to capture and maximize the time users spend engaging with them, as this increased engagement translates directly into more opportunities to provide targeted advertisements. This granular data enables advertisers to target specific segments with unprecedented precision, dramatically increasing the perceived value of effective advertising persuasive capacity.<sup>63</sup> Consequently, research and development investments are often channeled into developing algorithms that optimize engagement or notification systems designed to create a loop of continuous interaction.

Now, let us go back to a question we asked ourselves earlier:<sup>64</sup> What is the primary source through which people obtain the information they need today? The answer is undeniably digital platforms powered by AI systems. The standard channel through which we get the information we need to make decisions, is monopolized by digital platforms available via the web and through a widespread series of common-use devices (such as, smartphones).<sup>65</sup>

Search engines and social media were the first generation of these. Today, AI chatbots such as ChatGPT, Gemini, and Claude constitute the second generation.

Regardless of the specific digital platform, the emergence of these new media technologies has fundamentally changed everyone’s “informational diet.”<sup>66</sup> The traditional means of information—books, newspapers, radio, television—have been gradually replaced by what is now called *cross-*

61. ZUBOFF, *supra* note 44; NICK SRNICEK, PLATFORM CAPITALISM (2017); Daron Acemoglu et al., *Online Business Models, Digital Ads, and User Welfare* 1 (Nat’l Bureau Econ. Rsch., Working Paper No. 33017, 2024).

62. See George Loewenstein & Zachary Wojtowicz, *The Economics of Attention*, 63 J. ECON. LITERATURE 1, 1–2 (2025); Maxi Heitmayer, *The Second Wave of Attention Economics. Attention as a Universal Symbolic Currency on Social Media and Beyond*, 37 INTERACTING WITH COMPUTS. 18, 19–20 (2025), <https://academic.oup.com/iwc/article/37/1/18/7733851> [<https://doi.org/10.1093/iwc/iwae035>]; TIM WU, THE ATTENTION MERCHANTS: THE EPIC SCRAMBLE TO GET INSIDE OUR HEADS 18–23 (2016).

63. See *Advertising – Worldwide*, STATISTA (Aug. 2026), [https://www.statista.com/outlook/amo/advertising/worldwide?currency=USD#revenue\\_111950](https://www.statista.com/outlook/amo/advertising/worldwide?currency=USD#revenue_111950) [<https://perma.cc/CG8K-34CD>] (finding that in 2026, the value of global advertisement spending was around \$1.25 trillion, a 6.6% increase from the previous year).

64. See *supra* Part III.

65. See Kemp, *supra* note 34, at 15–16.

66. For the Italian case, see AUTORITÀ PER LE GARANZIE NELLE COMUNICAZIONI, RAPPORTO SUL CONSUMO DI INFORMAZIONE [ITALIAN COMMUNICATIONS REGULATORY AUTHORITY, INFORMATION CONSUMER REPORT] 17 tbl. 1.1 (Feb. 2018), <https://www.agcom.it/sites/default/files/migration/rapporto/Studio-Ricerca%2019-02-2018.pdf> [<https://perma.cc/5GB6-TEFR>].

*media*.<sup>67</sup> Every time we consult these “digital oracles,” given the infinite amount of data available online, the answers we obtain are the result of a careful and complex selection carried out by AI algorithms that choose and rank sites—in the case of search engines, or directly generated content, in the case of generative AI. These algorithms, by answering to our informational needs, influence—more or less consciously and coercively—our choices.

It is a new way of *streamlining* freedom, not by “external” limitations—such as the threat of private or economic force or that of a legal or military sanction—but by persuading from the “inside” by providing the data on which to decide. Here, the deepest and most original nature of *cybernetic* power is revealed: Human beings are governed as if they were machines, primarily through controlling the flow of information.<sup>68</sup>

This is what Daron Acemoglu and Simon Johnson have defined as the *power of persuasion*:

You may think power is ultimately all about coercion. That is not exactly right  
 . . . [M]odern society turns on persuasion power

. . . .

Whoever asks the questions, sets the priorities, and rules options in and out has formidable powers to frame public discussion and convince others. Humans have an impressive ability to use collective knowledge, and this is what makes technology so important for society.<sup>69</sup>

Or, to use the terminology of B.J. Fogg, it is *persuasive technology*: “[w]e have entered an era of persuasive technology, of interactive computer systems designed to change people’s attitudes and behaviors.”<sup>70</sup>

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67. The expression “cross-media” refers to the ability of content, advertising, or services to extend and integrate across different communication platforms (TV, radio, print, web), transcending the traditional distinction between media. *Id.*; see also AUTORITÀ PER LE GARANZIE NELLE COMUNICAZIONI, RELAZIONE ANNUALE 7–8 (2019), [https://www.agcom.it/sites/default/files/migration/relazione\\_annuale/Documento%20generico%2011-07-2019.pdf](https://www.agcom.it/sites/default/files/migration/relazione_annuale/Documento%20generico%2011-07-2019.pdf) [<https://perma.cc/H27M-KTY9>] (noting that, in the telecommunications sector, “[n]elle telecomunicazioni tra il 2011 e il 2018 si sono persi circa ¼ dei ricavi,” “[b]etween 2011 and 2018, approximately one quarter of revenues were lost,”) while the online advertising market grew from about €1.4 billion in 2011 to over €2.7 billion in 2018, an increase of approximately 93%).

68. Xinyue Hao, Emrah Demir & Daniel Eysers, *Beyond Human-in-the-Loop: Sensemaking Between Artificial Intelligence and Human Intelligence Collaboration*, 10 SUSTAINABLE FUTURES 1, 2 (2025); see Frank Pasquale, *A Rule of Persons, Not Machines: The Limits of Legal Automation*, 87 GEO. WASH. L. REV. 1, 44 (2019) (describing the challenges that would arise from a legal system that derives decision-making from automation).

69. ACEMOGLU & JOHNSON, *supra* note 60, at 76, 83–84.

70. B.J. FOGG, *PERSUASIVE TECHNOLOGY: USING COMPUTERS TO CHANGE WHAT WE THINK AND DO* 1 (2003) (emphasis added).

The normative force of public regulations, based on the—external—existence of institutions and sanctions, is now being challenged by a new directive and conformative force that acts on another—internal—factor, which activates the human will: persuasion.

A recently published study on the conversational capacity of ChatGPT-4 effectively illustrates the nature of this AI's persuasive power.<sup>71</sup> The experiment involved 900 participants who chatted for five minutes on a digital platform with an unknown interlocutor (either a human or GPT-4) on various contentious topics. Crucially, participants were unaware of whether they were interacting with a human or the AI. After each five-minute interaction, they recorded whether their opinion had changed.

A key variable was introduced: Half of the participants' interlocutors (both human and ChatGPT) had no prior information about the participant, while the other half were provided with basic data (age, gender, education level, occupation).

The findings were striking: When ChatGPT had no information about the participant, its persuasive ability was almost identical (though slightly superior) to that of a human. However, when the machine was provided with even basic information about the person with which it was interacting, its persuasive capability dramatically increased to become 65% superior to a human's.

Now, let us try to imagine how much data about our preferences is actually available on the internet, and, therefore, how much the machine's persuasive power can potentially increase.

We could argue that, in today's constitutional-democratic contexts—where the separation of powers and the democratic principles are institutionally guaranteed—the core of political power<sup>72</sup> is shifting from the monopoly of *force* to the monopoly of *persuasion*. Whoever holds a dominant position in the “market place of ideas”<sup>73</sup> can influence (or even induce) individual and collective decisions through various forms of nudging,<sup>74</sup> like through “gentle pushes” that are less visible but no less

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71. Francesco Salvi et al., *On the Conversational Persuasiveness of GPT-4*, 9 NATURE HUM. BEHAV., 1645, 1646–47 (2025), [https://pmc.ncbi.nlm.nih.gov/articles/PMC12367540/pdf/41562\\_2025\\_Article\\_2194.pdf](https://pmc.ncbi.nlm.nih.gov/articles/PMC12367540/pdf/41562_2025_Article_2194.pdf) [<https://doi.org/10.1038/s41562-025-02194-6>].

72. Here, the core of political power, or conceived in its *Aristotelian* meaning, the capacity of governing the *polis*, is shifting. ARISTOTLE, POLITICS 1 (Carnes Lord trans., The Univ. of Chi. Press 2d ed. 1984) (2013).

73. The “market place of ideas” metaphor recurs in U.S. Supreme Court jurisprudence. *See, e.g.,* United States v. Rumely, 345 U.S. 41, 56 (1953).

74. *See* RICHARD H. THALER & CASS R. SUNSTEIN, NUDGE: IMPROVING DECISIONS ABOUT HEALTH, WEALTH, AND HAPPINESS 6 (2008) (defining nudging as a method that “alters people’s behavior in a predictable way without forbidding any options or significantly changing their economic incentives”).

effective.<sup>75</sup> This is the key issue of *recommender systems*,<sup>76</sup> that is, those algorithms that filter and suggest to users content that might interest them,<sup>77</sup> to *simplify* their informational feed and make their future choices predictable.

The persuasive capacity of technological power became increasingly evident through the demonstration of its distorting potential. This is quite evident in private law, concerning neuromarketing and manipulation of contractual consent,<sup>78</sup> and more broadly in constitutional law regarding disinformation, political misinformation, and systemic risks to democracy.<sup>79</sup>

75. See INTERACTIVE ADVERT. BUREAU & PRICEWATERHOUSECOOPERS, INTERNET ADVERTISING REVENUE REPORT: FULL YEAR 2024 RESULTS 5 (Apr. 2025), [https://www.iab.com/wp-content/uploads/2025/04/IAB\\_PwC-Internet-Ad-Revenue-Report-Full-Year-2024.pdf](https://www.iab.com/wp-content/uploads/2025/04/IAB_PwC-Internet-Ad-Revenue-Report-Full-Year-2024.pdf) [<https://perma.cc/VH3E-7763>] (reporting that internet advertising revenues in the United States reached approximately \$258.6 billion in 2024, the highest level on record); see also GroupM, *This Year Next Year 2024: Our Global Advertising Forecast for 2024-2025* (Dec. 9, 2024), <https://www.wppmedia.com/news/tyny-2025> [<https://perma.cc/DP6R-JAR3>] (projecting that total global advertising revenues exceeded \$1 trillion in 2024).

76. For a framework on recommender systems in the European legal context, see Matteo Fabbri, *Self-determination Through Explanation: An Ethical Perspective on the Implementation of the Transparency Requirements for Recommender Systems Set by the Digital Services Act of the European Union*, in PROC. OF THE 2023 AAAI/ACM CONF. ON AI, ETHICS, AND SOC'Y 653 (2023), <https://dl.acm.org/doi/epdf/10.1145/3600211.3604717>.

77. For the definition of a “recommender system,” see Regulation 2022/2065 of the European Parliament and of the Council of 19 October 2022 on a Single Market for Digital Services and Amending Directive 2003/31/EC 2022 O.J. (L 277) 1, 43 [hereinafter Regulation 2022/2065] (defining a recommender system as a “fully or partially automated system used by an online platform to suggest in its online interface specific information to recipients of the service or to prioritise that information, including as a result of a search initiated by the recipient of the service or otherwise determining the relative order or prominence of information displayed”). On the role of such algorithms in shaping influence and forms of digital nudging, see Fabbri, *supra* note 76, at 655–60.

78. Alžběta Krausová, *Neuromarketing from a Legal Perspective*, 7 THE LAW. Q. 40 (2017); Лихтер П.Л. [Pavel L. Likhter], *Нейромаркетинг и свобода воли в гражданском праве [Neuromarketing and Free Will in Civil Law]*, 24 RUDN J. L. 658 (2020), <https://journals.rudn.ru/law/article/view/24566> [<https://doi.org/10.22363/2313-2337-2020-24-3-658-672>]; Ludovica Sposini, *Impact of New Technologies on Economic Behavior and Consumer Freedom of Choice: From Neuromarketing to Neuro-Rights*, 2 J. DIGIT. TECH. & L. 74 (2024).

79. On the problem of disinformation, see CASS R. SUNSTEIN, #REPUBLIC: DIVIDED DEMOCRACY IN THE AGE OF SOCIAL MEDIA (2017); Kate Klonick, *The New Governors: The People, Rules, and Processes Governing Online Speech*, 131 HARV. L. REV. 1598 (2017); Aziz Z. Huq, *International Institutions and Platform-Mediated Misinformation*, 23 CHI. J. INT'L L. (2022); RONALD J. KROTOSZYNSKI, JR. ET AL., DISINFORMATION, MISINFORMATION, AND DEMOCRACY: LEGAL APPROACHES IN COMPARATIVE CONTEXT (2024); Tim Hayward, *The Problem of Disinformation: A Critical Approach*, 39 SOC. EPISTEMOLOGY 1 (2025). Regarding the European Union's regulation of this difficult topic, see Erik Longo, *The Risks of Social Media Platforms for Democracy: A Call for a New Regulation*, in 35 INFO. TECH. & L. SERIES, LAW AND A.I. 169 (Bart Custers & Eduard Fosch-Villaronga eds., 2022); Krisztina Juhász, *European Union Defensive Democracy's Responses to Disinformation*, 32 J. CONTEMP. EUR. STUD. 1075 (2024); Ronan Ó. Fathaigh, Doris Buijs & Joris van Hoboken, *The Regulation of Disinformation Under the Digital Services Act*, 13 MEDIA & COMMUN 1 (2025).

All of these issues contribute to the growth of global information disorder,<sup>80</sup> as well as to cultural phenomena such as post-truth theories.<sup>81</sup> These theories are characterized by the deliberate spread of false or misleading content for economic or political gain.

The European Union has taken a strong stance on this point with a series of important documents on the risks of online disinformation,<sup>82</sup> culminating in the approval of the Digital Services Act,<sup>83</sup> the first European regulation that expressly and bindingly regulates the legal responsibility of very large online platforms (“VLOPS”) for the content they convey, as well as for the use of recommender systems.<sup>84</sup>

We all remember the famous Cambridge Analytica case<sup>85</sup> or *The New York Times* investigation into the use of fake Facebook accounts by the military government of Myanmar to trigger a violent reaction against the Rohingya Muslim population,<sup>86</sup> thus, “inducing” a real-world genocide. And, last but not least, one should think of the disinformation campaign as linked to the current Russia-Ukraine conflict,<sup>87</sup> up to the very recent and significant case of the Romanian Constitutional Court’s of the presidential elections in Romania due to an aggressive disinformation campaign carried out via social

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80. Rather than treating “fake news” as an isolated problem, the “global information disorder” approach focuses on the systemic disruption of the international communicative space. See Julia C. Morse & Tyler Pratt, *Information Disorder and Global Politics*, 79 INT’L ORG. (2025).

81. The Oxford Living Dictionaries selected “post-truth” as the Word of the Year for 2016, defining it as “relating to or denoting circumstances in which objective facts are less influential in shaping public opinion than appeals to emotion and personal belief.” See *Word of the Year 2016*, OXFORD LANGUAGES, <https://languages.oup.com/word-of-the-year/2016/> [<https://perma.cc/E8N5-AW92>].

82. See, e.g., EUR. COMM’N, *A Multi-Dimensional Approach to Disinformation: Report of the Independent High Level Group on Fake News and Online Disinformation*, at 5 (Mar. 2018), [https://ec.europa.eu/newsroom/dae/document.cfm?doc\\_id=50271](https://ec.europa.eu/newsroom/dae/document.cfm?doc_id=50271) [<https://perma.cc/7G7F-S5Y9>].

83. See Regulation 2022/2065, *supra* note 77, at 1.

84. *Id.* at 1, 59.

85. See generally Carole Cadwalladr & Emma Graham-Harrison, *Revealed: 50 Million Facebook Profiles Harvested for Cambridge Analytica in Major Data Breach*, GUARDIAN (Mar. 17, 2018), <https://www.theguardian.com/news/2018/mar/17/cambridge-analytica-facebook-influence-us-election> [<https://perma.cc/4T6A-GZVV>] (discussing the Cambridge Analytica data breach).

86. See generally Paul Mozur, *A Genocide Incited on Facebook, With Posts from Myanmar’s Military*, N.Y. TIMES (Oct. 15, 2018), <https://www.nytimes.com/2018/10/15/technology/myanmar-facebook-genocide.html> (on file with the Maryland Law Review) (explaining the use of AI in the Myanmar conflict).

87. See generally Johannes Buchheim & Gilad Abiri, *The War in Ukraine, Fake News, and the Digital Epistemic Divide*, VERFASSUNGSBLOG (May 12, 2022), <https://verfassungsblog.de/the-war-in-ukraine-fake-news-and-the-digital-epistemic-divide/> [<https://perma.cc/J2M8-DEJT>]

(describing the challenges of regulating social media misinformation and its impacts on perception of the Russia-Ukraine conflict).

media, which essentially prevented real freedom of information for voters.<sup>88</sup> This is the distinctive line between “*persuasive*” and “*deciding*” technologies.

In all the cases we examined in this Section, technology “captures” the human decision not because it is explicitly and transparently asked to assist the human in making the decision—as in all decision-making technologies—but because it supplies us with the information we use to decide.

In this scenario, the risk for our freedom is even more radical, as noted by an Italian scholar Michele Ainis:<sup>89</sup>

Today the decisive issue is no longer to guarantee the circulation of ideas, but their formation, their genuine conception. We are no longer free to think our own thoughts, that’s the problem. We believe we are thinking, but in reality we are parroting the thoughts of others. Or, at best, even our own, but amplified and distorted, without verification, without any confrontation with opposing opinions. It’s the autistic universe in which we are enclosed even if, for the most part, we do not notice. A Ptolemaic universe in which the sun revolves around the earth – and each one of us is the earth.<sup>90</sup>

This Ptolemaic counter-revolution has been so profound that, over the last twenty-five years, we have witnessed a transformation in the very structure of the world’s economy. A new form of capitalism has emerged, characterized by various definitions—such as ‘surveillance,’<sup>91</sup> ‘platform,’<sup>92</sup> and ‘oligopolistic’<sup>93</sup>—and centered on the creation of huge industrial concentrations, owning persuasive technological infrastructures.

### C. Cognitive Technology

But the most advanced and, arguably, the most unsettling frontier in the encroachment of digital technology on personal freedom and autonomy is the use of AI powered systems directly interfacing with our brain and central nervous system. These devices are neural cognitive prostheses, more commonly known as Brain-Computer Interfaces (“BCIs”). The Neuralink

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88. Constitutional Court of Romania, Ruling No. 32 (Dec. 6, 2024), <https://www.ccr.ro/wp-content/uploads/2025/02/RULING-No-32-2024.pdf> [<https://perma.cc/3X5M-4EG6>] (annulling the electoral process for the election of the President of Romania in 2024).

89. Michele Ainis, *Il Regno dell’Uroboro: Benvenuti Nell’Epoca della Solitudine di Massa* [*The Ouroboros Kingdom: Welcome to the Age of Mass Solitude*] (La nave di Teseo 2018).

90. *Id.* at 11–12 (author’s translation).

91. See ZUBOFF, *supra* note 44.

92. See SRNICEK, *supra* note 61, at 1–8.

93. See NICOLAS PETIT, *BIG TECH AND THE DIGITAL ECONOMY: THE MONOPOLY SCENARIO* 29 (2020).

project by Elon Musk<sup>94</sup> is arguably one of the most prominent examples, though it is certainly not unique.<sup>95</sup> BCIs can operate in two primary ways: they can be *unidirectional*, focusing only on recording or stimulation, or *bidirectional*. Bidirectional functionality, especially when augmented by AI, is becoming vital for restoring lost capabilities, such as operating advanced prosthetic limbs or reactivating sensory organs.

Unlike the other two types of technology we have discussed so far—decision and persuasion, which still presume a separation between the human agent and the technical system—BCIs embody a genuine “human-machine hybridization,” an example of the “cyborg” perspective.<sup>96</sup> This third dimension of, what I call, cybernetic power, makes it increasingly difficult to draw a clear-cut line between the identity of the acting subject and the functionality of the technical device.<sup>97</sup> This places us at a critical juncture concerning freedom-interfering technology, a situation that exemplifies the *pharmakon* ambivalence very well<sup>98</sup> articulated by Derrida and Stiegler.<sup>99</sup> The direction we choose will be decisive for the future development of this technology and for its moral and legal implications.

One possible option is to design cognitive technology as a *cure*, i.e., focusing on the reinstatement of diminished or congenitally absent cognitive functions and capabilities.

Otherwise, we may opt to design it as an *enhancement* of human cognitive functions, integrating them with external devices—the so-called “*cognitive outsourcing*.” We should be aware that if we pursue the “enhancement” option, it will be increasingly difficult to identify a single and certain individual responsible for the course of actions because, in this perspective, the technical device’s command over the human subject’s free will could potentially become absolute. In the perspective of cognitive outsourcing achievable through brain-computer interfaces, traditional legal

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94. Jesse Pines, *Neuralink Explained: Musk’s Quest for Brain-Machine Interfaces*, FORBES (Jan. 28, 2025, at 06:30 ET), <https://www.forbes.com/sites/jessepines/2025/01/28/neuralink-explained-musks-quest-for-brain-machine-interfaces/> [https://perma.cc/KS89-E6L2].

95. The number of existing BCIs has caused some to question the connection between BCIs and human rights. For the legal debate, see Marcello Ienca & Roberto Andorno, *Towards New Human Rights in the Age of Neuroscience and Neurotechnology*, 13 LIFE SCI., SOC’Y & POL’Y 5 (2017); Paolo Sommaggio et al., *Cognitive Liberty. A First Step Towards a Human Neuro-rights Declaration*, 3 BIO LAW J. RIVISTA DI BIODIRITTO 27 (2017); UGO PAGALLO, *THE LAWS OF ROBOTS: CRIMES, CONTRACTS, AND TORTS* 111–35 (Springer 2013).

96. For the very first public document in which the cyborg concept was introduced, see DONNA J. HARAWAY, *A CYBORG MANIFESTO: SCIENCE, TECHNOLOGY, AND SOCIALIST-FEMINISM IN THE LATE TWENTIETH CENTURY* 65–107 (1985). See ANDY CLARK, *NATURAL-BORN CYBORGS: MINDS, TECHNOLOGIES, AND THE FUTURE OF HUMAN INTELLIGENCE* 3 (2003).

97. See *infra* Part III.

98. See *infra* Part IV.

99. See DERRIDA, *supra* note 46; STIEGLER, *supra* note 46.

categories will be profoundly challenged.<sup>100</sup> Fundamental concepts, such as consciousness and mental and juridical capacity, require a radical overhaul. Even the very notion of responsibility and legal liability will have to be reconsidered in light of these new technological dynamics.

Finally, it should be noted that, among philosophers of mind and neuroscientists, the idea of an *extended mind*, according to which it is not possible to confine the cognition only within “*the boundaries of skin and skull*,” is gaining ground.<sup>101</sup> Following that approach, it is not possible to trace an exact distinctive line between the cognitive *in*-sourcing from the *out*-sourcing. Brain-computer interfaces involve direct physical wiring between the human brain and an external technical device. However, if we look at our social experience, many AI-powered devices, even if not *directly* wired to the brain, already function as cognitive enhancers in our everyday lives (think of smartphones, personal assistants and personal computers). The key difference is that these devices engage the brain *indirectly*, through the senses (sight, hearing, and touch) and, unlike BCIs, which are still extremely expensive and—at least for the time being—only available to a select few, devices, such as smartphones, are now accessible to almost everyone.<sup>102</sup> Therefore, their impact on cognitive autonomy and the definition of the informational self is similarly profound, and they undoubtedly represent a dimension of *cognitive technology* as part of the cybernetic power discussed here.

## V. TOWARDS A *HYBRID* CONSTITUTIONALISM

Considering the three main dimensions of cybernetic power outlined above, a final question arises: How should constitutional law evolve to preserve its core mission of protecting fundamental freedoms?

We have seen that the key distinctive feature of cybernetic power is that it does not operate from the *outside* by threatening the use of physical, military or economic force, but rather from the *inside* through a conforming force that weighs on our will, either directly or indirectly, via knowledge and information.

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100. For two landmark international Supreme Court cases, see Corte Suprema de Justicia [C.S.J.] [Supreme Court], 9 agosto 2023, “Girardi Lavín, Guido c. Emotiv Inc.,” Rol de la causa: 217225-2023, recurso de protección (Chile) (discussing brain data); Selvi & Ors v. State of Karnataka, (2010) 7 SCC 263 (India) (discussing lie detectors).

101. See generally Andy Clark & David Chalmers, *The Extended Mind*, 58 ANALYSIS 7 (1998) (using the boundaries of skin and skull as a foil to the concept of externalism).

102. “Smartphone ownership has reached an unprecedented 89% of the global population by early 2025 . . . . [T]he smartphone has evolved from a luxury to a necessity. It’s not just a communication device anymore, it’s an extension of daily life.” Sofia Ramirez, *Smartphone Statistics 2026: Global Usage, Market Trends & Insights*, SQ MAG. (Oct. 1, 2025), <https://sqmagazine.co.uk/smartphone-statistics/> [https://perma.cc/CH32-GUPX].

Given these characteristics, it is extremely difficult to regulate this technology today.<sup>103</sup> Europe, as we know, has chosen a pervasive risk-based regulatory model,<sup>104</sup> but this is not the only existing approach on the global stage<sup>105</sup> and some significant shortcomings are emerging.<sup>106</sup> However, this Article does not intend to analyze and compare the different regulations; instead, it aims to identify the core characteristics of cybernetic power as a new challenge to existing constitutional systems.

The new development I described phenomenologically concerns a new form of restriction and limitation of our freedoms that is a complement to—and, at least for now, does not replace—other known forms.

Contemporary constitutions are structured to counteract forms of power and coercion that operate “outside” of freedom, whether exercised by the state (as in American constitutional doctrine) or also by private individuals (as in the horizontal doctrine of European constitutional rights). This has led

103. See generally RYAN CALO, *LAW AND TECHNOLOGY: A METHODOLOGICAL APPROACH 2* (2025) (arguing that the main difficulty of regulating technology is not an inherent technical problem, but rather a perceptual and political one, suggesting that technology “daunt[s] and confuse[s]” the public about the law).

104. The risk-based approach to digital regulation is highlighted in many contributions. See, e.g., Giovanni de Gregorio & Pietro Dunn, *The European Risk-Based Approaches: Connecting Constitutional Dots in the Digital Age*, 59 COMMON MKT. L. REV. 473 (2022); Leif Sundberg, *Towards the Digital Risk Society: A Review*, 34 HUM. AFF. 151 (2024); Margot E. Kaminski, *Regulating the Risks of AI*, 103 B.U. L. REV. 1347 (2023); Cristiano Codagnone & Linda Weigl, *Leading the Charge on Digital Regulation: The More, the Better, or Policy Bubble?*, 2 DIGIT. SOC’Y 4 (2023); Martina Eckardt, *EU Digital Law and the Digital Platform Economy—an Inquiry into the Co-evolution of Law and Technology*, 6 REV. EVOLUTIONARY POL. ECON. 183; Claudio Novelli, et al., *AI Risk Assessment: A Scenario-Based, Proportional Methodology for the AI Act*, 3 DIGIT. SOC’Y 13 (2024). The history of risk regulation is longer than digital, as highlighted by David Vogel, *The Politics of Risk Regulation in Europe and the United States*, 3 Y.B. EUR. ENV’T. L. (2003); Cary Coglianese, *The Law and Economics of Risk Regulation*, WILEY ENCYCLOPEDIA OF OPERATIONS RESEARCH AND MANAGEMENT SCIENCE (2010); JALE TOSUN, *RISK REGULATION IN EUROPE: ASSESSING THE APPLICATION OF THE PRECAUTIONARY PRINCIPLE* (2012); Alberto Alemanno, *Editorial: The Past, Present and Future of Risk Regulation*, 8 EUR. J. OF RISK REG. 1 (2017). For an overview of the legislative magnitude, see Markus Mueck, Stephane Du Boispean & Christophe Gaie, *Overview on European Digital Legislations*, in *EUROPEAN DIGITAL REGULATIONS* 21 (Markus Mueck & Christophe Gaie eds., 2025).

105. See generally ANU BRADFORD, *DIGITAL EMPIRES: THE GLOBAL BATTLE TO REGULATE TECHNOLOGY* (2023) (describing and comparing the American, Chinese, and European approaches); Aziz Z. Huq, *The Geopolitics of Digital Regulation*, 92 U. CHI. L. REV. 833, 842–47 (describing the American, Chinese, and European approaches); Alicia Garcia-Herrero & Michal Krystianczuk, *What Can Europe Learn from China’s Critical-Tech Innovation Push?*, BRUEGEL (2025) (describing the Chinese approach); JIWEI QIAN, *GOVERNING CHINA’S DIGITAL TRANSFORMATION: INDUSTRIAL POLICY, REGULATORY GOVERNANCE, AND INNOVATION* (2026) (describing the Chinese approach). The authors describe the different models of technological regulation today competing on the global scenario.

106. See generally Mario Draghi, *The Future of European Competitiveness: A Competitiveness Strategy for Europe* (PUBL’NS OFF. OF THE EUR. UNION 2024) (discussing shortcomings of the risk-based regulatory model); Ebbe Rogge, *The Draghi Report and Regulating Energy Derivatives Trading*, 18 J. WORLD ENERGY L. & BUS. (2025) (critiquing the Draghi approach).

to the development of doctrines such as constitutional supremacy, the rule of law, separation of powers, and judicial review. I think that these threats and powers continue to exist, and, therefore, constitutional law as we know it remains necessary. The definition of the constitutional values and rights that today's constitutions aim to protect—such as dignity, freedom, non-discrimination, and equality—remains entirely valid.

However, the issue is cyber power, which acts not from the outside, but through decision-making, persuasion and cognition, directly shaping people's will. This poses an entirely new challenge to the implementation of these constitutional values. How can we continue to implement and defend constitutional principles in the face of a new form of restriction on freedom that lacks well-known classical characteristics?

An example could be freedom of expression, which, despite different constitutional definitions in the United States and Europe, is nonetheless based today on the prohibition of any interference, limitation or coercion (whether public or private) regarding the expression of a person's thoughts.<sup>107</sup> Today, however, the issue is not only whether a person is free to express their thoughts, but also whether they are free to 'form' their own thoughts, and whether those thoughts truly belong to them. The issue is not just *expression*, but the *genesis* of thought.

We might question whether, using interpretation or hermeneutics—by expanding the scope of current provisions to include new threats—we can create an effective framework to deal with these new phenomena.

Beyond the various doctrines of constitutional interpretation—whether by focusing on the original meaning or by looking at how it has changed over time—that may or may not allow for this extension, I believe the phenomenon is so radically new that it requires a new way of constitutional implementation and enforcement. What I am wondering is how constitutions can survive—that is, can still enforce the rule of law, the separation of powers and guarantee the fundamental rights—in an *algorithmic society*<sup>108</sup> where technology has become an “extension of freedom.”<sup>109</sup>

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107. For a general survey and a comparative description of the American and European constitutional doctrines and jurisprudences on freedom of expression, see ERIC BARENDT, *FREEDOM OF SPEECH* (2nd ed. 2007).

108. See Simoncini & Longo, *supra* note 19.

109. The idea that technology can enhance and amplify individual and collective freedom stems from Marshall McLuhan's forward-thinking reflections on technology as an “extension” of humanity. See MARSHALL MCLUHAN, *UNDERSTANDING MEDIA: THE EXTENSIONS OF MAN* 3 (1964) (arguing that we are “approach[ing] the final phase of the extensions of man—the technological simulation of consciousness”); Andy Clark & David Chalmers, *The Extended Mind*, 58 *ANALYSIS* 7 (1998) (describing how technological advances aid our cognitive processes but questioning how much “cognition” is involved).

If we take the global regulatory situation into account, a key lesson learned is that protection should be in place *before*, rather than *after*, the creation of technology.<sup>110</sup> Once the algorithms or technological devices have been implemented (and often widely disseminated), it is too late to effectively regulate. If we consider, for example, the path followed by the oldest example of “tech regulation” in Europe—the data protection regulation<sup>111</sup>—we can trace clearly a *backward* trajectory moving from “ex-post” protection, then to protection “by design” and finally “by default.”<sup>112</sup>

Therefore, the primary condition for constitutional systems to maintain their essential function is to anticipate and incorporate constitutional values into the machine’s early design stage. I propose this as a “*hybrid*” constitutionalism: A constitution-oriented cultural framework that operates and expresses itself through the dual languages of *technology* and *law*, functioning as a hybrid engine. However, to effectively internalize constitutional values at the design stage of technological projects, anticipatory protection must take a further step, which is probably the most decisive one. After protection “by design” and “by default,” it is time for protection “by education.” Clearly, I am not suggesting that this form of “protection by education” can replace other forms of legal protection. However, I do believe that, without this advancement, the purpose of regulating this kind of technology to keep it within the constitutional system, will have to be abandoned. The goal must be, on the legal education side, to train lawyers to be able to understand how these new technologies are designed and the theoretical basis on which they are founded. On the technical education side, to transmit to the basic rational accounts of constitutional principles—such as transparency, explicability, inclusiveness

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110. See generally DAVID COLLINGRIDGE, *THE SOCIAL CONTROL OF TECHNOLOGY* (1980); HANS JONAS, *THE IMPERATIVE OF RESPONSIBILITY: IN SEARCH OF AN ETHICS FOR THE TECHNOLOGICAL AGE* (1984); Ann Cavoukian et al., *Privacy by Design: Essential for Organizational Accountability and Strong Business Practices*, 3 IDENTITY INFO. SOC’Y 405 (2010); Mireille Hildebrandt, *Algorithmic Regulation and the Rule of Law*, 376 PHIL. TRANS. ROYAL SOC’Y (2018); JOAKIM ZANDER, *THE APPLICATION OF THE PRECAUTIONARY PRINCIPLE IN PRACTICE: COMPARATIVE DIMENSIONS* (2010). All of these authors, despite coming from different scientific and philosophical backgrounds, agree that we should not wait for technology to cause harm before trying to fix it. Instead, we must embed responsible ethical, legal, and safety considerations into the design and inception of technology.

111. Regulation 2016/679 of the European Parliament and of the Council of 27 April 2016 on the Protection of Natural Persons with Regard to the Processing of Personal Data and on the Free Movement of Such Data, and Repealing Directive 95/46/EC (General Data Protection Regulation), 2016 O.J. (L 119) 1 (EU). The 1995 Directive is the first example of European-level regulation on the protection of personal data, and it has had a profound impact not only on the European continent, providing a legal framework for the protection of privacy.

112. See Mireille Hildebrandt & Laura Tielemans, *Data Protection by Design and Technology Neutral Law*, 29 COMPUT. L. & SEC. REV. 509, 509–11 (2013); Giovanna De Minico, *Towards an “Algorithm Constitutional by Design,”* BIOLAW J., Mar. 2021, at 381, 381–82 (2021) (proposing a “Bill of Rights” for the Internet).

or non-discrimination—as key elements to assess the effectiveness and robustness of a technical solution, as well as the respect of physical or mathematical constraints.

The digital transformation of society means that the contemporary perception of freedom is increasingly coextensive with the available technological possibilities. Consequently, there is an imperative for an increasing *hybridization* of technological and legal culture, necessitating the development of a shared language to facilitate communication and collaboration.

It is what, prophetically, has been anticipated by Herbert Marcuse in the first page of his *One-Dimensional Man*<sup>113</sup> more than fifty years ago:

A comfortable, smooth, reasonable, democratic un-freedom prevails in advanced industrial civilization, as a token of technical progress. Indeed, what could be more rational than the suppression of individuality in the mechanization of socially necessary but painful performances . . . That this technological order also involves a political and intellectual coordination may be a . . . regrettable and yet promising development.

. . . .

To the degree to which freedom from want, the concrete substance of all freedom, is becoming a real possibility, the liberties which pertain to a state of lower productivity are losing their former content [of the past]. Independence of thought, autonomy, and the right to political opposition are being deprived of their basic critical function in a society which seems increasingly capable of satisfying the needs of the individuals through the way in which it is organized.<sup>114</sup>

Hence the lucid—and yet terrible—conclusion: “*In this respect, it seems to make little difference whether the increasing satisfaction of needs is accomplished by an authoritarian or a non-authoritarian system.*”<sup>115</sup>

Faced with the new Promethean promise of replacing the general burden of human labor—not only physical but above all cognitive—with a series of technical processes, we willingly give up our freedom, accepting to depend increasingly on these new information systems. The risk, then, is not merely the advent of a new tyrant openly hostile to constitutional freedoms, but their *smooth* and silent erosion, to the point of rendering them irrelevant and no one feels the need for them anymore.

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113. HERBERT MARCUSE, *ONE-DIMENSIONAL MAN: STUDIES IN THE IDEOLOGY OF ADVANCED INDUSTRIAL SOCIETY* (1964).

114. *Id.* at 1 (emphasis added).

115. *Id.* at 4 (emphasis added).