

THE DEMOCRATIZATION OF TECHNOLOGICAL DESIGNS OF DIGITAL
SUBJECTS*A DEMOCRATIZAÇÃO DOS DESENHOS TECNOLÓGICOS DOS SUJEITOS DIGITAIS**LA DEMOCRATIZACIÓN DE LOS DISEÑOS TECNOLÓGICOS DE LOS SUJETOS
DIGITALES*Eder VAN PELT¹
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ABSTRACT: This article investigates the interactions between democracy and the digital environment, exploring how communication and information technologies impact everyday political participation. The study examines the need for legal regulation to protect the “digital subject,” adapting traditional civil rights to the Digital Age. The research employs a qualitative literature review, drawing on theorists at the intersection of technology and social sciences, such as Castells, Baumann, and Haraway, to map fundamental issues of informational control and digital self-determination. For this purpose, it is divided into two parts: the first analyzes what we are as digital subjects; the second presents a critique, based on democratic assumptions, of the technological designs of the digital subject. The expected results include the formulation of legal guidelines to strengthen contemporary democracy, promoting citizen control over algorithms, and protecting individuals’ digital autonomy.

KEYWORDS: Democracy. Digital era. Digital subject. Self-determination. Citizenship.

RESUMO: Este artigo investiga as interações entre a democracia e o ambiente digital, explorando como as tecnologias da comunicação e da informação impactam a participação política cotidiana. O estudo analisa a necessidade de regulamentação jurídica para a proteção do “sujeito digital”, adequando os direitos civis tradicionais à Era Digital. A pesquisa utiliza revisão bibliográfica qualitativa, embasada em teóricos da intersecção entre tecnologia e ciências sociais, como Castells, Baumann e Haraway, para mapear questões fundamentais de controle informacional e autodeterminação digital. Para isso, divide-se em duas partes: na primeira, há a análise do que somos enquanto sujeitos digitais; na segunda, apresenta-se a crítica, com base em pressupostos democráticos, aos desenhos tecnológicos do sujeito digital. Os resultados esperados incluem a formulação de diretrizes jurídicas para fortalecer a democracia contemporânea, promovendo o controle cidadão sobre os algoritmos e a proteção da autonomia digital dos indivíduos.

PALAVRAS-CHAVE: Democracia. Era digital. Sujeito digital. Autodeterminação. Cidadania.

RESUMEN: Este artículo investiga las interacciones entre democracia y el entorno digital, explorando cómo las tecnologías de la comunicación y la información impactan en la participación política cotidiana. El estudio analiza la necesidad de regulación jurídica para la protección del “sujeto digital,” adecuando los derechos civiles tradicionales a la Era Digital. La investigación emplea una revisión bibliográfica cualitativa, basada en teóricos de la intersección entre tecnología y ciencias sociales, como Castells, Baumann y Haraway, para mapear cuestiones fundamentales de control informativo y autodeterminación digital. Para ello, se divide en dos partes: en la primera, se analiza lo que somos como sujetos digitales; en la segunda, se presenta una crítica, basada en presupuestos democráticos, a los diseños tecnológicos del sujeto digital. Los resultados esperados incluyen la formulación de directrices jurídicas para fortalecer la democracia contemporánea, promoviendo un control ciudadano sobre los algoritmos y la protección de la autonomía digital de los individuos.

PALABRAS CLAVE: Democracia. Era digital. Sujeto digital. Autodeterminación. Ciudadanía.

Introduction

Within the theoretical framework of Political Science, numerous debates address the concept of democracy². Among the most current discussions, this article highlights aspects that relate democracy to issues pertaining to what has come to be known as the “information and communication society” (Castells, 2000). Furthermore, although most debates on democracy are focused on macro-level issues—particularly those associated with the realm of “high politics,” representative democracy, and political institutions—this study examines a specific dimension of “everyday democracy”: the ways in which, within the digital environment, channels for political participation can be established, enabling individuals to determine who they are and what they can become, at their most personal and individual level, as political subjects³.

However, as a prerequisite for the establishment of such channels of political participation, this article underscores the need for legal rules that protect the “digital subject” (Van Pelt, 2024a), adapting civil and individual rights from the Western legal tradition to the Digital Era. Thus, by understanding new digital technologies as the primary operational novelty of the “information and communication society” and the digital existence of individuals in these environments⁴ as an aggregate of computational data that grants them meaning and existence—also digital—this work examines the relationship between control over personal information, democracy, and politics as a means to enhance current democratic regimes and to provide a necessary complement to the quality of political communication logic.

Accordingly, to foster a proper relationship between democracy, the “information and communication society,” and its implementation within a digital public sphere—particularly in

² There is an extensive literature on theories of democracy in modernity. As a foundation for discussion, I draw, in my studies, on the synthesis provided by Frank Cunningham (2009), which offers an analytical tool for evaluating the relative merits of both general and alternative theories of democracy, applying them to the everyday challenges of contemporary societies.

³ Michael Sandel, in his book *O Descontentamento da Democracia* (2023), examines the reasons why democracy has exhibited significant vulnerabilities, particularly in the context of the United States, with the rise of social networks and digital media profoundly affecting public debates and subordinating them to the preferences set by technology companies. In the book, he specifically addresses aspects of everyday digital democracy, which I consider highly relevant for reflecting on mechanisms for protecting the subject—mechanisms that could foster higher-quality democratic spaces in digital environments. I adopt the same perspective to further explore this issue in relation to digital subjects in the book *Sujeito de Direito Digital* (Van Pelt, 2024a), identifying, in the final chapter, concrete legal measures for protecting subjects under the category of “digital rights subjects.”

⁴ As used by Leitão and Gomes (2013, p. 27), I understand the “digital environment” to consist of symbolic spaces formed by groups of individuals, often mediated by the use of “digital platforms”—technological configurations that provide the necessary support for online interactions and sociability—through which digital sociability practices are realized.

social networks and spaces mediated by artificial intelligence artifacts⁵—it is imperative to debate the mechanisms available for democratic control of the “algorithmic governmentality” exerted over individuals (Parra, 2016; Van Pelt, 2024a). In other words, it is necessary to debate how we can participate in the creation and implementation of the codes that recognize, construct, and validate our existence as subjects of a digital republic. The underlying hypothesis is that the quality of democracy depends upon the ability of its citizens to exercise control over the technical factors that define them as existing subjects within that democracy, especially in light of the advancement of artificial intelligence technologies that regulate and modulate our digital modes of being. In this regard, the analysis particularly concerns the democratic control over our validation as digital citizens, recognizing ourselves as digital subjects who, among various possibilities of digital existence and action, exercise our political rights and participate in digitized political spheres⁶.

Within this context, the article addresses fundamental questions in contemporary Social Sciences, particularly those concerning the interaction between humans and machines in a scenario of accelerated evolution of digital technologies and artificial intelligence. By investigating the effects of these innovations on daily life and social relations, it emphasizes the urgent need to understand how control over data and informational autonomy are essential for the full exercise of digital citizenship. The relevance of this debate lies in the imperative to broaden access to and control over technologies, ensuring that political participation is not hindered by technological barriers, but rather strengthened through accessible and transparent digital systems. In this regard, the role of law in defining what constitutes the digital rights-bearing subject is of paramount importance for this project (Van Pelt, 2024a).

Furthermore, the article addresses the protection of personal data and privacy, which rank among the most pressing challenges of our time, alongside algorithmic manipulation and the spread of disinformation, both of which threaten the integrity of democratic regimes. By addressing the crisis of trust in democratic institutions, this study contributes to a growing debate on the necessity of reforming the governance of digital technologies to ensure that technological progress does not undermine fundamental rights nor compromise the proper functioning of democracies. This analysis becomes even more relevant in a context where

⁵ In this article, I employ an expanded understanding of artifact as a product of human industry, for reasons that will be elaborated throughout the text. For a discussion of the various interpretations of artifact, see Halfpap, Souza, and Alves (2007).

⁶ I have analyzed issues of citizenship in the digital sphere in the article “*Cidadania na Esfera Virtual*” (Monica, 2021b).

democracies face significant challenges arising from the indiscriminate use of data and the concentration of power within a few technology corporations—the so-called big techs.

For the development of this article, a qualitative bibliographic review method is employed, with due consideration of the fact that specialized literature on digital issues—particularly within the legal field—remains emergent. The study draws upon prominent authors at the intersection of technology and social sciences, including Castells, Baumann, and Haraway. It offers a diagnosis of the key issues related to the right of informational control over our digital subjection as an essential element for the consolidation of contemporary democracies, given that this constitutes one of the most basic conditions for the exercise of citizenship: the ability to self-determine and to exercise rights over oneself in the constitution of one's identity as a digital subject.

This study proceeds from the hypothesis that the democratization of technology is a fundamental element in the constitution of a citizenship mediated by digital apparatuses, particularly because it enables digital subjects to exercise self-control through digital civil rights—rights that are essential for the consolidation of their political rights and, consequently, for the strengthening of contemporary democracy. In this sense, this article provides a mapping of key issues relevant to the design of legal mechanisms aimed at protecting digital subjects⁷.

For this purpose, the article is divided into two parts: the first provides an analysis of what we are as digital subjects; the second focuses on the technological designs of the digital subject and their democratic implications. The aim is, ultimately, to examine the ways in which we are recognized as subjects in digital environments, to understand the technological architectures that shape the subject, and to offer, in the conclusion, foundations for future research on the most effective protective arrangements for the subject within the framework of Digital Law⁸.

⁷ In a previous study, entitled *Ensaio para se pensar a proteção do sujeito de direito digital no Brasil*, I explored analytical pathways for conceptualizing the protection of digital rights subjects in Brazil (Monica, 2021c).

⁸ I offered a response to this proposal for future research in the book *Sujeito de Direito Digital* (Van Pelt, 2024a).

What Are We as Digital Subjects?

When referring to the digital subject, we denote an entity characterized as information—a set of digital data that represents who we are as persons within digital environments. In this sense, data protection legislation being adopted by countries within the Western legal tradition provides tools for the informational self-determination of subjects, affecting the transition from the concept of the individual as a subject perceived through physical embodiment and presence to a subject understood as a flow of data and information⁹. In other words, this concerns the relationship between the person and the data derived from their body, as well as their subjective, objective, and identity traits that constitute them as individuals within society.

In this regard, Le Breton (2012, p. 26) emphasizes the role of human interaction with technologies in reshaping social relations—that is, the possibilities of bodily existence and practices of the self in digital form. According to the author, information technologies enable a “modified humanity,” dissolving the traditional boundaries between “subject and object, human and machine, living and inert, natural and artificial, biological and prosthetic.”¹⁰ Information and communication technologies integrate with human bodies and redefine the human condition, amplifying the state of “liquefaction” of the individual and their ways of life.

By “ways of life,” I refer to modes of living, ways of doing, the integration of the natural with the social, cultural, and political, and the possibilities we construct for existing and fulfilling ourselves individually and socially. Lash (2005, p. 39-48) argues that ways of life are being reshaped by technological apparatuses, mediated by technological systems that provide meaning and structure to our understanding of the world. This underscores the necessity of establishing means to prevent alienation in how we comprehend and constitute the world, highlighting the importance of a greater appropriation of technological culture to preserve autonomy and avoid the alienation of subjects, which is essential for a digitally engaged life committed to democracy. Consequently, it is critical to develop a refined awareness of how we constitute ourselves as subjects through technological artifacts, understanding what we are as

⁹ Data on digital governance and digital civil rights can be found in various online databases. One such source is the World Economic Forum, in its articles on *Digital Citizenship*, which provide information on Digital Identity and its associated economic values. Available at: <https://intelligence.weforum.org/topics/a1G0X000005JJGcUAO/key-issues/a1G0X000006NuoVUAS>. Accessed in: 18 Oct. 2024.

¹⁰ As discussed by Akrich (2014, p. 179-181), the stabilization of a technical object—or, in other words, its “naturalization” as a commonplace object that goes unnoticed as such—creates favorable conditions for it to become an instrument of knowledge. This integration of technical objects into the social fabric, resulting from their “concealment,” endows them with considerable political power, as they produce forms of social organization that are often depoliticized by being perceived solely as technical and functional issues.

informational subjects and how technologies operate to shape and constitute digital environments.

Technological artifacts are “physical” in the sense that they are designed and produced by human agents. Therefore, they are intertwined with human intentionality. This relationship with human intentionality distinguishes artifacts from other physical objects: they are human-produced entities shaped by intention, thus possessing a hybrid nature as both technical and cultural artifacts (Kroes, 2002, p. 4-8).

In this context, it can be argued that human beings, to some extent, also function as artifacts by developing capacities that would not be achievable solely through their biologically “given” structures. Digital technologies, therefore, serve as physical means that constitute the new structures of the information and communication society, representing the most recent significant artifacts of human agency. Complementing this idea, these technical objects establish partitions of the physical and social world, assigning roles to certain actors—both human and nonhuman—while excluding others, by authorizing specific modes of interaction among subjects. In this sense, technical objects “fully participate in the construction of culture, in the anthropological sense of the term, while simultaneously becoming obligatory mediators in all relations we maintain with the ‘real’” (Akrich, 2014, p. 1, our translation).

As Broncano (2008) argues, human language and cognitive capacities could also be considered artifacts, as they are techniques and modes of operating our bodily structures developed over time rather than “given by nature,” being products of culture. In other words, we are not born with these capacities; they must be instituted and developed. Correspondingly, information technologies constitute the new instruments that radically enhance human interactions, particularly through the global interactivity enabled by the Internet.

Accordingly, it can be affirmed that new technologies are enhancing human capacities at an unprecedented level, including our capacity for political action, now mediated by digital technological means¹¹. The incorporation of these new artifacts into human experience has redefined our understanding of space and time and fostered personal, cultural, and political

¹¹ There are numerous examples of using digital technologies to promote digital citizenship, such as smart city initiatives and collaborative projects that enhance civic participation. Examples include the Decidim project in Barcelona (available at: <https://www.decidim.barcelona/>. Accessed in: 18 Oct. 2024), and cases in Taiwan where digital platforms have been used for popular deliberation, such as g0v (available at: <https://g0v.tw/intl/en/>. Accessed in: 18 Oct. 2024) and vTaiwan (available at: <https://info.vtaiwan.tw/>. Accessed in: 18 Oct. 2024). More broadly, Polis is a type of citizen discussion platform developed to enhance digital democracy, with data from countries including Canada, Germany, New Zealand, the United Kingdom, and the United States (available at: <https://democracy-technologies.org/tool/polis/>. Accessed in: 18 Oct. 2024).

exchanges that consolidate a new era, offering novel possibilities for human existence and new forms of interaction between individuals and societies. Consequently, these developments reshape our perceptions of how democracy and citizenship are exercised in a digitalized era.

For the purposes of this article, culture can be understood as the ensemble of causal arrangements that create the spaces and spheres of possibility for human existence. The significance of these causal arrangements lies in the capacity to alter history and make decisions about the future, establishing patterns that form the foundation upon which personal, collective, and political identities are constructed. Within this perspective, an artifact represents a practical possibility that determines human capacities¹². It is not merely a physical or functional instrument; it transcends such a definition by serving as a means to realize the trajectories that constitute human life. An artifact embodies the material realization of a society's cultural and political elements, generating existence through complex causal patterns structured by interactions among matter, energy, and information, thereby becoming a bearer of capabilities with both a physical and cultural nature.

An artifact does not exist in isolation. It qualifies as an artifact because a human being defines it as such and because it is embedded within a network of other artifacts. It encodes symbolic structures, enabling and constraining them within a specific temporal context, and acts as a mediator without which we cannot fully understand surrounding practices. Its materiality carries meanings established in the interaction between the designer of the technology and the user, creating a relationship of intentions that connects the contexts of human practices.

In this sense, it can be asserted that digital artifacts are shaping a new culture and a new era based on the intentionalities we embed in them¹³, both in the personal and individual aspects of our lives and in the broader dynamics of social politics. Accordingly, technologies and artifacts should not be interpreted as the direct causes of the widely acknowledged problems of modern and ultramodern life. As Koops (2007, p. 157) notes, technology is neither inherently good nor bad, and it is never neutral. Rather, it is the intentionalities embedded in power relations that must be understood as the focal point of discussions on promoting an inclusive, plural, and open information society conducive to human emancipation.

¹² To illustrate this point, one can consider mobile phones as artifacts that transform our relationship with the world, becoming practically extensions of our physical embodiment and consciousness.

¹³ Similarly, personal computers have reshaped human existence and restructured social relationships in their entirety.

It is important to highlight, as Akrich (2014, p. 163-164) does, that technical objects are the product of a composition of forces of diverse nature. The intentionalities that imbue artifacts with meaning can be perceived in various ways, not always from a profoundly political perspective. Some uses of artifacts can be explained by their mere functionality, without the need for extensive social analysis regarding their political and cultural meanings¹⁴.

Regarding aspects that relate to functions interpretable through political and social nuances, it is necessary to devise mechanisms for the democratic appropriation of artifacts, fostering a critical and emancipatory understanding of their uses (Kranzberg, 1986, p. 545). This requires moving beyond a certain “technophobic discourse,” which emphasizes the need to save humanity from technology and assumes technology itself to be inherently harmful. Simondon (2017), already in the mid-twentieth century, advocated for a reform of the educational system, with a plan to teach new generations how to understand technical artifacts, their operation, utility, and societal functions. In reality, the conscious use of technological artifacts depends on our “technological culture” (Lawler, 2003)—that is, a mode of societal living that treats technological matters as a domain of life, incorporating processes of knowledge and discussion about technology.

It is through an understanding of the intentionalities embedded in technology that we can advance toward instruments for its democratic reinterpretation within a specific relationship among science, technology, and democracy. This allows society to move beyond the “technological somnambulism” described by Winner (1977)¹⁵—a social ignorance regarding the transformative processes that humanity undergoes due to technological advancement. Such somnambulism arises from the collective lack of attention to the profound issues of technological development, the insufficient understanding of the dynamics of technology as a fundamental aspect of our lives, and the failure to confront the harms it imposes on contemporary democratic regimes.

¹⁴ Akrich (2014, p. 162-163) initially uses the example of the technical objects that compose an automobile to demonstrate that certain intentionalities of use may not be of significant interest in social analysis. For instance, the resistance of car materials is related to the intensity of impacts they can withstand, which depends on the vehicle’s speed and performance. The condition of the car body is evaluated according to standards set by various actors, such as experts and authorities. A complete description of a vehicle would encompass not only its technical components but also social, political, and industrial considerations. A comprehensive analysis of all connections would be extensive and might seem mundane, as the automobile reflects the everyday reality in which we live, combining technical, social, and economic elements.

¹⁵ For another work addressing technological policy, see Winner (1987).

On the other hand, it is equally important to avoid “technological determinism”¹⁶— a form of political apathy toward technological development that stems from the passive acceptance of the idea that technological progress is inevitable. Under this view, any attempt to intervene in the process would be seen as obstructing the very progress of society, its social structures, and its cultural values. In a sense, technological determinism could lead to a technocracy: a socio-political system organized around the supremacy of technical knowledge, leaving minimal space for societal debate on the purposes and implications of technology¹⁷. This scenario would close off possibilities for critical knowledge that allows us to understand our existence in the digital era, preventing the realization of a coherent project of the digital subject aligned with the principles of freedom and democratic norms of modernity.

Assuming that technology is embedded with intentionalities and must be interpreted within specific cultural and contextual frameworks, the development of computer codes and programs is not merely technical or neutral; it inherently carries cultural, social, and political dimensions. In reality, such development is an act of social organization, through which specific goals and evaluations of objectives are processed. This process is influenced by the orientations of technical specialists who operate artifacts based on their personal experiences and worldviews (Hoffman-Riem, 2021, p. 32-35).

Consequently, the normative use of digital technologies shapes human behavior in various ways. Lessig (1999) argues that technologies are intentionally used as instruments to guide how people should behave, functioning similarly to legal rules as regulatory tools for conduct. Hence, for the author, *code is law*—computational codes carry normative content. They shape us while simultaneously structuring the ways we act and exist in the world.

From the perspective of democratic and constitutional values, Koops (2007) employs the term *normative technology*¹⁸ to describe the intentional construction of technologies as mechanisms that influence human behavior and social-political postures. He proposes various regulatory frameworks to ensure that technological codes align with democratic values of transparency, thereby ensuring their legitimacy within society. These proposals encompass both public and private regulation, addressing how technology regulates us and whether such regulation is comparable to that of legal norms.

¹⁶ The term was coined by Thorstein Veblen, an American economist and sociologist.

¹⁷ I analyzed the issue of technological authoritarianism in the article “*O tecnototalitarismo e os riscos para a democracia e para os sujeitos*” (Van Pelt, 2024b).

¹⁸ On the same topic, Roger Brownsword (2004) uses the term *techno-regulation*.

If we recognize the deliberate use of technology to regulate human behavior—particularly in shaping perceptions and conceptions of political life—it becomes possible to approach this issue legally. This entails aligning regulation through technological codes—including algorithms and artificial intelligence—with democratic principles of legitimacy, transparency, and accountability, thereby linking technological intentionalities to collectively defined social objectives through channels for the democratization of technology (Koops, 2007). It is therefore essential to establish mechanisms that bind programming and coding specialists to these fundamental principles of modern human sociability¹⁹ and to reflect critically on the interplay between transparency and opacity in digital programming codes.

In this context, the alienation of subjects typically stems from asymmetries of power that diminish autonomy or dominate individuals to the point of restricting their capacity to act freely. In the realm of digital technologies, a small group of controllers—the technological elite—exerts significant influence over the lives of many. Opacity regarding the functioning of these artifacts undermines the ability of subjects to exercise their freedoms and maintain control over their own lives. In this case, alienation arises as a consequence of multiple factors that erode personal autonomy and limit political agency capable of shaping societal outcomes.

Opacity—the antithesis of the transparency demanded by contemporary democratic regimes—is not limited to restricted access to information about computational codes or ignorance of digital system operations. It also encompasses a broader state of limited awareness regarding the technological processes that structure our lives, a form of “digital unconsciousness” (Hildebrandt, 2015) concerning how digitalization operates. However, it is crucial to recognize that not all technologies function as instruments of centralized political or financial control, nor are all users alienated or entirely stripped of technological autonomy. This recognition allows for the creation of emancipatory channels and subversive potential within the context of technological domination, as it enables exploration of liberatory possibilities embedded within the very structures that constrain us.

Continuing this debate on the transparency of computational programming techniques, when addressing Internet governance and its operational architecture—aimed at confronting the problem of power concentration and, consequently, domination over subjects—Vicentin (2016,

¹⁹ Cathy O’Neil (2020) published a book that popularized the debate on the need to incorporate studies on algorithmic bias and the impact of automated decision-making in sectors such as public safety and healthcare. The Electronic Frontier Foundation is one of the leading non-governmental organizations that collects data and conducts research monitoring the use of algorithms across multiple domains, including the defense of digital privacy and freedom of expression (available at: <https://www EFF.org/>. Accessed in: 18 Oct. 2024).

p. 01) argues that the political principles of the Internet are reflected in its architecture and operational modes. The most effective way to implement certain political and moral principles within the network is by influencing its structural design. The “infrastructure” supporting Internet functionality consists of a set of material and logical means that enable the transmission, storage, and processing of data generated through the digitalization of human and nonhuman activities. However, the political significance of these technical structures appears insufficiently acknowledged, as control over communication and information infrastructures is increasingly concentrated in the hands of private power and major technology conglomerates.

The debate on democratizing technological codes is not exclusive to the digital era. Critical theories of technology have long proposed frameworks for a new paradigm of technological development that aligns with the requirements of a democratic and pluralistic society. Within this context, Andrew Feenberg (1981) developed a critical theory of technology, questioning how modern technology could be redesigned to meet the needs of a freer society. He understands technology not as an autonomous destiny—where codes are created solely to serve specific technical interests in the form of problem-solving solutions—but as a field of social struggles, intimately linked with deep political concepts. Only through this lens can undemocratic forms of submission to depoliticized technological development be avoided.

Thus, proposals stemming from a critical theory of digital technologies demonstrate how these codes embed the values and interests of elites and dominant classes. This is realized through the analysis of their rules and procedures, as well as the instruments and artifacts that grant access to power and establish advantages that sustain the hegemony of these power holders, thereby impacting democratic regimes.

According to Feenberg (1981), technology embodies values and interests beyond the merely technical, becoming an instrument of social domination. Drawing on Marxist analysis, he proposes a solution to technological domination through the development of “socialist technologies,” which are grounded in democratizing participation for those affected by technologies. This approach involves establishing democratic decision-making procedures while taking into account the capitalist foundations of technological development. These foundations structure a specific mode of technological progress, enabled by the systematization of innovation, the opening of global markets, and the consolidation of a capitalist mode of production rooted in a “consumer society,” which validates technology through its market-determined uses—now within the context of the digital era.

Consequently, the intentional content of technological systems reproduces, as Martín Parselis (2016, p. 68) notes, a logic of disposal, planned obsolescence, and, especially, alienation with respect to the choices we should make regarding needs and possibilities in using technological artifacts. The relationship between artifact and intentionality appears lost in this capitalist drive for profit, with technologies created that fail to serve meaningful human purposes. The more alienated we become, the less we question the intentions embedded in artifacts, surrendering ourselves to the profit-driven objectives of the digital market and diminishing our democratic competencies. In this sense, one can argue that there exists a relationship between human alienation, the absence of artifact intentionality, technological obsolescence, and capitalist profitability.

Some scholars address this issue by examining recent technological problems and proposing more appropriate and fulfilling uses of technologies—aligning them more closely with the democratic aspirations of contemporary societies. In the early 1990s, Quintanilla (1991) advocated for the creation of interpersonal communication infrastructures with open-source and participatory collaborative development, in contrast to technologies that foster alienation—both regarding structure and purpose. More recently, Martín Parselis (2016) criticized the linear-progressive view of technology, arguing that technological development should not be understood as a continuous evolutionary path, where progress is assumed merely because freer markets and technological engineering supposedly yield greater benefits²⁰.

If every technical system contains intentional agents—subjects determining the purposes of technologies—the notions of linearity and progress cannot be considered neutral or detached from the historical and social context in which they exist. For Parselis (2016), the goal of democratizing technical systems is to open them to the judgments of the social actors involved and to propose broader legitimization of decisions regarding the construction and purpose of these systems. Achieving this requires balancing the political and technical domains by providing more detailed information about technical systems, thereby enabling a consistent political debate on their dynamics.

²⁰ The concept of “*tecnologías entrañables*” is employed by Martín Parselis (2016) to describe technologies designed with a closer alignment to human needs, respecting values such as transparency, inclusion, and democracy. In contrast to systems that alienate individuals or reinforce social control dynamics, these technologies are intended to promote interactions that are more intuitive, accessible, and consistent with human experiences and values. The concept proposes a technological model that not only enables practical functions but also strengthens the autonomy and critical engagement of individuals in the digital era.

With the proposal of a new paradigm for technological development, Quintanilla (2002), in a subsequent analysis following his earlier work, discussed the democratic legitimization of technologies and their relationship with the issue of efficiency. The efficiency question relates to the argument that technology should be guided solely by the dynamics of specialists and the needs strictly connected to technological knowledge. According to this view, full openness to all stakeholders would ultimately reduce the potential of technological development, as decisions would require extensive debate with individuals lacking the specialized knowledge necessary for satisfactory progress. Furthermore, specific aspects of the capitalist market, such as industrial secrecy and intellectual property—legal instruments designed to secure expected returns on investments—would not be available for democratic discussion.

However, democracy demands that all those affected by a matter have the opportunity to participate in discussions that concern them. Consequently, considering market interests and their tension with democratic requirements, a balance must be sought between the technoeconomic argument and the democratic perspective. This balance should ensure that the conditions for democratic legitimacy are compatible with the specific rules of economic and technical systems. Failing this, democratic principles would be excluded from the technological domain. In this regard, Martín Parselis (2016, p. 38) asserts that it is neither feasible to adopt a fully technocratic approach, allowing technologists to unilaterally determine the future of technology, nor reasonable to leave the direction of technological development entirely to political authorities.

This leads to the understanding that technology should be considered a political object—one of the issues that must be included on the agenda of an informational society. There arises a need to “consensualize” technology, establishing discursive and deliberative channels to politicize the uses, purposes, and impacts of technology on our lives, our society, and our future. In this regard, we must foster digital citizenship that encompasses not only the right to belong to the digital space but also the right to define the rules of digital conduct. This right should not be limited to participating in decisions about what actions to take based on the possibilities offered by existing technologies; it must also include the right to engage in debates about the ends we wish to pursue with technology itself, affirming the political significance of technology and its implications for how we seek to construct the society in which we live. This proposal aligns with a more republican conception of society, in which specialized systems are not autonomous in themselves but must maintain a relationship with societal politics, being implicated in the democratic processes of collective societal constitution.

From a more liberal perspective, especially in its economic sense, proponents of market freedom would likely oppose opening technology to deliberative channels with stakeholders, citing market protection and the public's lack of technical expertise as justification. In this view, the public would remain mere consumers or users of technology, with autonomy restricted to deciding whether or not to adopt specific technologies, leaving the market to determine their utility. This context illustrates the interplay between consumption and citizenship²¹ highlighting two competing political paradigms: liberal and republican. Under the republican model, decisions regarding technological purposes and needs are not individualized but are a mediation of collective interests, with society itself assuming responsibility for defining the utility and legitimacy of a given technology.

Technology developers are often neither concerned with nor familiar—or committed—to the deeper implications of life in a democratic society, as their technical training has historically not required such engagement. Generally, there is little advanced debate on the social consequences of the technologies being developed. Engineers and programmers rarely construct artifacts with consideration of whether their work will reduce social inequalities or whether their computational codes will reinforce discriminatory practices. However, as digitalization advances and it becomes clear that our lives are profoundly shaped by how these technology developers structure societal life, understanding the effects of technology becomes critically important to fulfilling democratic requirements for participation in matters that directly affect us.

For this reason, Quintanilla (1991) argued as early as the 1990s that technology should be understood as a cultural entity or a form of knowledge that can be apprehended, transmitted, and incorporated into learning processes, just as any other cultural information. Technology and its development must form part of our broader understanding of the world and be incorporated into debates about what we, as a society, aspire to achieve and the goals we set for science and technology. These matters can no longer be regarded as an isolated, specialized sector of society devoid of political relevance.

Technology can be approached from multiple perspectives: it can be seen purely from a scientific and technical standpoint; as an economic instrument for optimizing production in pursuit of greater efficiency and profitability under capitalism; as a mechanism of bureaucratic

²¹ For discussions on the tension between consumers and citizens, see García Canclini (1995). Regarding the debate on the transformation of citizens into consumers, see Bauman (2008b). For an alternative approach to the challenges of a highly consumerist society, see Latouche (2006).

governance; as a tool of power for control and domination over others; or as a medium shaped by ethical concerns and the values of a given society. In this sense, technology becomes one of several instruments that must be integrated into political processes and implicated in the effects of democratic governance.

Accordingly, this article emphasizes the necessity of distinguishing between technology and artifacts, underscoring that every artifact embodies intentionality. As Dessauer (1964) expressed, the essence of artifacts resides in their purpose, for all human creative capacity is oriented toward an end. Similarly, as Simondon (2007) noted, inventing entails realizing, through technological mechanisms, a coherent dynamism that initially exists in thought and is actualized through technique.

Possibilities for democratizing the technological designs of the digital subject

Artifacts, in addition to being subject to the “causal laws of nature”—which constitute the foundation of technical knowledge and confer their primary “scientific character”—are cultural instruments imbued with the values and symbolic frameworks of a society. Thus, when a computational code generates a digital identity for subjects, such as an avatar²², it fulfills its primary technical function: providing a digital visual representation of the subject, facilitating more “real” and dynamic interaction processes. However, simultaneously, its content extends beyond its technical function, as the symbolic, psychological, and social effects of a digital identity are not fully predictable or controllable. As Dessauer argued, technological design serves to achieve predetermined objectives as its intended purposes, yet it also produces outcomes that are not strictly technical.

Technological designs that simulate human existence in digital environments create artificial digital identities, enhancing communication and interaction, particularly in the digital public sphere. Human symbolic and cognitive dimensions explain the use of aesthetic and affective elements in interactions, as we experience greater “humanity” when engaging with machines that resemble ourselves. This empathy is amplified with humanoid robots, which simulate emotions or employ elements familiar to us. In many cases, robot design deliberately

²² As defined by Leitão and Gomes (2013, p. 24, our translation), the “body of an avatar is an active part of the process of existing and interacting with and within the digital environment.” The process of “avatarization” parallels the concept of “humanizing” something that is not human—that is, attributing human qualities to animals, natural phenomena, objects, and so forth.

considers our need to recognize ourselves in machines, giving rise to concerns that, in the future, technology might surpass humanity. Science fiction literature and film explore these human limits through cyborgs and androids that, if uncontrolled, could threaten humanity²³. In this way, technology becomes embedded in human sociability, generating concerns about potential conflicts between humans and machines in a feedback loop where reality and fiction influence one another.

Science fiction frequently portrays technological artifacts as designed with purposes that transcend mere technical functionality. Robots, for example, are depicted as created for specific tasks, and their resemblance to humans evokes the imagery of slavery: machines with human features made to serve humans, whose liberation typically occurs through revolt or insurgency. This mirrors historical processes of human emancipation, where slaves rebelled against their masters to assert recognition as social subjects.

Currently, debates in digital law consider the possibility of granting legal personality to artificial digital entities, such as robots and artificial intelligences, reflecting the historical tension between creator and creation (Loureiro, 2022; Raiol; Alencar, 2022; Wolf; Saldanha, 2023; Amorim; Cardoso, 2019). Within these debates, the concept of “hybridization” is particularly noteworthy: in conflicts between humans and machines, a post-human or post-machine entity may emerge, depending on perspective. As we construct digital identities and participate in digitalization processes, questions arise regarding human limits relative to digital technologies and what we may become as digital subjects. This process of “hybridization” between humans and machines tends to produce a third entity, combining elements of both, wherein humans cease to be entirely human and machines acquire human characteristics²⁴.

There remains a significant awareness of the differences between humans and machines, as we are still in the early stages of this symbiosis. Simondon (2019) asserts that technological artifacts undergo a process of concretization that leads to their “naturalization,” whereby they gradually cease to evoke strangeness and are perceived as analogous to natural objects, despite their artificiality. Artifacts stabilize and gain existence, differentiating themselves from natural

²³ In brief, the term *robot* is a generic designation referring to any pre-programmed device designed to perform a specific task. *Cyborgs* and *androids* are categories of robots. A cyborg is a human being integrated with robotic parts, usually attached to the body to enhance senses or remedy physical limitations. The term originates as an abbreviation of the English expression *cybernetic organism*. An android, derived from the Greek word *andrōs*—meaning man or human—is a robot with both appearance and functions resembling those of a human, designed to replicate or represent human characteristics in robotic form.

²⁴ Additionally, the concept of “technological singularity” was coined by Vernor Vinge in his 1993 essay *The Coming Singularity* to describe the point at which artificial intelligence will be capable, autonomously, of creating another artificial intelligence without any human intervention.

structures while being perceived as extensions of our bodies. The full perception of this symbiosis with machines will emerge when the initial strangeness of their “naturalization” disappears.

These symbioses between humans and machines challenge established notions of the human person in law, as legal frameworks have traditionally drawn upon everyday understandings of human life to construct the concept of the person in a juridical sense. When these contexts shift, the legal conception of personhood acquires new contours. Attributes traditionally associated with the modern subject—such as rationality and consciousness, guided by autonomy and freedom—are giving way to alternative understandings of what constitutes the human in the era of digital technologies (Amorim; Cardoso, 2019).

According to Bauman (2008a), the feeling of being out of control of our lives or daily situations induces fear, arising from our perceived impotence and the indeterminacy of the uncontrollable. This fear generates a heightened state of awareness about ourselves and our environment, motivating us to seek greater control over our lives. Fear, therefore, functions as a driver for increased vigilance and regulation, serving as an instrument of survival and prompting the creation of technologies that enhance our biological condition, such as nanobiotechnologies. The emergence of machines exhibiting aspects of human rationality, such as artificial intelligence and automata, provokes debates regarding the recognition of their legal personality due to their significant impact on the physical world and legal consequences. In general, technology solves problems, facilitates life, reduces unnecessary suffering, and expands human capacities. Technological artifacts surpass biological limitations and transform our understanding of what it means to be human, facilitating a transition toward a cyborg existence, which redefines our sense of corporeality and humanity.

Currently, we experience forms of life closely resembling cyborg existence, incorporating mechanical prostheses, medical nanotechnologies, and smartphones, which have become indispensable in everyday life. These cyborg lives represent the efficient integration of humans and machines to perform functions more effectively. The concept of the “posthuman” arises when such hybridization allows cyborgs to transcend human limitations, achieving self-perception beyond the strictly human. Conversely, the idea of the “post-machine” reflects technological advancement, where machines increasingly resemble humans, acquire human traits, and develop self-awareness. Thus, both humans and machines can transcend their original natures, creating hybrid beings that combine elements of both.

The creation of robotic machines is rooted in the notion that artificial objects can emulate natural ones, including human beings, simulating them without replicating their internal structure. According to Simon (2006), these technological artifacts function as interfaces between the internal environment (their material composition and organization) and the external environment (the space in which they operate), capable of performing multiple functions through different structures, following the principle of “multiple realizability” (Lawler, 2011). This principle implies that a digitized human identity can manifest in various forms and with diverse intentions.

In practice, the digital representation of a human generally corresponds to the visual identification of an actual person, creating a digital identity as a medium for interaction. This suggests that the constitution of digital subjects may include both mimetic and nonmimetic representations of the human, as well as the recognition of legal personality for artificial entities, such as artificial intelligences. There is a parallel between socio-legal “engineers,” who created the legal form of the subject of rights—including nonbiological entities—and computer engineers, who currently “design” subjects in the virtual environment.

The distinction between a digital identity as a reproduction of human existence and the identity of an artifact representing itself is symbolic and intentional. According to the “ontology of artifacts” (Baker, 2004), technological design must consider the intended identity of the artifact. An object becomes primary and distinguishable when it acquires its own identity, enabling interaction with others, regardless of human-like characteristics. Artifacts depend on the intentions attributed to them and may structurally evolve while maintaining their identity if the underlying intentionality persists. In digital environments, a design defines the object, and multiple representations of the same intention can exist, allowing diverse forms of digital identity. This challenges the modern notion of human identity as singular and cohesive, suggesting that digital technologies enable multiplicity, with various modes of presentation while maintaining a recognizable identity.

The contrasts between humans and technologies reveal new perceptions of identity and the meaning of being human, often defined by negation of what we are not. Donna Haraway (1995) explored how the concept of the human was historically shaped in evolutionary biology through comparison with primates, promoting human superiority and naturalizing this perspective. She questioned how modern biology, initially focused on organisms, evolved into the engineering of technological artifacts, reflecting shifts in power and capitalist reproduction. Later, Haraway (2000) integrated the cyborg concept with humanity, examining how human-

machine integration challenges traditional notions of identity and sexuality. The cyborg, as a programmed machine, does not reproduce human history nor seek its own identity but operates according to the purposes assigned by its programmer.

Furthermore, Haraway (2000) examines the idea that humans are shaped by their environment and adopt behaviors according to social roles defined by dominant morality and social norms. Just as robots are programmed to perform specific functions, we are conditioned to follow roles established by law and prevailing morality. The author problematizes issues of sexuality, gender, and race, highlighting how cultural and social patterns shape our identity. The cyborg serves as a contrast, illustrating how our understanding of ourselves and the world is profoundly influenced by the social and cultural contexts in which we are embedded.

In the case examined in this article, these dynamics become particularly evident within the digital sphere, where algorithms and code define our functions as digital subjects. Our perception of ourselves and the world is influenced by external contexts—often racist and discriminatory—that privilege certain social groups, such as European, male, and white populations, at the expense of other cultural experiences. Algorithms and data collection systems replicate these biases when programmed with the same societal prejudices. There is no guarantee that these codes are neutral or capable of recognizing social plurality; more often, they reproduce discriminatory patterns, disregarding values of equality and diversity (O’Neil, 2020).

Moreover, data collection processes can compromise individual autonomy, privacy, and freedom, producing information commonly referred to as “dirty data” (Richardson, 2019). This term denotes corrupted, inaccurate, or biased data, generally resulting from systemic failures in data capture, processing, or categorization. In the digital environment, this can lead to distorted subject profiles, the exclusion of social groups from specific services or opportunities, and even the reproduction of discriminatory patterns within algorithmic systems. Consequently, it is crucial to discuss the democratization of programming codes (Parselis, 2016) and the integration of values such as equality and respect for diversity in the development of these technologies.

Haraway (1995) proposes that the concept of post-humanity represents an opportunity for positive transformation, suggesting a new existential project that surpasses the limitations of the human body. The cyborg, conceived as an autonomous being independent of traditional cultural and social norms, offers a means to confront social problems such as prejudice and inequality. Additionally, the integration of humans and machines allows us to better understand

our humanity and the cultural, political, economic, and sociological factors that shape it. The emergence of cyborgs not only promises advances in biological enhancement but also opens the possibility of a new way of experiencing the human, provided that democratic mechanisms can govern this process.

In this context, the digital era enables the development of a new understanding of how we are shaped by external forces: we are heteronomously molded when digitally shaped by behavioral modulation algorithms, a process I term the “heteroformation” of our digital identity (Monica, 2021a). This behavioral modulation relies on data collected through multiple processing systems, which predict and suggest our desires, preferences, personal values, and modes of decision-making, in a process of data capitalization and the promotion of a “psychic economy of algorithms” (Bruno, 2018).

This data-driven economy²⁵ represents an investment in a new phase of capitalism, operationalized through technological means that capture, analyze, and process information connected to our psychological and emotional states, extracted from our actions on digital platforms²⁶. Typically, this occurs without the knowledge or consent of those affected, raising profound concerns regarding autonomy, privacy, and freedom in digital environments²⁷, and significantly impacting the foundations of modern democratic principles.

The systems for collecting, processing, and utilizing personal data form the foundation of our concerns regarding data protection in digital environments, as the vast volumes of information gathered about Internet users are fostering a new mode of managing and using personal information. This massive accumulation of data triggers a revolution within the context of an information society, as the sheer quantity of stored data exceeds the capacity of current technological means to process it in its entirety. Beyond the limitations of technology

²⁵ Data capitalism is defined as a system based on the extraction of value and the commodification of digital data, permeating the social, political, and economic dimensions of socio-technical networks. According to West (2017), it is a system in which the commodification of our data generates an asymmetric redistribution of power, consolidating and reinforcing actors who have access to and the capacity to interpret such information.

²⁶ Shoshana Zuboff (2019) conducted an in-depth study analyzing the business models of social media platforms, including the psychological impacts of algorithmic design in applications such as Facebook and Instagram.

²⁷ As previously noted, we are experiencing a significant process of regulation in digital environments, primarily through specific data protection legislation, given the vast volume of personal information collected on the Internet, whose extraction, processing, and use are generally carried out without the explicit consent of the data subjects. In Brazil, the issues of privacy and personal data protection are mainly addressed through the General Data Protection Law (*Lei Geral de Proteção de Dados*, Law 13.709/2018) and the Civil Rights Framework for the Internet (Marco Civil da Internet, Law 12.965/2014). However, this discussion had already been initiated with the Consumer Defense Code (Law 8.078/1990), and, in related contexts, the Access to Information Law (Law 12.527/2011) and the Positive Credit Registry Law (Law 12.414/2011) also addressed these matters. For a broader theoretical approach to data protection regulation in Brazil, see Bioni (2019) and Doneda (2006).

in processing this data, the more pressing issue concerns how our data is being used, for what purposes, and, critically, who is appropriating it and what measures we can take to regain control over our personal information.

Paraphrasing the questions raised by Boyd and Crawford (2012), one might ask: does the massive volume of data collected (big data) serve to create better instruments, services, and goods for society, or does it primarily serve the interests of data capitalism? Is it a tool for promoting societal well-being and addressing social ills by providing deeper insights into societal problems, or is it a capitalized mechanism designed to advance profit-driven objectives?

Since antiquity, discussions surrounding bioethics and biolaw have problematized the implications of technological advances for human life, democracy, and the future of humanity. Data protection regulations represent one of the initial avenues for controlling the use of our personal information. More ambitious initiatives, however, aim at a deeper process of “democratizing our cyborg life,” seeking to make these technological advances materially and financially accessible to all individuals (Amorim; Cardoso, 2019, p. 71).

Furthermore, there is now a robust development of debates concerning cyborg structures, popularizing the understanding that our bodies are biologically limited and that current technologies offer possibilities to overcome these limitations. The “post-human” emerges precisely at the intersection of perspectives mobilized by technological development. Consequently, we gain enhanced capacity to reflect on human transcendence and to explore new ways of understanding human nature. Transhumanist philosophy (Huxley, 1968) and its associated values (Bostrom, 2005) provide conceptual tools to consider the conditions for a technologically modified and enhanced human being. It remains, however, an open question whether such enhancements would genuinely contribute to improving societal life and, in the present context, whether they would support the strengthening of democratic governance.

Thus, it is not only our corporeality that is redefined by the influence of technology, but also our subjective perception of the world, our understanding of how to exercise our freedoms, our capacities for autonomy, and the ways in which we participate in the political life of society. Gibson (1979), in his theory of affordances, emphasized that our capacities for autonomy are dependent on the material possibilities available to exercise them. Our choices are made based on the possibilities for action that are presented to us.

Following the concept of affordances, we access objects and environments through sensations and perceptions that integrate with our memory as we construct symbolic

representations of our surroundings and identify their potential to fulfill purposes through our actions. Affordances refer both to the perceivable attributes of an object and to the actions that actors can perform upon it; in other words, they encompass all immediate possibilities for action perceived by the user. This relationship is determined by the qualities of the object—its material structure—and by the user’s capacities to utilize those qualities—the perceptions and action possibilities of the acting agent. Accordingly, users draw upon prior experiences with similar objects to develop their perception (Norman, 1999).

The theory of affordances allows us to understand that we are now confronted with new configurations for exercising our capacities for action, wherein digital technologies can serve both as mediators and producers of human action. On one hand, if technologies act as mediators in processes where agency resides with the subjects themselves, they can offer meaningful possibilities for action through designs aligned with the principles of a democratic and pluralistic society, fostering genuine self-management of our digital selves. On the other hand, technologies can function merely as instruments of instrumental action, employed to direct and manipulate subjects according to the needs of political and economic systems, thereby colonizing our subjectivity and constraining our capacities for action according to heteronomous parameters.

Consequently, our autonomy in digital environments depends on the technological affordances available and the ways we are able to utilize them. We rely on technological designs that provide adequate conditions for exercising our freedoms and autonomy and that support the full practice of citizenship within digitalized democracies. In this sense, the legal protection of the digital subject—as an extension of civil and individual rights within the modern legal tradition—becomes a necessary condition for the full realization of democracy in a digitally mediated world.

Concluding Remarks

As a conclusion to this article on the digital subject and the democratic implications of its configuration in digital environments, it is evident that current legal and governance systems are not yet fully equipped to address the complexities of the digital era²⁸. The Universal

²⁸ I addressed this issue in detail in my book *Sujeito de Direito Digital* (Van Pelt, 2024), in which I thoroughly explore the shaping of the modern legal subject and its insufficiencies in the face of our digital subjection. Moreover, particularly in its final chapter, I offer alternatives for conceptualizing the “digital legal subject,” outlining a model of legal subjection better suited to the new governance of the subject in the digital era.

Declaration of Human Rights, promulgated in a historically distinct context, centers the physical individual within the legal order. However, in the digital ecosystem, this conception of an individual, physical subject is insufficient to encompass emerging forms of digital subjectivity, where identity is fragmented and dispersed across data and algorithms.

It follows that we are on the threshold of a new conception of the human, expanded through digital experiences, which necessitates a critical reassessment of traditional legal frameworks. The mere transposition of protections from the physical world to the digital sphere does not ensure the safeguarding of digital subjects' rights, particularly in the face of challenges related to privacy, algorithmic manipulation, and data control. As the digital subject is constituted by flows of data, it lacks the corporeal continuity that underpins the modern subject, highlighting the need for new normative structures for its protection.

In this transitional context, law must evolve toward a digital jurisprudence that recognizes these novel forms of subjectivity and regulates interactions and governance within digital environments more effectively. The creation of a "Universal Declaration of the Rights of the Digital Subject" emerges as a potential framework to codify principles of self-determination, privacy, and digital freedom. The paradigm of the Universal Declaration of Human Rights, focused on the physical individual, reflects a historical context shaped by the consolidation of fundamental rights in response to periods of systematic violations of liberties. In the contemporary digital ecosystem, however, this notion of individuality proves inadequate to address the complexities of the digital subject, whose existence is fragmented across data and mediated by computational technologies.

The digital subject cannot be fully understood through the same legal lens applied to the physical subject, as its digital identity does not maintain a continuous relation with corporeal materiality. We are witnessing the emergence of a new understanding of the human, in which bodily and existential possibilities are expanded, demanding a reinterpretation of human rights that takes the digital reality into account.

In this context, it is necessary to rethink law in light of this new subjectivity, and perhaps the future will indeed require a Universal Declaration of the Rights of the Digital Subject, constituting the normative foundation for a high-quality democracy in the Digital Age. Until such a framework is established, we face a transitional period that demands the formulation of provisional law, capable of adapting and evolving alongside technological changes and emerging social demands. Therefore, contemporary law must progress from a conception grounded in physical individualism toward an approach that recognizes and protects the digital

subject, promoting informational self-determination and ensuring that technological advancements reinforce, rather than undermine, democratic foundations. During this transition, it is essential that provisional law continues to adapt to technological and social shifts, establishing legal frameworks that can evolve as theories regarding digital society become consolidated.

Finally, the evolution of digital citizenship and the consolidation of democratic governance in digital environments depend on strengthening digital rights and including digital subjects in the decision-making processes that shape the structure of these environments. This entails moving toward a more inclusive model that enables individuals not only to exist digitally but also to exercise their rights fully and autonomously, ensuring alignment between democratic principles and the emerging realities of the digital domain.

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REFERENCES

- AKRICH, M. Como descrever os objetos técnicos? **Boletim Campineiro de Geografia**, [s. l.], v. 4, n. 1, p. 161-182, 2014. DOI: 10.54446/bcg.v4i1.147. Available at: <https://publicacoes.agb.org.br/boletim-campineiro/article/view/2516>. Accessed in: 19 May 2022.
- AMORIM, H. M., CARDOSO, R. C. O ciborgue no limiar da humanidade: redefinindo a pessoa natural. **Rev. Bioética y Derecho** [online], n.46, p. 67-84, 2019. Available at: https://scielo.isciii.es/scielo.php?pid=S1886-58872019000200005&script=sci_abstract&tlng=pt. Accessed in: 31 Oct. 2024.
- ANTONIAZZI WOLF, K. E.; LOPES SALDANHA, J. M. O poshumanismo concebido pela tecnologia: quando o robô e a inteligência artificial podem salvar os animais. **Revista Brasileira de Direito Animal**, Salvador, v. 18, p. f282302, 2023. DOI: 10.9771/rbda.v18i0.49517. Available at: <https://periodicos.ufba.br/index.php/RBDA/article/view/49517>. Accessed in: 31 Oct. 2024.
- BAKER, L. R. The Ontology of Artifacts. **Philosophical Explorations**, v. 7, n. 2, p. 99-112, 2004. DOI: 10.1080/13869790410001694462. Available at: <https://www.tandfonline.com/doi/abs/10.1080/13869790410001694462>. Accessed in: 24 Jul. 2024.
- BAUMAN, Z. **Medo Líquido**. Rio de Janeiro: Jorge Zahar, 2008.
- BAUMAN, Z. **Vida para Consumo**. A transformação das pessoas em mercadoria. Rio de Janeiro: Jorge Zahar Editor, 2008.
- BIONI, B. **Proteção de Dados Pessoais: a função e os limites do consentimento**. Rio de Janeiro: Forense, 2019.
- BOSTROM, N. Transhumanist values. **Review of Contemporary Philosophy**, v. 4, p. 3-14, 2005. Available at: <https://nickbostrom.com/ethics/values.pdf>. Accessed in: 24 Jul. 2024.
- BOYD, D.; CRAWFORD, K. Critical Questions for Big Data: provocations for a cultural, technological, and scholarly phenomenon. **Information, Communication & Society**, v. 15, n. 5, p. 662–679, 2012. DOI: <https://doi.org/10.1080/1369118X.2012.678878>. Available at: <https://www.tandfonline.com/doi/full/10.1080/1369118X.2012.678878>. Accessed in: 24 Jul. 2024.
- BRONCANO, F. In media res: cultura material y artefactos. **Revista Artefactos**, v. 1, n. 1, p. 18-32, 2008. Available at: <https://revistas.usal.es/cinco/index.php/artefactos/article/view/13>. Accessed in: 24 Jul. 2024.
- BROWNSWORD, R. **What the World Needs Now: Techno-Regulation, Human Rights and Human Dignity**. Human Rights, Oxford: Hart Publishing, 2004.

BRUNO, F. A economia psíquica dos algoritmos: quando o laboratório é o mundo. **NEXO Jornal**, 12 Jun., p. 1-3, 2018. Available at: <https://www.nexojornal.com.br/a-economia-psiquica-dos-algoritmos-quando-o-laboratorio-e-o-mundo>. Accessed in: 24 Jul. 2024.

CASTELLS, M. **La era de la información: economía, sociedad y cultura: La sociedad red**. 2ª ed. vol. 1. Madrid: Alianza Editorial, 2000.

CUNNINGHAM, F. **Teorias da democracia: uma introdução crítica**. Porto Alegre: Editora Penso, 2009.

DESSAUER, F. **Discusión sobre la técnica**. Madrid: RIALP, 1964.

DONEDA, D. **Da privacidade à proteção dos dados pessoais**. Rio de Janeiro: Renovar, 2006.

FREENBARG, A. **Critical Theory of Technology**. Oxford: Oxford University Press, 1981.

GARCÍA CANCLINI, N. **Consumidores y ciudadanos: conflictos multiculturales de la Globalización**. Ciudad del México: Grijalbo, 1995.

GIBSON, J. J. **The Theory of Affordances**. The Ecological Approach to Visual Perception. Boston: Houghton Mifflin, 1979.

HALFPAP, Dulce Maria; SOUZA, Gilberto Corrêa de; DA MOTA ALVES, João Bosco. Robôs como artefatos. **Ciênc. cogn.**, Rio de Janeiro, v. 12, p. 203-213, nov. 2007. Available at: http://pepsic.bvsalud.org/scielo.php?script=sci_arttext&pid=S1806-58212007000300019&lng=pt&nrm=iso. Accessed in: 25 Jul. 2024.

HARAWAY, D. **Ciencia, cyborgs y mujeres**. La reinención de la naturaleza. València: Ediciones Cátedra, 1995.

HARAWAY, D. Manifesto ciborgue: Ciência, tecnologia e feminismo-socialista no final do século XX. In: TADEU, Tomas (org.). **Antropologia do ciborgue**. Belo Horizonte: Autêntica, 2000, p. 33–118.

HILDEBRANDT, M. **Smart Technologies and the End(s) of Law: Novel Entanglements of Law and Technology**. Edward Elgar Publishing, 2015.

HOFFMAN-RIEM, W. **Teoria geral do direito digital**. Transformação Digital: Desafios Para o Direito. Rio de Janeiro: Forense, 2021.

HUXLEY, J. Transhumanism. **Journal of Humanistic Psychology**, v. 8, n. 1, p. 73-76, 1968. DOI: <https://doi.org/10.1177/002216786800800107>. Available at: <https://journals.sagepub.com/doi/10.1177/002216786800800107>. Accessed in: 24 Jul. 2024.

KOOPS, B. **Criteria for Normative Technology**. An Essay on the Acceptability of ‘Code as Law’ in Light of Democratic and Constitutional Values. Oxford, 2007. DOI:

10.2139/ssrn.1071745. Available at:

https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1071745. Accessed in: 10 Dec. 2022.

KRANZBERG, M. Technology and history: kranzberg's laws. **Technology and Culture**, v. 27, n. 3, p. 544-560, 1986. DOI: 10.2307/3105385. Available at:

https://www.cs.ucdavis.edu/~koehl/Teaching/ECS188/PDF_files/Kranzberg.pdf. Accessed in: 24 Jul. 2024.

KROES, P.; MEIJERS, A. The Dual Nature of Technical Artifacts - presentation of a new research programme. **Techné: Research in Philosophy and Technology**, v. 6, n. 2, p. 4-8, 2002. Available at: https://scholar.lib.vt.edu/ejournals/SPT/v6n2/pdf/kroes_meijers.pdf.

Accessed in: 24 Jul. 2024.

LASH, S. **Crítica de la información**. Amorrortu Editores, 2005.

LATOUCHE, S. **La apuesta por el decrecimiento**. ¿Cómo salir del imaginario dominante? Barcelona: Icaria Editorial, 2006.

LAWLER, D. Las funciones técnicas de los artefactos y su encuentro con el constructivismo social en tecnología. **Rev. iberoam. cienc. tecnol. soc.**, Ciudad Autónoma de Buenos Aires, v. 1, n. 1, p. 27-71, set. 2003. Disponível em

http://www.scielo.org.ar/scielo.php?script=sci_arttext&pid=S1850-00132003000100002&lng=es&nrm=iso. Accessed in: 25 Jul. 2024.

LE BRETON, D. Individualização do corpo e tecnologias contemporâneas. In: COUTO, Edvaldo; GOELLNER, S. (org.). **O Triunfo do Corpo**: polêmicas contemporâneas. Petrópolis, RJ: Vozes, 2012.

LEITÃO, D. K.; GOMES, L. G. Estar e não estar lá, eis a questão: pesquisa etnográfica no Second Life. **Revista Cronos**, v. 12, n. 2, 2013. Available at:

<https://periodicos.ufrn.br/cronos/article/view/3159>. Accessed in: 16 Oct. 2024.

LESSIG, L. **Code: And Other Laws of Cyberspace**. Basic Books, 1999.

LOUREIRO, C. O reset global: um caminho para a transhumanidade. **Revista Brasileira de Direito Animal**, v. 17, n. 1, p. 1-19, p. 1-19, 2022. DOI: 10.9771/rbda.v17i0.49230.

Available at: <https://periodicos.ufba.br/index.php/RBDA/article/view/49230>. Accessed in: 31 Oct. 2024.

MONICA, E. F. [VAN PELT, E.]. **Problema da heteroformação da identidade digital**:

Fundamentos para o princípio da autodeterminação informativa. **Revista Confluências** (Niterói), v. 23, p. 118-143, 2021a. DOI: 10.22409/conflu.v23i2.50670. Available at:

<https://periodicos.uff.br/confluencias/article/view/50670>. Accessed in: 17 Jul. 2023.

MONICA, E. F. [VAN PELT, E.]. Cidadania na Esfera Virtual: perspectivas discursivas a

partir da teoria do direito moderno. In: ÁLVAREZ, Antón. L. F.; HANSEN, G. L.;

BLÁZQUEZ, G. S. (Org.). **Ciudadanía en una perspectiva global**. 1ed. Madrid: Editorial

Dykinson, v. 1, p. 9-29, 2021b. Available at: <https://international.vlex.com/vid/cidadania-na-esfera-virtual-876998101>. Accessed in: 16 jun. 2023.

MONICA, E. F. [VAN PELT, E.]. Ensaio para se pensar a proteção do sujeito de direito digital no Brasil. In: COSTA, M. A. N. (Org.). **Qual o Caminho do Brasil?** Instituições, Cultura e Política no Século XXI. 1ed. Curitiba: Appris, v. 1, p. 279-298, 2021c.

NORMAN, D. Affordance, Conventions and Design. **Interactions**, v. 6, n. 3, p. 38-43, 1999. DOI: 10.1145/301153.301168. Available at: <https://dl.acm.org/doi/10.1145/301153.301168>. Accessed in: 25 Jul. 2024.

O'NEIL, C. **Algoritmos de destruição em massa**: como o *big data* aumenta a desigualdade e ameaça a democracia. Santo André: Rua do Sabão, 2020.

PARRA, H. Abertura e controle na governamentalidade algorítmica. **Cienc. Cult.**, São Paulo, v. 68, n. 1, p. 39-49, 2016. DOI: 10.21800/2317-66602016000100013. Available at: http://cienciaecultura.bvs.br/scielo.php?script=sci_arttext&pid=S0009-67252016000100013&lng=en&nrm=iso. Accessed in: 25 de Jul. 2024.

PARSELIS, M. **Tecnologías Entrañables como Marco para la Evaluación Tecnológica**. Tese de doutorado. Universidad de Salamanca, 2016. DOI: 10.14201/gredos.133006. Available at: <https://gredos.usal.es/handle/10366/133006>. Accessed in: 23 Marc. 2024;].

QUINTANILLA FISAC, M. A. La democracia tecnológica. **Arbor**, [S. l.], v. 173, n. 683-684, p. 637-651, 2002. DOI: 10.3989/arbor.2002.i683-684.1143. Available at: <https://arbor.revistas.csic.es/index.php/arbor/article/view/1143>. Accessed in: 25 Jul. 2024.

QUINTANILLA, M. A. **Tecnología**: un enfoque filosófico. Buenos Aires: Eudeba, 1991.

RAIOL, R.; ALENCAR, E. Bioética e transhumanismo: uma discussão sobre as pessoas com deficiência e a ideia de ciborgue. **Revista Brasileira de Direito Animal**. vol. 15, n. 2, p. 107-119, 2020. DOI: 10.9771/rbda.v15i2.37734. Available at: <https://periodicos.ufba.br/index.php/RBDA/article/view/37734>. Accessed in: 31 Oct. 2024.

RICHARDSON, R.; SCHULTZ, J.; CRAWFORD, K. Dirty data, bad predictions: how civil rights violations impact police data, predictive policing systems, and justice. **New York University Law Review**, v. 94, n. 192, p. 193-233, 2019. Available at: <https://www.nyulawreview.org/online-features/dirty-data-bad-predictions-how-civil-rights-violations-impact-police-data-predictive-policing-systems-and-justice/>. Accessed in: 25 Jul. 2024.

SANDEL, M. J. **O descontentamento da democracia**: uma nova abordagem para tempos perigosos. Rio de Janeiro: Civilização Brasileira, 2023.

SIMON, H. **Las ciencias de lo artificial**. Granada: Editorial Comares, 2006.

SIMONDON, G. **El modo de existencia de los objetos técnicos**. Buenos Aires: Prometeo, 2007.

SIMONDON, Gi. **Sobre la técnica**. Madrid: Editorial Cactus, 2017.

VAN PELT, E. **Sujeito de direito digital**: a nova governamentalidade do sujeito na era digital. 1. ed. Rio de Janeiro: Telha, 2024a.

VAN PELT, E. O tecnototalitarismo e os riscos para a democracia e para os sujeitos. **Estudos Avançados**, v. 38, p. 105-121, 2024b. DOI: <https://doi.org/10.1590/s0103-4014.2024.38110.008>. Available at: <https://www.scielo.br/j/ea/a/jVsK5wHPvKSw3m6cRQrvLbw/?format=html&lang=pt>. Accessed in: 20 Nov. 2024.

VICENTIN, D. Governança da Internet, Infraestrutura e Resistência. In: **IV Simposio Internacional LAVITS**. ¿Nuevos paradigmas de la Vigilancia? Miradas desde América Latina, 2016. Available at: https://lavits.org/wp-content/uploads/2017/08/P8_Vicentin.pdf. Accessed in: 25 Jul. 2024.

WEST, S. Data Capitalism: Redefining the Logics of Surveillance and Privacy. **Business & Society**, v. 58, n. 1, p. 20-41, 2017. DOI: 10.1177/0007650317718185. Available at: <https://journals.sagepub.com/doi/10.1177/0007650317718185>. Accessed in: 25 Jul 2024.

WINNER, L. **Autonomous Technology**: Technics-out-of-control as a Theme in Political Thought. Cambridge: MIT Press, 1977.

WINNER, L. **La ballena y el reactor**: una búsqueda de los límites en la era de la alta tecnología. Barcelona: Gedisa, 1987.

ZUBOFF, S. **The Age of Surveillance Capitalism**: The Fight for a Human Future at the New Frontier of Power. PublicAffairs, 2019. Available at: <https://www.hbs.edu/faculty/Pages/item.aspx?num=56791>. Accessed in: 13 Dec. 2023.

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