



## Do we really need a “Digital Humanism”? A critique based on post-human philosophy of technology and socio-legal techniques

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### ABSTRACT

Few concepts have been subjected to as intense scrutiny in contemporary discourse as that of “humanism.” While these critiques have acknowledged the importance of retaining certain key aspects of humanism, such as rights, freedom, and human dignity, the term has assumed ambivalence, especially in light of post-colonial and gender studies, that cannot be ignored. The “Vienna Manifesto on Digital Humanism,” as well as the recent volume (2022) titled *Perspectives on Digital Humanism*, bear a complex imprint of this ambivalence. In this contribution, we aim to bring to the forefront and decipher this underlying trace, by considering alternative (non-humanistic) ways to understand human-technologies relations, beyond the dominant neoliberal paradigm (paragraphs 1 and 2); we then analyse those relations within the specific context of legal studies (paragraphs 3 and 4), one in which the interdependency of humans and non-humans shows a specific and complex form of “fundamental ambivalence.”

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Few concepts have been subjected to as intense scrutiny in contemporary discourse as that of “humanism.” Post-humanist thought, a significant portion of feminism, as well as prominent figures in the twentieth-century philosophical tradition (such as Foucault, Sartre, and Derrida), have highlighted and deconstructed the most problematic assumptions (such as notions of progress, dominion, rationality, and Eurocentrism) embedded in humanism—not so much as historical periodization but as a system of thought that found its most powerful embodiment in the well-known figure of Leonardo Da Vinci’s Vitruvian Man (“man as the measure of all things”). While these critiques have acknowledged the importance of retaining certain key aspects of humanism, such as rights, freedom, and human dignity, the term has assumed ambivalence, especially in light of post-colonial and gender studies, that cannot be ignored. The “Vienna Manifesto on Digital Humanism,” as well as the recent volume (2022) titled *Perspectives on Digital Humanism*,<sup>1</sup> bear a complex imprint of this ambivalence. In this contribution, we aim to bring to the forefront and decipher this underlying trace, by considering alternative (non-humanistic) ways to

understand human-technologies relations, beyond the dominant neoliberal paradigm (paragraphs 1 and 2); we then analyse those relations within the specific context of legal studies, one in which the interdependency of humans and non-humans shows a specific and complex form of “fundamental ambivalence.”

### 1. More or less human(s)?

The volume *Perspectives on Digital Humanism* (2022) begins with a preface by the editors, who briefly allude to contemporary criticisms of the concept of humanism. They make a quick reference to the critique of “European cultural supremacy” (here, invoking post-colonial studies) and the question “regarding who that subject precisely is” (an indirect way of referring to feminist critique).<sup>2</sup> The editors immediately clarify that the digital-humanistic spectrum is marked by internal tensions and diversification. However, they assert that today, Digital Humanism “certainly has no supremacy or colonial mission; quite the contrary, it is critical of already existing colonial tendencies in today’s digital technologies.”<sup>3</sup> The underlying premise of this anti-colonial tendency

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<sup>1</sup> H. Werthner – E. Prem – E. A. Lee – C. Ghezzi (eds.), *Perspectives on Digital Humanism*. Cham: Springer, 2022.

<sup>2</sup> Ivi, p. vi.

<sup>3</sup> Ivi, p. vi.

remains classically humanistic as clearly visible when they write: “We want to stress that humans should be at the centre of the digital world” or “technology is for people and not the other way around.”<sup>4</sup> As stated in the 2019 Manifesto, included at the beginning of the collection, “the quest is for enlightenment and humanism,”<sup>5</sup> and the goal is to encourage “the human-centred innovation.”<sup>6</sup>

This approach retains two aspects of humanism that contemporary studies on the environment, animals, and the so-called post-human have highlighted as highly problematic. Firstly, it assumes the concept of “humanity” as a homogenous category by which corresponding “human values” are understood as universal. We will come back to this aspect in our paragraph 2. Secondly, Digital Humanism maintains a structural anthropocentrism at its core. In other words, it implies a privileged, hierarchical position of humans over machines and implicitly over the rest of the living world, with which humans want to live “in harmony.” In this contribution, we aim to critique these two assumptions of Digital Humanism from a perspective that at the same time seeks to avoid the theoretical and practical risks of a “flat ontology,” which indiscriminately homogenizes the roles played by human and non-human actors.<sup>7</sup> Is it possible to maintain a post-colonial and feminist critique of the humanist paradigm, when it comes to the relationship between humans and technologies, without embracing an absolute horizontality of positioning?

The level of interdependence and interconnectedness with digital technologies—what the editors of the volume define as “the co-evolution of information technology and humankind”<sup>8</sup>—has reached such a level of complexity that it calls into question the classical framework of human control and dominion. The “human-centred” approach has proven to be, rather than the solution to technology management, itself a part of the landscape that needs to be reconsidered.<sup>9</sup> This has become particularly evident in environmental studies: as far back as 1972, Christopher Stone asked in his essay *Should Trees Have Standing?* how to give a legal “voice” to elements of nature, like trees, that do not have it, and without assuming that it would be equal to human values and desires.<sup>10</sup> This is a complex problem that has sparked the debate on the “rights of nature”<sup>11</sup> and, more broadly, the issue of the

legal and moral personification of natural entities.<sup>12</sup>

A similar discourse applies to technologies of the so-called “fourth order”—Internet of Things, Cobots, Augmented and Virtual Reality, Big Data, 3D/4D printing. These AI-driven technologies are capable of performing numerous tasks, often communicating autonomously with each other without direct human intervention. What can be the role of humans in a context where ICTs become increasingly autonomous and interconnected? There is a substantial consensus, even among digital humanists, that humans will not be replaced by AI or “superintelligent machines,” at least not until machines become capable of semantic understanding.<sup>13</sup> In addition, as Enrico Nardelli notes, drawing from Giuseppe Longo’s reflections, AI relies on the distinction between hardware and software, which is a paradox when applied to living beings, as they are embodied and do not know this separation.<sup>14</sup> Despite these limitations, AI is showing a growing autonomy that urgently requires to be at least supervised by humans: like competent digital helpers, machines “should remain confined” to being “powerful personal assistants, relieving us from the more repetitive intellectual work (...). People have always to remain in control, and the final decisions, especially those affecting other individuals and their relations, should always be taken by human beings.”<sup>15</sup> However, it seems we find ourselves in<sup>16</sup> a very paradoxical situation. We have always been (and never ceased to be) “the masters,” and yet we have produced machines that we fear or that have the potential to be fearsome to humans. Is the paradigm of vertical human control truly the right strategy to address the complexity of the hyper-technological present? What are the possible alternatives?

Certainly, the co-evolutionary relationship between humans and machines, emphasized by digital humanists, is here to stay and is at the core of the issue. The question is whether this co-evolutionary relationship could be thought of as non-vertical, without flattening it to the point where we—as human “prosumers”—are no longer in the position to take responsibility for the damages or consequences of our interaction with machines.

One way out of this impasse has been suggested by Gilbert Simondon in his philosophy of technology. In a course taught in Lyon between 1960 and 1961, Simondon observes: “The ability to detach from the initial human operator—artist or producer—signifies for the produced object the beginning of a free adventure, which entails as many opportunities for survival and transmission over time as it does dangers of reduction to slavery, or even, in a register of fundamental ambivalence, possibilities of alienation for human activity that is enclosed and crystallized in its works or products.”<sup>17</sup> The key element to emphasize here is

<sup>4</sup> *Ibid.*

<sup>5</sup> Ivi, p. xi.

<sup>6</sup> Ivi, p. xi.

<sup>7</sup> By the term “flat ontology” we refer to—according to the definition provided by Levy R. Bryant—an “(...) ontology capable of doing justice to these strange nonhuman actors, capable of respecting these strange strangers on their own terms, and an ontology capable of doing justice to the phenomenological and the semiotic. (...) Flat ontology makes two key claims. First, humans are not at the center of being, but are among beings. Second, objects are not a pole opposing a subject, but exist in their own right, regardless of whether any other object or human relates to them. Humans, far from constituting a category called ‘subject’ that is opposed to ‘object’, are themselves one type of object among many.” See L.R. Bryant, “The Democracy of Objects,” online (<https://quod.lib.umich.edu/o/ohp/9750134.0001.001/1:10/-democracy-of-objects?rgn=div1;view=fulltext>, last retrieved March 3, 2024).

<sup>8</sup> Werthner – Prem – Lee – Ghezzi (eds.), *Perspectives on Digital Humanism*, p. v.

<sup>9</sup> This reevaluation also encompasses the contribution provided by animal studies and the antispeciesist perspective.

<sup>10</sup> C. D. Stone, *Should Trees Have Standing? Law, Morality, and the Environment* (1972). Oxford: Oxford University Press, 2010. One year earlier, in his children’s story “The Lorax,” Dr. Seuss had already posed the question in the form: “Who speaks for the trees?” (Dr. Seuss, *The Lorax* (1971). New York (NY): Harper Collins Children’s Books, 2012).

<sup>11</sup> The literature on the rights of nature is extensive. Here, we shall confine our discussion to reference a document that encapsulates its objectives: A. Acosta, “Toward the Universal Declaration of Rights of Nature.” *AFESE Journal*, August 24, 2010 (<https://www.garn.org/wp-content/uploads/2021/09/Toward-the-Universal-Declaration-of-Rights-of-Nature-Alberto-Acosta.pdf>, last retrieved September 28, 2023).

<sup>12</sup> For a perspective that problematizes the strategy of personifying nature, see: X. Chiaramonte, “Un problema di ‘natura’ politica.” *Zapruder*, 58 (2022), pp. 14-28 and X. Chiaramonte, “Law Is Other Wor(l)ds.” In: F. E. Holzhey – J. Schillinger (eds.), *The Case for Reduction*. Berlin: ICI Berlin Press, 2022, pp. 227-250; see also G. Teubner, “The Invisible Cupola: From Causal To Collective Attribution in Ecological Liability.” In: G. Teubner – L. Farmer – D. Murphy (eds.), *Environmental Law and Ecological Responsibility: The Concept and Practice of Ecological Self-Organization*. Hoboken (NJ): Wiley, 1994, pp. 17-47.

<sup>13</sup> In his book *The Fourth Revolution: How the Infosphere is Reshaping Human Reality* (Oxford: Oxford University Press, 2016, Chapter 7), Luciano Floridi has effectively highlighted this aspect, emphasizing the indispensability of human beings as interpreters of data patterns and offering a critique of the “semantic web.”

<sup>14</sup> Additionally, machines do not exhibit the fluctuations typical of dynamic living systems and, ultimately, they operate with representations (symbols) of phenomena rather than the phenomena themselves (E. Nardelli, “The Unbearable Disembodiedness of Cognitive Machines.” In: *Perspectives on Digital Humanism*, pp. 201-209: 207).

<sup>15</sup> Ivi, p. 206.

<sup>16</sup> E. A. Lee, “Are We Losing Control?,” in *Perspective on Digital Humanism*, pp. 3-7.

<sup>17</sup> G. Simondon, “Psychologie de la technicité.” In: *Sur la technique*. Paris: PUF, 2014, pp. 27-129: 28 (our translation).

“fundamental ambivalence:” The gradual detachment from the human operator signifies, from the perspective of the machine, the beginning of an “adventure” rich in potential that can benefit the human agent itself. However, from the human perspective, it poses a risk of alienation from human activity. Machine supervision is necessary not only to avoid the risks of de-responsibilizing the human agent from the consequences of their technical actions<sup>18</sup> but also for the simple fact—as emphasized by digital humanists themselves—that machines still require human programming and human interpretation of data.<sup>19</sup> By emphasizing “ambivalence” as “fundamental,” and therefore as structural, Simondon invites us to take both perspectives into account. This means looking at the situation not only from the viewpoint of the subject in charge of supervision and control but also from the perspective of the machine.<sup>20</sup> Even if supervised, the machine develops into a specific material history (a “free adventure”), with its own course that needs to be harmonized with the initial intentionality of the human operator. This approach would imply conceiving the machine as capable of a certain ‘agency’ (no longer a mere ‘powerful assistant’!) and not assuming the relationship with AI in antagonistic terms: if the non-human (artificial and natural) becomes “antagonistic” to the human, it does not become so on its own, but because it is developed and framed by humans.’ At the same time, antagonism is also caused by the interconnection among various systems that structurally escapes, to some extent, human control. To provide an example again from environmental studies, the rise in temperatures caused by anthropogenic impact is “managed” by the planet through adjustments that allow Earth to reach a new stage of self-regulation. Global warming is undoubtedly a problem for the human species (requiring immediate and long-term interventions), but it may not necessarily be a problem for the Earth system as a whole.<sup>21</sup>

To echo the words of Helga Nowotny, it is indeed about “navigating the tensions ahead.”<sup>22</sup> In doing so, i.e. in the choices of design and programming as well as in the ethical and political direction and management of today’s technologies, “human values” do not matter so much *in and of themselves* or because they are intrinsically good (for they are *human*). They matter because we find ourselves in the challenging situation of the “fundamental ambivalence” that Simondon discusses: A situation in which the issue is no longer one of control but rather one of coexistence.

## 2. Neoliberalism and Digital Humanism

Thus, we are brought back to the question of “human values,” which are at the core of the digital-humanistic program: what values are we

<sup>18</sup> As it seems to be the case in: J. Bennet, *Vibrant Matter: A Political Ecology of Things*. Durham (NC): Duke University Press, 2010.

<sup>19</sup> The well-known prophecy about “the end of theory,” which was predicted to be replaced by data processing, advocated by Chris Anderson in *Wired* 15 years ago, has shown its bias in light of subsequent developments in AI. More data does not necessarily mean less theory; rather, it often requires more theory to make that data meaningful and significant. See C. Anderson, “The End of Theory: The Data Deluge Makes the Scientific Method Obsolete.” *Wired*, June 23, 2008 (<https://www.wired.com/2008/06/pb-theory/>, last retrieved September 28, 2023).

<sup>20</sup> The notion of “ambivalence” is extensively developed by Donna Haraway in her *Cyborg Manifesto*, referring to the dual nature—potentially liberating yet also posing the risk of oppressive use—of technologies, especially reproductive ones. Haraway aims to highlight the aspect of “pollution” as typical of bodily experience in high-tech worlds.

<sup>21</sup> This is known as the “Gaia hypothesis,” which was proposed back in 1974 by Lovelock and Margulis. See J. E. Lovelock – L. Margulis, “Atmospheric Homeostasis by and for the Biosphere: The Gaia Hypothesis.” *Tellus A*, 26 (1974), 1-2, pp. 1-9. The reference to environmental studies is useful because it also provides examples of interactions between humans and non-humans, lending itself to analogical arguments in a broader perspective that considers not only artificial non-human but also natural non-human.

<sup>22</sup> H. Nowotny, “Digital Humanism: Navigating the Tensions Ahead.” In: *Perspective on Digital Humanism*, pp. 317-321.

talking about? As European and Western citizens, heirs to European Enlightenment culture, we would hardly consider values such as freedom, equality, and self-determination questionable. We consider the promotion of these values fundamental for a democratic society. At the same time, these very values, intimately linked to the individual sphere, have become (or have been made) in contemporary times, the drivers of a strongly neoliberal twist in the economic and social landscape. Neoliberalism has been the basis for the ideology of progress, which in turn has driven extractive policies and economic growth. The “side effects” of these policies, including pollution and increased social inequalities, have significantly contributed to environmental collapse as well as the prospects of an “algorithmic catastrophe.”<sup>23</sup> Not only that, but very serious problems arise in terms of digital sustainability, given the significant carbon footprint produced by AI infrastructures, the Internet, and digital technologies. This requires a general rethinking of the capitalist organization of the digital sector: Digital Humanism, as well as critical approaches to AI, should integrate the analysis of this aspect into their reflections on human-machine interaction. The discourse centred around human values and the imperative to reinstate them at the forefront so as to place AI in our “service” runs the risk of disregarding the fundamental issue that AI and digital technologies, in their current configuration, lack long-term sustainability.<sup>24</sup>

This complex situation, which requires a critical engagement with the organization of digital capitalism make some of the principles advocated by Digital Humanism problematic. In his essay titled “Are We Losing Control?”<sup>25</sup> Edward A. Lee advocates for a “more human-centric approach to technology,”<sup>26</sup> in a way that is aligned with neoliberal logic. By contesting the concept of “digital creationism,” which is “the idea that technology is the result of top-down intelligent design,”<sup>27</sup> Lee highlights an undoubtedly characteristic aspect of digital technology. Its design is the result not only of engineering and design choices but also of broader cultural and social response processes. At the same time, he takes a deregulatory position, which contrasts with the declared orientation of Digital Humanism.<sup>28</sup> If it is not just the choices of engineers and developers but also the reactions and feedback of users that are decisive, then the responsibility for “bad technology” is at least shared between these two parties. Introducing more rules to ensure, for example, the protection of user privacy could even prove counterproductive. It might be more effective to educate “the public,” and leave the engineers alone: to educate the public does not imply that “we should teach ethics to engineers.” Lee considers this belief “naïve” and argues that “coevolutionary processes are much too complex.”<sup>29</sup> Or perhaps not? In the end we are simply being encouraged to embrace the neoliberal deregulatory principle, which translates into the old-fashioned paternalistic theory of “gentle nudging.” Lee concludes: “Are we losing control? The answer is

<sup>23</sup> Yuk Hui, “Algorithmic Catastrophe – The Revenge of Contingency.” *Par-rhesia*, 23 (2015), pp. 122-143.

<sup>24</sup> See for instance the debate on digital ecocide (L. Rashid, “The Case of Nature: Digital Ecocide by Tech Companies.” *Digital Society Blog*, November 27, 2021 (<https://www.hiig.de/en/how-do-digital-tech-companies-get-away-with-unsustainable-behavior/>, last retrieved December 21, 2023); see also the European Digital Sme Alliance on “Sustainable Digitalisation” (<https://www.digitalsme.eu/what-is-sustainable-digitalisation/>, last retrieved December 21, 2023) and P. Lago, “The Digital Society Is Already Here: Pity it Is Unsustainable.” In: I. Vermeulen (ed.), *Connected World: Insights from 100 Academics on How to Build Better Connections*, Amsterdam: VU University Press Amsterdam, 2023.

<sup>25</sup> Lee, “Are We Losing Control?.” In: *Perspective on Digital Humanism*, pp. 3-7.

<sup>26</sup> Ivi, p. 6.

<sup>27</sup> Ivi, p. 4.

<sup>28</sup> In the Vienna Manifesto, one of the foundational principles emphasized is the necessity for “effective regulations, rules and laws, based on a broad public discourse” (“Vienna Manifesto on Digital Humanism.” In: *Perspective on Digital Humanism*, pp. xi-xiv: xii).

<sup>29</sup> Lee, “Are We Losing Control?,” p. 6.

'no'. We never had control, and we can't lose what we don't have. This does not mean we should give up, however. We can nudge the process, and even a supertanker can be redirected by gentle nudging."<sup>30</sup>

The question of the relationship with neoliberal principles, which have absorbed and capitalized on the Eurocentric ideals of classical humanism, is a complex and unavoidable issue not only for Digital Humanism but for any contemporary thought on technology. This is because it cannot be separated from the capitalist production context in which we operate. The authors of the "Vienna Manifesto" are well aware of this context, noting that "concentration and monopolies exist in the web, where a small number of online platforms dominate the market."<sup>31</sup> A key principle of the Manifesto asserts that "regulators need to intervene with tech monopolies."<sup>32</sup> The politically relevant point is the form this intervention should take.

According to the Manifesto's authors, "it is necessary to restore market competitiveness as tech monopolies concentrate market power and stifle innovation."<sup>33</sup> Thus, while "governments should not leave all decisions to the market," Digital Humanists believe that monopolistic concentration can be countered neoliberally by protecting and enhancing competition. Indeed, "neoliberalism builds on the early liberal idea of free markets and a laissez-faire economic order:"<sup>34</sup> there is no contradiction, in neoliberal logic, between a competitive regime in a free market and a certain level of state intervention, as "neoliberalism actively used the state to reset regulatory and political frameworks, to roll back the state's previous activities, and to enforce market relations."<sup>35</sup> In other words, "[neoliberalism] regulated to enforce market and quasi-market relations rather than stepping aside to allow transactions between private parties."<sup>36</sup> The technological shift, especially with the rise of ICTs from the 1970s and 1980s onward, has implied the inclusion of technology and its effects in social theories. It is again the humanistic-Enlightenment principle of freedom that is mobilized to place technology within the capitalist present.

As David Harvey points out, neoliberalism upholds an "institutional framework characterized by private property rights, individual liberty, unencumbered markets, and free trade."<sup>37</sup> Against this backdrop, "the information age and the network society are decentralized, and the history of computing mirrors the neoliberal arch in both historical time and dialectical process."<sup>38</sup> Such a "mirroring" becomes particularly evident in two areas: on one hand, "it was state funding, often military in character, that developed the technological building blocks that became the basis of an apparently distributed, entrepreneurial, and disruptive 'new' technology." On the other hand, "the distributed global network society displays a geographic clustering of innovation in distinct areas co-located with high-quality universities."<sup>39</sup> The military sector and education are two drivers of the neoliberal logic applied to technology, and this aspect is reflected in the theoretical framework of Digital Humanism. One of the principles of the "Vienna Manifesto" proclaims that "universities are the place where new knowledge is produced and

critical thought is cultivated."<sup>40</sup> Furthermore, the authors argue that "education and information technologies together with the ethical and societal impacts of IT must begin as early as possible in the education process."<sup>41</sup> Hence the relevant issue is not so much to determine whether the reference of Digital Humanism to neoliberal values is inherently good or bad but rather to observe that this reference is mostly implicit and exists within an internal tension that oscillates between criticism of some aspects (such as monopolistic concentration and the risks of technology-driven control and surveillance) and the assumption of others (the criteria of freedom and competition, updated to the neoliberal reinterpretation of government intervention). This implicit tension stems from a certain *naturalization* of neoliberal logic, which has led to the association of the humanistic values invoked in the "Vienna Manifesto" with a specific economic-social order. As Harvey affirms,

For any system of thought to become dominant, it requires the articulation of fundamental concepts that become so deeply embedded in common sense understandings that they are taken for granted and beyond question. (...) The founding figures of neoliberal thought took political ideals of individual liberty and freedom as sacrosanct—as the central values of civilization. And in so doing they chose wisely and well, for these are indeed compelling and greatly appealing concepts.<sup>42</sup>

If we counterpose the naturalization of neoliberal logic with its historicity, it becomes possible to propose an alternative interpretation of the current technological landscape. To use the effective assertion of Chris Jones, what is needed is a "a socio-material understanding of technology in which technologies have a history in which social forces are embedded, and they are material artefacts with a definite form, which are taken up in society in socially and politically informed ways."<sup>43</sup> This choice implies a reference to a different tradition that emphasizes the connection between forms of knowledge (including today's ICTs) and power relations.

Such an approach has been developed with particular effectiveness by the American philosopher of technology, Andrew Feenberg. Building upon Foucault, Feenberg highlights that modernity is characterized by the alliance between knowledge and power, an alliance that affects both individual subjectivity and the social order. This alliance manifests as a network of technologies, architectural structures, devices, practices, organizations, institutions, and standardized roles. As Feenberg writes, rationality is not singular but plural, meaning that it needs to be contextualized: "There is not one rationalization but many, corresponding to the many domains of social life."<sup>44</sup> The socio-material approach, originating in the field of organization studies and in dialogue with the work of scholars such as Bruno Latour, Karen Barad, and Lucy A. Suchman, places materiality as a constitutive dimension of our everyday life, intertwined with technology. The reference to materiality serves as a corrective to the classical constructivist approach, reminding us that certain aspects of the technology under analysis are intrinsic to it "and not part of the social context in which the technology was used."<sup>45</sup> In the contemporary digital context, identifying the physical characteristics of technologies in use is certainly more complex: "Most information technology artefacts like computer programs and various

<sup>30</sup> Ivi, p. 6.

<sup>31</sup> H. Werthner – A. Stanger – V. Schiaffonati – P. Knees – L. Hardman – C. Ghezzi, "Digital Humanism: The Time Is Now." *IEEE Computer Society*, 56 (2023), pp. 138-142: 139.

<sup>32</sup> "Vienna Manifesto on Digital Humanism", p. xii.

<sup>33</sup> *Ibid.*

<sup>34</sup> C. Jones, "Capital, Neoliberalism and Educational Technology." *Postdigital Science and Education*, 1 (2019), pp. 288-292: 289.

<sup>35</sup> *Ibid.*

<sup>36</sup> *Ibid.* Regarding the neoliberal society and the relationship between the state form and neoliberal policies, see the influential work by Dardot and Laval: P. Dardot – C. Laval, *The New Way of the World: On Neoliberal Society*. New York (NY): Verso, 2017.

<sup>37</sup> D. Harvey, "Neoliberalism as Creative Destruction." *Annals AAPSS*, 610 (2007), pp. 22-44: 22.

<sup>38</sup> Jones, "Capital, Neoliberalism and Educational Technology," p. 290.

<sup>39</sup> *Ibid.*

<sup>40</sup> "Vienna Manifesto on Digital Humanism," p. xii.

<sup>41</sup> Werthner – Stanger – Schiaffonati – Knees – Hardman – Ghezzi, "Digital Humanism: The Time Is Now," p. 141. Harvey, "Neoliberalism as Creative Destruction," p. 24.

<sup>42</sup> *Ibid.*

<sup>43</sup> Jones, "Capital, Neoliberalism and Educational Technology," p. 289.

<sup>44</sup> A. Feenberg, *Technosystem. The Social Life of Reason*. Cambridge (MA): Harvard University Press, 2017, p. 20.

<sup>45</sup> P. M. Leonardi, "Materiality, Sociomateriality, and Socio-Technical Systems: What Do These Terms Mean? How Are They Different? Do We Need Them?" In: P. M. Leonardi – B. A. Nardi – J. Kallinikos (eds.), *Materiality and Organizing: Social Interaction in a Technological World* (pp. 25-48). Oxford: Oxford University Press, 2012 (file:///Users/federicabuongiorno/Downloads/SSRN-id2129878.pdf, last retrieved: September 30, 2023).

software applications (...) have no physicality.”<sup>46</sup> Nevertheless, AI relies on massive material infrastructures that are far from intangible (though invisible to the end consumer) and are the root cause of the significant electricity consumption and carbon footprint produced by digital systems. In such cases, the concept of form becomes crucial. Technology’s materiality extends beyond its physicality “here and now,” encompassing its design, structure, and the ways in which it interacts with the social context.

It is this combination of material and form that I call “materiality.” To be clear, “materiality” does not refer solely to the materials out of which a technology is created and it is not a synonym with “physicality.” Instead, when we say that we are focusing on a technology’s materiality, we are referring to the ways that its physical and/or digital materials are arranged into particular forms that endure across differences in place and time.<sup>47</sup>

This does not imply that digital technologies do not evolve over time; rather, they typically solidify into standards of varying durability: “and it is this stabilization that allows two people working on the same document, drawing, or database to share work with each other.”<sup>48</sup> We emphasize the concept of socio-materiality because it embodies a different way—a non-humanistic one—of understanding the co-evolution of humans and machines. Wanda Orlikowski refers to it as “constitutive entanglement.” This concept marks a fundamental distinction from the Digital Humanism approach:

Notions of mutuality or reciprocity presume the influence of distinct interacting entities on each other, but presuppose some a priori independence of these entities from each other. Thus, for example, we have tended to speak of humans and technology as mutually shaping each other, recognizing that each is changed by its interaction with the other, but maintaining, nevertheless, their ontological separation. In contrast, the notion of constitutive entanglement presumes that there are no independently existing entities with inherent characteristics (...). Humans are constituted through relations of materiality—bodies, clothes, food, devices, tools, which, in turn, are produced through human practices.<sup>49</sup>

The ontological separation has always guaranteed, in the humanist approach, the asymmetry of the relationship and the privileging of the human component in it. In contrast, the alternative socio-material view of technology “can be broadly conceived as post-humanist” in the sense that it seeks “to decentre the human subject—and more particularly, reconfigure notions of agency—in studies of everyday life.”<sup>50</sup> Such an approach should help us not to give up those values that have characterized European history, primarily freedom and self-determination, but to frame them in their historical and problematic dimension within the neoliberal technological context.

In the following two sections, we address the problems of a non-dualistic and non-humanistic approach to human-technology relation by referring to the field of legal studies, one in which the interdependency of humans and non-humans shows a specific and complex form of “fundamental ambivalence.”

### 3. On technical mediation

In the contemporary discourse surrounding the intricate relationship between AI and human organizations, the debate is rich, yet solutions remain elusive. Exploring the dynamics between humans and

nonhumans, particularly in the digital realm, is crucial. One field in which to pragmatically examine the implications of a humanistic approach to technology is that of ethical and legal responsibility. Neglecting a certain agency of the “machine” in such matters can lead to fundamental injustice, as will become clear later when we discuss regimes of liability for AI.

To guide us in this exploration, we draw on the work of Bruno Latour, whose thought effectively transcends a perspective that rigidly separates the human from the non-human, and we will focus in particular on a paper in which he delves “On technical mediation.”<sup>51</sup> We also draw on Latour’s research because it has been instrumental in more advanced studies of responsibility in AI. We refer, in particular, to the work of Gunther Teubner, who drew on Latour’s pioneering work to develop his hypotheses on partial legal subjectivity for digital entities, ultimately in collaboration with Anna Beckers.<sup>52</sup> In this section (Section 3), we briefly review Bruno Latour’s discussion and then turn (Section 4) to that on AI accountability.

We have selected a text by Latour that, in our view, succeeds in highlighting the problem of the human/non-human distinction and the crucial role of collectives and institutional intermediaries, which constitute the preliminary reasoning for any advance today in the effective legal regulation of AI.<sup>53</sup> To advance his reflections, Latour starts with the example of weapon technology to discuss the role of artifacts, and specifically presents the case of guns. He starts from the statement that guns kill and proceeds to examine this by following two possible paths before making room for his proposal, which is different from both interpretations—one strictly subjectivist or sociological, and one objectivist or materialist, as he defines them. Let us follow his argument step by step. “Guns kill” —he says. This is a proposition that a materialist would read through a pronounced objectivism, leading to argue that essentially it is the thing itself, the gun, that prompts a person to use it, that effectively modifies the person, producing a criminal, and facilitating the criminal behaviour. In the context of human-computer interaction, this situation is interpreted with reference to the concept of *affordance*: the (design of an) artefact ‘suggests’ how humans may interact with objects.<sup>54</sup> There is no one who is always the same, who is given once and for all, but rather, one is altered by “things”, mediated by techniques. One is not just what one is or would already be, but, in a sense, one is what one has. In short, technology modifies us, transforms us, instructs us, and guides us. It is not a mere neutral tool.

A subjective reading, a “sociological” reading as Latour tends to define it here, says something different: guns do not kill; it is the people who do. The question is whether the gun act or does not act autonomously. And, here the answer is clearly that it does not, as the firearm possesses inherent neutrality. The individual, whether characterized as criminal or innocent in an almost essentialist manner, will discharge the firearm in the former scenario and refrain from doing so in the latter. The perpetrator maintains their identity as such, regardless of the presence or absence of opportunity.

Clearly, this discourse also has another implication, as Latour writes: “sociologists are making the troubling suggestion that we can master techniques, that techniques are nothing more than pliable and diligent slaves”<sup>55</sup> (or if anything “powerful assistants,” to use again Edward A. Lee’s words).

<sup>51</sup> B. Latour, “On technical mediation. Philosophy, Sociology, Genealogy.” *Common Knowledge*, 3 (1994), 2, pp. 29-64.

<sup>52</sup> A. Beckers – G. Teubner, *Three Liability Regimes for Artificial Intelligence. Algorithmic Actants, Hybrids, Crowds*. London: Bloomsbury, 2022.

<sup>53</sup> Latour’s perspective shares the attempt to supervene the traditional dichotomy and dualism between human and non-human with other important approaches in philosophy of technology—such as post-phenomenology and cyborg- and post-human feminism—with which it is in dialogue.

<sup>54</sup> See D. Norman, *The Design of Everyday Things*. New York (NY): Basic Books, 1988.

<sup>55</sup> Beckers – Teubner, *Three Liability Regimes for Artificial Intelligence*, p. 31.

<sup>46</sup> *Ibid.*

<sup>47</sup> *Ibid.*

<sup>48</sup> *Ibid.*

<sup>49</sup> W. J. Orlikowski, “Sociomaterial Practices: Exploring Technology at Work.” *Organization Studies*, 28 (2009), 9, pp. 1435-1448: 1438. In her essay, the author analyzes some empirical examples of socio-material practices in the field of technology, specifically focusing on information search and mobile communication.

<sup>50</sup> *Ivi*, pp. 1437-1438.

What do we see at play in both cases? The concept of the increasing autonomy of technology, beyond human control, and the seemingly opposing notion of humans having total control over an inherently neutral tool are more closely related than they may initially seem. Both presuppose the presence of total rationality, purpose, and teleology in their respective scenarios. But what if this is not the case? What if something else happens? Latour warns us that “a third possibility is more commonly realized: the creation of a new goal that corresponds to neither agent’s program of action.”<sup>56</sup> Put simply, to comprehend the intricate dynamics between humans and machines, it’s crucial to recognize that nothing should be taken for granted or considered fixed and presupposed before observing things in action. If we attempt to grasp techniques while assuming the unchanging psychological capacity of humans, we will inevitably miss the understanding of how techniques are both developed and employed. Latour specifies that the gun is no longer the same when it is in the hands of a person, and the person themselves is no longer the same when they do not have the gun in hand. In other words, there is neither a predefined subject nor a predefined object. Beginning with the predetermined essence of either is a mode of reasoning that hinders our ability to comprehend technical mediation—Latour argues. However, “No unmediated action is possible once we enter the realm of engineers and craftsmen.”<sup>57</sup> At this juncture, Latour explicitly elucidates his perspective, which can be characterized as an attempt to move beyond the entrenched terrain of individual unity, both in terms of methodological and ontological individualism. The emphasis should shift towards the hybrid, away from isolating the gun or the person, and instead, focusing on the relationship between the two. The key lies not in essences but in relations, not in individuals but in hybrids. Therefore, the consideration extends beyond mere agents to encompass actants as well. A hybrid represents the composite that binds together both the agent and the actant, a term employed to account for the role of “things.” As for the action: it should not be understood as the successful project, the guaranteed end to a subject/object. Action is to be understood as a property belonging to associated forms, to composed entities, Latour argues. He is advancing a specific idea for which one must see the middle because it is at this juncture, rather than within the two polarities (human on one side and non-human on the other, subject and object), that technology, collectives, and assemblages manifest. Upon closer examination, it becomes apparent that he is primarily envisioning institutional forms, perhaps more than digital technologies. It is worth noting that the text dates back to the 1990s and is notably pioneering. Let us take a moment to clarify what is meant when he connects the discussed techniques to institutions (which are also conceived as things, assemblages and collectives).

In Paolo Napoli’s account, the institution is described not in the conventional sense as a person but as a thing.<sup>58</sup> This interpretation helps us illuminate Latour’s conceptualization of the relationship between people and things as a much more intimate connection challenging the dualistic position. This materialistic reading illuminates the frequently overlooked realm of means and mediations that surpass strict humanism. It endeavours, however, to steer clear of neomaterialist interpretations that too readily seek to anthropomorphize inanimate entities.

The institution in the classic sense thinks of the means as the articulation of one’s will in the pursuit of a goal. The revisited institution is instead thought of as the result, though never definitive, of a tension of pre-existing means potentially capable of configuring different structures. Recognizing that “in the beginning lies the means” means to assert

oneself with an ever-valid materialistic antidote to all personalist metaphysics and, ultimately, the idealism of the institution.<sup>59</sup>

Latour states that “purposeful action and intentionality may not be properties of objects, but they are not properties of humans either. They are properties of institutions, *dispositifs*.”<sup>60</sup>

To fully embrace this position that transcends dualisms, Latour has thought that the term “collective” (note: not collectivism) could be useful, particularly as a necessary tool to gain a more situated space compared to the “society,” which he indeed defines as a tainted word. In examining techniques, Latour aims to grasp the layers, the black box, and ultimately the crafting of the institution, that is, the very instituting, the making of this “project”<sup>61</sup> before it crystallizes into a form. We are ultimately discussing how the social (or the collective, or collectives, and the place that techniques have within them) takes shape.<sup>62</sup> Latour makes this clear when he states:

To view people and nonhumans as interacting within collectives, to define objects as institutions, to fuse subject and object in a corporate body, we need to know what a collective, an institution, and a corporate body are. The difficulty is that we cannot rely on how social theory defines these, since, for many sociologists, a social order is the source of explanation and not what needs explaining.<sup>63</sup>

In the formation of these collectives, humans cannot do without non-humans. This is the point that Latour never ceases to emphasize. “Everything in the definition of macro social order is due to the enrolment of nonhumans—that is, technical mediation.”<sup>64</sup> And it is precisely here that the dismantling of the classical conception of technology takes shape. Technology is not the imposition of form on a previously formless, inert, and lifeless material, to which humans give the shape they please based on a design plan that inevitably proves successful. Technology should be understood rather as the process of “socialization of non-humans.”<sup>65</sup> So, one could say that social form emerges when this process occurs. Society can only be constructed; the problem is always remembering that it does not construct itself, and that is, it is constructed in the relationship between the non-human and the human. Collectives are given in that set of organizational forms and techniques that hold together humans and non-humans. Technical mediation is inherent to the human. Humans would not be humans without techniques and organizations, without collective formations and tools. Social form would not emerge without the technically mediated involvement of humans and non-humans.<sup>66</sup>

#### 4. AI accountability

Latour’s proposal aims to counterbalance a prevalent attitude in the field of ethics and law studies, especially concerning the digital and the AI. Latour leaves the issue of hybrid responsibility somewhat unresolved. He certainly tells us at least one thing, namely that responsibility should be redistributed by overcoming dualism. He emphasizes two aspects: 1) in parting ways with dualism, it is not necessary to

<sup>59</sup> Ivi, p. 127.

<sup>60</sup> Latour, “On Mediation,” p. 46.

<sup>61</sup> Ivi, p. 48.

<sup>62</sup> For an in-depth inquiry into the question of how the social takes shape, see X. Chiaromonte, “La forma del sociale: Kelsen, Freud e Thomas a confronto.” *Teoria e critica della regolazione sociale*, 1 (2023), pp. 85-113.

<sup>63</sup> Latour, “On Mediation,” p. 49. See also X. Chiaromonte, “Instituting. A legal practice.” *Humana.Mente*, 15 (2022), 41, pp. 1-23.

<sup>64</sup> Latour, “On Mediation,” p. 53.

<sup>65</sup> *Ibid.*

<sup>66</sup> A similar point is made by French philosopher Bernard Stiegler, who claims that the technological dimension is the original dimension of human history (epiphilogenesis), for humans are ‘prosthetic’ living beings from the very beginning of their lives: humans’ bodies extend onto artifacts and technologies, and these extend onto social organizations (see B. Stiegler, *Technics and Time. Vol. 1. The Fall of Epimetheus*. Stanford: Stanford University Press, 1998).

<sup>56</sup> Ivi, p. 32.

<sup>57</sup> Ivi, p. 29.

<sup>58</sup> P. Napoli, “Instituting Revisited: For a Materialistic Conception of the Institution.” In: L. Mattutat – R. Nigro – N. Schiel – H. Stubenrauch (eds.), *What’s Legit? Critiques of Law and Strategies of Rights*. Zurich: Diaphanes, 2020, pp. 111-128.

simultaneously abandon the distinction between the two elements of the discourse, that is human and non-human)<sup>67</sup>; 2) the responsibility for the action deserves to be shared.<sup>68</sup>

How? Today, answering this question as part of a broader socio-legal debate on AI, are Anna Beckers and Gunther Teubner. They begin with the legal problem: law allows algorithms to act independently in transactions, but current liability law inadequately addresses their risks. Algorithms are treated like other products, simplifying their complex nature. However, their intelligence introduces new challenges beyond traditional liability frameworks.<sup>69</sup>

In this sense, they start precisely from the Latourian premises. Far from beginning with a stance grounded in the externality of techniques to human forms of life, they assume all the legal consequences that arise from taking collectives seriously.

Unavoidable problems are therefore associated with the gaps in the law, especially in theoretical sociological approach to private law, to address these new scenarios. Despite visions romanticizing a less technologically advanced past, these challenges are here to stay. They persist because, while presenting new issues, they are also of utmost necessity for humans who for their part seem rather unwilling to do without them. It is certainly not, conversely, a matter of being completely naive and not wanting to see the contemporary problems that the digital world poses. All to the contrary. Technology can be considered a *pharmakon* in the Socratic sense, meaning something capable of being both a poison and a remedy—as Stiegler teaches us.<sup>70</sup> The expanding gaps in responsibility force private law to make a crucial decision: either grant AI systems an independent legal status as accountable entities or tolerate a rising number of accidents without clear accountability.

They proceed by distinguishing between liability and responsibility, and secondly by proposing differentiated liability. A brief overview of the issues at hand is warranted, although, given the context, it should not be regarded as exhaustive of the intricate ethical and legal challenges it poses. The essential point is sharply captured by Pasquale Femia, who writes:

Artificial intelligence, machines capable of memory and learning, software agents capable of making decisions that cannot be calculated ex ante by programmers are a revolutionary test case for the function of civil law. Are they subjects or not?<sup>71</sup>

Indeed, at the heart of this new legal theorization is the question of the subject of law and the opening of the field of legal personality to subjects previously considered traditionally outside the dynamics of legal agency. Law itself is, first and foremost, a technique. It accomplishes things with words, as its concepts are operational in nature. Therefore, it is crucial to observe that it is not merely legal technique that exhibits resistance to transformative changes such as those demanded by AI; rather, it is the jurists who display an ideological reluctance to accommodate the non-human. Yet, these are issues whose resolution is no longer deferrable, under the risk of witnessing an injustice where harm remains uncompensated and the victim goes uncompensated. In fact, failing to regulate AI results in unacceptable forms of injustice—this is the fundamental point asserted by Beckers and Teubner.

Moreover, they essentially argue that three key risks emerge when

integrating three types of digital behaviour—individual, hybrid, and interconnectivity behaviour—within socio-digital institutions.

- 1) **Autonomy Risk:** Arises from independent decisions in individual machine behaviour, particularly in the socio-digital institution of digital assistance; Involves a loss of control by the principal and exposure to the agent's unpredictable decisions; Raises questions about legal subjectivity for autonomous algorithms and potential legal rules to mitigate autonomy risks in digital assistance situations.
- 2) **Association Risk:** Arises from inseparably intertwined activities in the close cooperation between humans and software agents, forming the human-machine association; Challenges individual accountability for single algorithms or humans, requiring legal solutions that account for the aggregate effects of intertwined human and digital activities.
- 3) **Interconnectivity Risk:** Arises when algorithms act like swarms, closely interconnected with other algorithms, creating collective properties; Involves the total opacity of interrelations between a variety of algorithms, posing challenges for identifying liable actors; Necessitates new forms of social responsabilization, as traditional legal identification of actors becomes impractical.

This risk typology disrupts traditional legal notions, challenging established concepts of intentionality, causality, and accountability.

Furthermore, authors in the field of ethics argue that it is not just about regulation. They suggest that in both the design and subsequent implementation phases of AI, the focus should not be solely on risk-based protection but on a genuine AI guided by human rights.<sup>72</sup> In this regard, it is worth noting, as emphasized by Taddeo and Floridi,<sup>73</sup> that the perspective of distributed agency should be accompanied by distributed liability.<sup>74</sup>

To date, when damages involve the human-computer association, legal doctrine typically attributes liability to human action. But if software agents' malfunctions remain exempt from liability, it creates distorted incentives for operators, producers, and programmers and it reduces society's willingness to fully utilize the potential of autonomous software agents, also contradicting the principle of connecting decision-making with accountability.<sup>75</sup>

Consider robotics: if a robot autonomously makes decisions, it must also be held accountable for them. These considerations align closely with the European Parliament report by Mady Delvaux, advocating for the creation of a specific legal status for robots. Delvaux suggests that the most sophisticated autonomous robots should be recognized as electronic persons with distinct rights and obligations. This includes the responsibility to indemnify for any damage they cause, especially in cases where robots make smart autonomous decisions or interact independently with third parties.<sup>76</sup>

## 5. Conclusions

What unfolds in the realm of the digital seems to contradict the trajectory that, in studies of the animal and plant worlds, leads us today

<sup>67</sup> Ivi, p. 46.

<sup>68</sup> Ivi, p. 54.

<sup>69</sup> See Beckers – Teubner, *Three Liability Regimes for Artificial Intelligence*.

<sup>70</sup> “The *pharmakon* is at once what enables care to be taken and that of which care must be taken—in the sense that it is necessary to pay attention: its power is curative to the immeasurable extent that it is also destructive.” B. Stiegler, *What Makes Life Worth Living: On Pharmacology* (trans. Daniel Ross). Cambridge: Polity Press, 2023, p. 4.

<sup>71</sup> P. Femia, “Soggetti responsabili: algoritmi e diritto civile.” In: G. Teubner, *Soggetti giuridici digitali: sullo status privatistico degli agenti software autonomi*. P. Femia (ed.) Napoli: Edizioni Scientifiche Italiane, 2019, p. 9 f. (our translation).

<sup>72</sup> D. Restrepo Amariles – P. Marcello Baquero, “Promises and Limits of Law for a Human-centric Artificial Intelligence.” *Computer Law & Security Review*, 48 (2023), pp. 1-10. <https://doi.org/10.1016/j.clsr.2023.105795>.

<sup>73</sup> M. Taddeo – L. Floridi, “How AI Can Be a Force for Good.” *Science*. August 24, 2018, 361 (6404), pp. 751-752.

<sup>74</sup> A. Beckers – G. Teubner, “Human-Algorithm Hybrids as (Quasi-)organizations? On the Accountability of Digital Collective Actors.” *Journal of Law and Society*, 50 (2023), pp. 100-119. <https://doi.org/10.1111/jols.12412>.

<sup>75</sup> G. Teubner, “Digitale Rechtssubjekte? Zum privatrechtlichen Status autonomer Softwareagenten/ Digital Personhood? The Status of Autonomous Software Agents in Private Law.” *Ancilla Iuris* (2018), pp. 35-78.

<sup>76</sup> See [https://www.europarl.europa.eu/doceo/document/JURI-PR-58244\\_3\\_EN.pdf](https://www.europarl.europa.eu/doceo/document/JURI-PR-58244_3_EN.pdf) (last retrieved March 3, 2024).

to think beyond the barriers of species, beyond human dominion over all other species. Conversely, in the realm of the machinic, in the realm of so-called things, there continues to be an advocacy for the duty, necessity, and correctness of human governance over technology. This technology is always conceptualized as external to the human and never as an inescapable form of it. Instead of thinking in ontological terms, of interpreting social transformations as ways to crystallize a never-existing past but certainly better than the present and the future, one should more pragmatically consider new and old responsibilities.

The perception of AI decisions as neutral and accurate may not align with reality, raising concerns about unquestioning reliance on seemingly infallible decisions. Thus, there is worry about blind trust in automated decision-making as AI becomes more ingrained in government administration. And, ensuring fairness and equality in how AI models treat individuals is crucial; there is concern about bias in algorithmic decision-making by government officials, especially in critical areas like criminal sentencing. Moreover, the interpretability of AI systems poses a challenge. Many models are designed in ways that make their underlying mechanisms hard to interpret, and this is an unavoidable issue for explainability, interpretability, or transparency in decision-making AI systems.

The engineering dream was to morph the human into a rational machine. The humanist counterdream was to recover an intentional, reflexive and coherent carriers of values. The result is a rather bizarre cyborg that resembles nor the machine nor the human.<sup>77</sup>

The “excess of proximity”<sup>78</sup> with the machine producing artificial intelligence (though more accurately, a disjunction between *intelligere* and *agere* is generated in the machine<sup>79</sup>), prompts certain humans to insist that we must rediscover ourselves at all costs. This entails resurrecting a humanism that, in their view, once distinguished us in the past. However, this recourse to the past always runs the risk of being more mythological than substantive—an invention of tradition emphasized as the boundaries between human and nonhuman blur in practice. And what if instead this humanism, which prides itself on being just and fair, turned out to be the exact opposite of what it advocates? Given that its implications and the practical consequences of what it produces raise serious issues of responsibility, it is legitimate to doubt it. As argued with acumen by Femia, “a misguided humanism, blindly consolatory and genuinely inhuman, attempts to attribute, through fiction and dogmatic distortion, the conduct of intelligent machines to humans. This is a simple case of ignorant obstinacy, a failure to understand the technical-real datum.”<sup>80</sup> We are still in time to transform our practices into theories adequately equipped to avoid what, to a discerning eye, can only sound like a matter of profound injustice. What needs to be avoided is that a kind of Digital Humanism becomes unjust, that is, surely what is opposite to its intent.

#### Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

<sup>77</sup> B. Latour, “Social Theory and the Study of Computerized Work Sites.” In: W. J. Orlikowski – G. Walsham (eds.), *Information Technology and Changes in Organizational Work*. London: Chapman and Hall, 1995, pp. 295-307. paper prepared for the december Cambridge '95 Conference - IT and Changes in Organizational Work, English uncorrected, p. 8.

<sup>78</sup> P. Femia, “Soggetti responsabili: algoritmi e diritto civile,” p. 10.

<sup>79</sup> L. Floridi, “AI as Agency Without Intelligence: On ChatGPT, Large Language Models, and Other Generative Models.” *Philosophy and Technology*, February 14, 2023. <https://ssrn.com/abstract=4358789> or <http://dx.doi.org/10.2139/ssrn.4358789> (last retrieved December 21, 2023).

<sup>80</sup> P. Femia, “Soggetti responsabili: algoritmi e diritto civile,” pp. 9-10.

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