Transhumanism as the dominant ideology of the fourth industrial revolution

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Introduction

In this volume dedicated to transhumanism, it is important to slip in, however furtively, a few words from political science. In essence, political science is the study of power relations and how they are justified and contested. Viewed from this perspective, "transhumanism" takes on a crucial significance. In fact, transhumanist thought is all about transcending our "natural" human condition by embracing cutting-edge technologies. The movement has already passed through various stages of development, after first emerging in the early 1980s—although "transhumanist" as an adjective was deployed as early as 1966 by the Iranian-American futurist Fereidoun M. Esfandiary, then a lecturer at the New School of Social Research in New York, and in works by Abraham Maslow (*Toward a Psychology of Being*, 1968) and Robert Ettinger (*Man into Superman*, 1972). However, it was Esfandiary's conversations with the artist Nancie Clark, John Spencer of the Space Tourism Society, and, later, the British philosopher Max More (born Max O'Connor) in southern California that prompted the first attempts to unify these ideas into a coherent whole. Esfandiary's renown had grown rapidly since

he changed his legal name, becoming the enigmatic FM-2030, while Clark decided she would henceforth be known by the alias Natasha Vita-More, and went on to pen the *Transhumanist Arts Statement* in 1982.

2 Within about ten years, the movement had drawn in a clutch of academic philosophers such as the Swede Nick Bostrom, who lectures at the University of Oxford, the Brits David Pearce and Richard Dawkins, and the American James Hughes. By now, it had gathered sufficient critical mass to be taken seriously in academic debate. Meanwhile, a strand of political activism was beginning to make itself heard, initially through specialist journals like *Extropy* (first published in 1988) and the *Journal of Transhumanism*. A number of national and international associations were then formed, including the Extropy Institute (1992), the World Transhumanist Association (1998, rebranded as Humanity+ in 2008), Technoprog in France, the Associazione Italiana Transumanisti in Italy, Aleph in Sweden, and Transcedo in the Netherlands. This political activism was organized entirely online, through a multitude of discussion forums, email newsletters, and the once-highly anticipated biennial conference, *Extro*.

3 In recent years, transhumanism has become markedly politicized, invigorated by the arrival of the first political parties on a mission to influence decision-making and political agendas. In the United States, the Transhumanist Party fielded a candidate, Zoltan Istvan, in the 2016 presidential election. The United Kingdom has a party of the same name, while Germany has the Transhumane Partei. Next came private universities entirely devoted to the transhumanist cause—Google's Singularity University was founded in California in 2008, and thecamp near Aix-en-Provence opened its doors in late 2017—and various private institutes and foundations, including the XPRIZE Foundation and the Institute for Ethics and Emerging Technologies. Numerous civil society groups also sprang up around the world.

I – A POLITICAL IDEOLOGY

4 By this point, transhumanism has grown into a fairly coherent and substantiated doctrine. Not satisfied with explaining the present, transhumanists are eager to promote an explicit and detailed program for societal change. Transhumanism now has all the characteristics of a genuine political ideology and, therefore, is a legitimate target for ideological criticism (*Ideologiekritik*), as one of the "legends which […] pose claims to authority by giving [social domination] the appearance of legitimacy," while playing "an important role in the defense, stabilization and improvement of all those advantages, which are ultimately hitched to the standing of ruling groups."[1] First introduced by the French philosopher Antoine Louis Claude Destutt de Tracy in his 1817 work *Éléments d'idéologie*,[2] the concept of ideology is still understood as a system "of

ideas by which men posit, explain and justify ends and means of organized social action." [3] This is despite the pronounced differences in how it has been conceptualized by, for example, Gramsci, Mannheim, Althusser, Poulantzas, and Habermas, differences on which we cannot linger here. The emphasis is therefore on how ideologies serve to justify the goals and strategies of political action. We step into the realm of ideology whenever we encounter an "ism": liberalism, socialism, environmentalism, nationalism, feminism, fascism, and so on, all conveyed as truly transnational movements of ideas and offering political actors a conceptual framework for their actions, now played out on a globalized stage. [4] As Antonio Gramsci put it, ideologies "'organize' the human masses, they establish the ground on which humans move, become conscious of their position, struggle, etc." [5]

5 The normative dimension of transhumanism, initially expressed through an ethical and legal debate on the lines to be drawn around technological progress, particularly in genetics [6] and neuroscience, then spread to the societal debate on all future technological change. Transhumanists argued that we should aspire to transcend the human condition, working toward a genetically and neurologically modified posthuman being, fully integrated with machines. While this development would happen slowly, step by step, it would be a "proactive" project and therefore contrary to the precautionary principle. [7] Their vision calls for a headlong rush forward, on the premise that human beings are encumbered by biological limits that prevent us from effectively taking on the challenges of an increasingly complex world. The logical way forward is therefore to expand our capabilities by integrating all sorts of emerging technologies, or even programming ourselves in such a way that we eventually become posthuman. It is the true culmination of the agenda outlined in Jürgen Habermas's classic 1968 essay, *Technology and Science as Ideology*. [8] Very often, the objectives of "technoprophets" (to borrow Dominique Lecourt's term) [9] take on a gnostic quality that verges on the religious, [10] insofar as numerous authors come across as true converts to the belief in the possibility of achieving immortality, or even reanimating the dead with advanced technology after a spell in a cryogenic state. Media favorite Laurent Alexandre calls this "the death of death." [11]

6 The political goal is perfectly transparent. What we are talking about is nothing less than the creation of a new human being [12] and, therefore, of an entirely new society—just as past ideologies (communism, fascism, etc.) aspired to do in other (ultimately less radical) ways. Of course, this transnational political movement contains pronounced ideological differences in terms of the technologies to be prioritized and the strategies to be pursued, particularly between "technoprogressives" (such as James Hughes, Marc Roux, and Amon Twyman), who take a more egalitarian view of the path to the posthuman condition, [13] and "extropians" or "technolibertarians" (such as Max More and Zoltan Istvan), who believe that refining and augmenting our capabilities through

technology should be a matter of individual choice and financial means, even if that leads to acute inequality or, worse, a technological caste system. [14] However, these are merely internal political struggles between different sensibilities [15]; all factions are in complete agreement on the basic tenets of transhumanism.

Transhumanist thought can be broken down into three main premises, each with an eminently political intent: 7

1. Human beings in their "natural" state are obsolete and *ought* to be enhanced by technology, which then becomes a means of artificially extending the hominization process. Thus, transhumanism sweeps human taxonomy into the political arena. An observation by Michel Foucault, written in 1976, comes to mind: "What might be called a society's 'threshold of modernity' has been reached when the life of the species is wagered on its own political strategies. […] Modern man is an animal whose politics places his existence as a living being in question." [16] In other words, transhumanists believe we have a *duty* to replace the category of human with a new creature, a post-*sapiens sapiens*. We would potentially find ourselves, in zoological terms, at a moment of speciation: an extreme situation when a new species peels off and steps forward to join the animal kingdom. 8

2. The goal is full hybridization between the posthuman being and the machine, something that goes far beyond the human–machine interface we know today (from interacting with cell phones and computers, for example). The mind-boggling image of a human–machine hybrid suggests a permanent integration, frequently talked up by one of transhumanism's most prominent ideologists, Ray Kurzweil. Kurzweil believes that human beings should become an intrinsic part of the machine, that we should be (re)programmable like software. [17] This is the logical outcome of the postwar cybernetic movement's machinist fetishism, epitomized by Norbert Wiener and a circle of other mathematicians and philosophers. [18] It proposes nothing less than full submission to technical rationality, our human subjectivity suppressed. From this point on, technology, viewed as the new agent of hominization, paradoxically becomes the main instrument of dehumanization. Transhumanist machinism turns out to be fundamentally antihumanist—not least because the machine is by definition inhuman. 9

3. This would have us transcend not only our humanity but also what we might call the basic ideological matrix that underlies many other ideologies (liberalism, socialism, conservatism, etc.), namely, humanism, which brings together all our ways of understanding ourselves as human beings at the center of the world and at the top of the species pyramid. While humanists believe that individuals can achieve moral growth through education and culture (the "humanization of man"), transhumanist ideology proffers an altogether new set of values, insisting on the *necessity* of 10

transitioning to a posthuman species capable of continuous self-enhancement by integrating new technological components. In a sense, technology obviates the need for moral, educational, or cultural effort.

11 From these three premises, transhumanist ideology splinters into a variety of discursive fields, each inspired by some new invention that will speed us on our way to the sunlit uplands of the future. [19] We see one such field developing around the controversial technique of human genetic manipulation. In the summer of 2017, a team of researchers in the United States achieved the first successful modification of the human genome, using the CRISPR-Cas9 method to extirpate a hereditary heart condition. [20] The day will come when this technique is fully developed and authorized for use, even if only in a single country. A single procedure will be enough to remove all risk of a genetic disorder in every generation descended from the embryo. It is, then, a bona fide form of reproductive genetic enhancement. In this case, as in others, medicine acts as an outrider, chipping away at a taboo—for who could argue against the legitimacy of genetic intervention in such circumstances? It is virtually impossible to be opposed, even though the embryo—and all of its descendants—will become the first (partially) genetically programmed humans: human GMOs. The Overton window is shifted, and the next debate may shift it further still, perhaps to allow for genetic modification to boost resistance to fatigue, sharpen vision, or improve memory. How many people will object if the three ideological premises we have been discussing remain widely unknown? At what point exactly do we stray into eugenics?

12 Another example came out of Project Cyborg, led by the British transhumanist Kevin Warwick, professor of cybernetics at Coventry University. In 1998 and again in 2002, Warwick inserted electrodes into his arm that were directly linked to his nervous system. These were then connected to a computer and, from there, to the internet. With this rig-up he was able to remotely control a robotic arm physically located on the other side of the Atlantic. Conversely, his arm became amenable to remote computer control. In another experiment, he managed to make his own nervous system communicate with that of his wife, also implanted with an electronic chip. At that moment, their two bodies were in synthesis with the internet. This kind of human–machine integration, at the crossroads between neuroscience, medical surgery, digital engineering, and robotics, speaks of a profoundly transhumanist mentality, as Warwick himself acknowledged in 2000: “Those who have become cyborgs will be one step ahead of humans. And just as humans have always valued themselves above other forms of life, it’s likely that cyborgs will look down on humans who have yet to ‘evolve.’” [21]

II – A POWERFUL TECHNOLOGICAL IMAGINARY FOR THE NEXT INDUSTRIAL REVOLUTION

13 Since Warwick's experiment, the dream of creating posthuman cyborgs has become more explicit and mainstream, calling for creative thinking from politicians and the legal system. [22] For example, in 2017, Apple and Cochlear released the Nucleus 7, a sound processor that creates a wireless connection between an iPhone and a chip *surgically* implanted in the ear. The device allows deaf people to listen to music, make telephone calls, and hear the sound in video content. [23] The Swedish company BioHax and the American firm Three Square Market both already offer employees the option of subcutaneous microchips, implanted free of charge, that will automatically enter their passwords for company computers, unlock office doors, store personal information, and serve as a method of payment in the staff cafeteria. [24] Meanwhile, the work of transhumanist artists such as Neil Harbisson is helping bring the cyborg imaginary into public consciousness. [25] Is it conceivable that a future technology allowing a chip to be implanted directly into the brain would be banned, if that technology was used—at least at first—to stimulate the memory of a patient with Alzheimer's disease?

14 These two examples demonstrate that transhumanist ideology, often bathed in the glow of a genuinely humanist medical vocation (saving lives, alleviating suffering), strives by whatever means necessary to present new technological artifacts that alter human nature as uncontroversial, inevitable, and, above all, eminently desirable. In this sense, these artifacts are much more than just a new object or procedure; they invariably represent a communion between a technological object or procedure and a sophisticated, targeted discursive technology that presents it as covetable and/or beneficial. These are two sides of the same coin; we never get one without the other. The ultimate goal is always the same: to depoliticize the debate as far as possible, by convincing people that this very specific technology is the perfect solution to some narrow and well-defined problem.

15 From this perspective, we can see that the transhumanist discourse supports and justifies the development of countless high-tech objects and procedures, some already here, some merely imagined: human genetic engineering, artificial wombs, humanoid robots, biomechanical exoskeletons, artificial intelligence, neurological chips, xenotransplants from human—animal chimeras, and so on. Most point in only one direction: expanding human capabilities through nanoscale hybridization. The next great shift in our lives will come from the emerging NBIC technologies. Increasingly systematic collaboration between **N**anotechnology, **B**iotechnology, **I**nformation technology, and **C**ognitive science will lead to the new "Great Convergence." From here, we will see increasingly sophisticated and pervasive integration between the infinitesimally small (**N**), manufactured life (**B**), intelligent machines (**I**), and the study of the human brain (**C**). [26] The result will be an irrevocably diminished humanity, reduced to a zoological species like any other and perceived mechanistically as a being–object created through technologies of selection, elimination, and manipulation. [27] The

idea of an NBIC convergence—paving the way for nanobioinformatics, neuromorphic engineering, biophotonics, and other synthetic biologies and brain simulations, for example—was "officially" raised for the first time in 2002, in an international report compiled by Mihail C. Roco and William Sims Bainbridge for the National Science Foundation, the US government agency for scientific research. [28]

16 The potential market for these hybrid technologies is unfathomably vast, and so human life will become further commodified. We will witness the arrival of what Céline Lafontaine calls the *corps-marché*: the body as market. [29] This is what the fourth industrial revolution has in store. NBIC technologies will undoubtedly mark a turning point in the evolution of capitalism, just like the steam engine (first industrial revolution), electricity (second industrial revolution), and electronics and computing (third industrial revolution). [30] An endless stream of new products and procedures will be launched on the market. The transhumanist discourse will explain this explosion in supply by arguing that every new tool meets a specific need and fulfills a specific demand. In other words, transhumanism is the ideology that will be used to justify this expansion into new markets.

17 If transhumanists have their way, state regulations and mediation mechanisms will be pitched into an intractable struggle to contend with new constituent inequalities, between humans still in their "natural" state—the "chimpanzees of the future," [31] in Kevin Warwick's words—and a new technologically enhanced posthuman species. Thus, transhumanism presents a colossal challenge to the welfare state, as a deeply meritocratic system designed to compensate, as far as possible, for social inequalities that are an accident of birth. Not only that, it also challenges the ideals of democracy and the rule of law. Due to the spiraling complexity of issues surrounding technological hybridization and what we might call a willful "accelerationism" [32]—precisely what transhumanists promote—the "inner circle" of bioethics committees and other bodies tasked with evaluating technological impacts may be undermined, no longer able to ensure that the commercialization of novel objects and procedures is regulated in real time. In other words, we cannot rule out the possibility of coming up against technological limits to democracy.

18 Furthermore, as the distinction between man and machine becomes less meaningful, there will be scope for new relations of production and new capital–labor relations. Workers could eventually become fully integrated into productive systems (for example, through chips implanted under the skin or directly into the nervous system), allowing for closer surveillance. Their productivity, vital for keeping ahead of the competition, could be boosted. If transhumanist ideology prevails, even to a limited extent, then there is no doubt that work will be dehumanized further still. A lot will hinge on individuals' adaptability to the demands of capitalist forces. The very concept of human resources may be rendered obsolete, with workers becoming just another technological

resource: a mere tool of production. Another potential consequence of the transhumanist agenda is that struggles between employers and trade unions could escalate, with greater repercussions for workers' autonomy in the face of high-tech productive systems than for salaries and working hours. In the wake of the mass unemployment soon to be unleashed by artificial intelligence, the odd Luddite-style revolt is still to be expected. All of the warning signs are there: over the course of several decades, we risk a gradual slide toward a posthuman capitalism that will be profoundly disruptive, not only for individuals' relationships to other people, to work, and to the state, but for humanity itself.

III – The infrastructure behind the ideological dissemination

19 All of the above would seem to support the argument that transhumanism is, first and foremost, an all-encompassing political project that will benefit industries leading the charge toward the fourth industrial revolution. In all likelihood, this will bring about a complete redistribution of wealth in our societies, a major restructuring of social class, and, above all, a profound transformation in the way our societies work. And the fact that this project has found support among very important sections of the state apparatus and the private sector is highly significant.

20 Mihail C. Roco and William Sims Bainbridge, editors of the National Science Foundation's famous NBIC report of 2002, broached the complex societal and ideological issues surrounding NBIC technologies in July 2013, when they published a hefty report in collaboration with Bruce Tonn and George Whitesides. Entitled *Convergence of Knowledge, Technology and Society* (CKTS), its stated aim was to steer efforts in social engineering in such a way that any potential opposition to NBIC technologies would be contained in a strictly limited discursive space. The new concept of a "metaconvergence" belongs to an emphatically "solutionist" worldview, issuing from the "technoprogressive" branch of transhumanist thought, which cannot envisage any form of technological progress that would not have immediate benefits for society, or at least a segment of society. The CKTS expressly states that "The study identified barriers to progress; this report proposes a framework, methods, and possible actions to overcome them." [33] Several times, the authors suggest the mass mobilization of new social media (Facebook, Twitter, etc.) to support a targeted dissemination of transhumanist "solutionism": "Traditional institutions […] have diminished roles as they are bypassed by social media-enabled movements." [34] They argue for a critical need to steer the societal debate in the "right" direction, given that "emerging technologies have the

promise to bring higher than normal returns on private and public investment because of their transforming and disruptive nature. Such returns also depend on [...] governance methods." [35]

21 If government agencies and international organizations—including the Council of Europe [36]—are heavily involved in the infrastructure underpinning ideological dissemination, it is even less surprising to see that the Silicon Valley elite also ascribe to and promote transhumanist ideology. The same goes for the countless start-up entrepreneurs who gravitate toward these ideas. Carrying great weight in the societal debate are the unprecedented sums invested by, among others, the billionaires Elon Musk (one of Musk's companies, Neuralink, aims to harness efforts toward the development of superintelligent cyborgs [37]), Peter Diamandis, and Peter Thiel—not to mention the inescapable GAFAM (**G**oogle, **A**pple, **F**acebook, **A**mazon, and **M**icrosoft), well aware that their commercial interests in the high-tech space are directly at stake. These tech giants have already poured staggering amounts of money into the fourth industrial revolution and are currently spending equally eye-watering amounts on political lobbying and social engineering initiatives.

22 One example is the Partnership on AI, which brings together virtually all of the Silicon Valley grandees (with the exception of Elon Musk and Peter Thiel, who launched their own consortium, OpenAI, with initial investment of no less than one billion dollars) with the stated aim of establishing some kind of self-regulation system for ethics in artificial intelligence. As it turns out, most of the partnership's efforts are focused on conveying a message (particularly to the public) that it will be the vested interests in the business of transhumanism that will take responsibility for managing potential risks and imposing any necessary limits on artificial intelligence, eliminating the need for any state regulation. [38] In other words, "Valium for the people." The Partnership on AI is also funded to the hilt and has managed to co-opt several academics, which gives a sense of how calculating these US giants can be in trying to avert any social dissent. [39] The fact is that those who speak up against certain new technologies, whoever they are and wherever they come from, simply do not have access to these kinds of resources.

IV – Conclusion

23 This is not an equal struggle. The societal debate has barely begun, and the dice are loaded. Transhumanist ideology is driven by certain factions within the state and, above all, by mighty multinational corporations that, it is fair to say, have the most to gain from seeing the NBIC revolution unfold without a hitch. In this respect,

transhumanism is *already* a dominant ideology, as it crushes all other ideological positions regarding technological change—particularly those of humanists of all stripes and subscribers to "deep ecology"—under the sheer weight of money.

24 In any event, some business leaders have already formulated a plan B, just in case transhumanist ideology encounters too much friction from governments and citizens at the implementation stage. Peter Thiel and other business magnates have been cofinancing the Seasteading Institute since 2008. Under the direction of Patri Friedman, the institute is working on the construction of floating islands in international waters (and so beyond the reach of any national jurisdiction), where experiments that might be prohibited in any state can be carried out on volunteers—experiments involving genetic and neurological intervention, for instance. [40] In January 2017, the Seasteading Institute reached an agreement with the government of French Polynesia to build a 7,500-square-meter prototype island off the coast of Tahiti with the status of a "special economic zone." [41] This goes to show how little regard US transhumanists generally have—and there are exceptions—for the state's regulatory role. At the opposite end of the spectrum is the technoprogressive fringe, a tiny minority at the global level. These are the transhumanist ideologists, mostly European, who argue for the state to step in and take action to expand access to the kinds of technologies associated with the "NBIC Great Convergence," thus supporting their dissemination in social democratic countries (in the broadest sense of the term).

25 Transhumanism has now reached the stage where it has become a major political project involving mass ideological dissemination. It is no longer a marginal interest confined to academic debates over ethical and legal issues. Given how "solutionists" skillfully splinter the societal debate into many discrete fragments, making it harder to see the whole picture, and the combined resources of science and multinational corporations (particularly American but increasingly Chinese too), there is every reason to fear that the world will launch into the fourth industrial revolution without too much debate over what is waiting in the wings: the global political project that is transhumanism. Today, it is as if the metamorphosis, via the "NBIC Great Convergence," to a posthuman being, technologically enhanced and fully integrated with the machine, were already written in stone. The transhumanist ideological project therefore perfectly embodies an old antihumanist ambition, analyzed and denounced by the philosopher Günther Anders in his day: to bring about the "obsolescence of man" [42] and the extinction of humanity as a species.

Notes

[1] Jürgen Ritsert, *Models and Concepts of Ideology* (Amsterdam: Rodopi, 1990), 89.

[2] See Terry Eagleton, *Ideology: An Introduction* (London/New York: Verso Books, 1991).

[3] Martin Seliger, *Ideology and Politics* (New York: The Free Press, 1976), 11.

[4] Klaus-Gerd Giesen, "Introduction: Ideologies in World Politics," in *Ideologies in World Politics*, ed. Klaus-Gerd Giesen (Wiesbaden: Springer VS, 2020), 1–9.

[5] Antonio Gramsci, *Prison Notebooks*, vol. 3, Notebook 7, trans. Joseph Buttigieg (New York: Columbia University Press, 2007), 171.

[6] Klaus-Gerd Giesen, "Transhumanisme et génétique humaine," *L'Observatoire de la génétique* 16 (2004), https://iatranshumanisme.com/wp-content/uploads/2015/08/no-16.pdf.

[7] Steve Fuller and Veronika Lipinska, *The Proactionary Imperative: A Foundation for Transhumanism* (Basingstoke: Palgrave Macmillan, 2014).

[8] Jürgen Habermas, "Technology and Science as Ideology," in *Toward a Rational Society: Student Protest, Science, and Politics*, trans. Jeremy Shapiro (Cambridge: Polity Press, 1991), 81–122.

[9] Dominique Lecourt, *Humain, posthumain: La technique et la vie* (Paris: Presses Universitaires de France, 2003), 57–79.

[10] Jean-Gabriel Ganascia, *Le mythe de la singularité: Faut-il craindre l'intelligence artificielle?* (Paris: Seuil, 2017).

[11] Laurent Alexandre, *La mort de la mort: Comment la technomédecine va bouleverser l'humanité* (Paris: Lattès, 2011).

[12] Antoine Robitaille, *Le Nouvel Homme nouveau: Voyage dans les utopies de la posthumanité* (Montreal: Boréal, 2007).

[13] See, for example, the interview with the French transhumanists Marc Roux and Agathe François, "L'homme augmenté, mythe ou réalité?," in *Journal des Grandes Écoles et Universités* 82 (2017), http://www.mondedesgrandesecoles.fr/lhomme-augmente-mythe-realite/#.

[14] See, for example, Zoltan Istvan, "The Growing World of Libertarian Transhumanism," *The American Conservative*, August 8, 2017, https://www.theamericanconservative.com/articles/the-growing-world-of-libertarian-transhumanism/.

[15] Gabriele Dorthe and Marina Maestrutti, "Les transhumanistes aux prises avec des imaginaires contradictoires," *Ethique, Politique, Religions* 6 (2015): 67–88.

[16] Michel Foucault, *The History of Sexuality, Volume 1: The Will to Knowledge*, trans. Robert Hurley (London: Penguin, 2008), 143. See also Michael Dillon and Luis Lobo-Guerrero, "The Biopolitical Imaginary of Species-Being," *Theory, Culture & Society* 26, no. 1 (2009): 1–23.

[17] Ray Kurzweil, *The Singularity is Near: When Humans Transcend Biology* (New York: Viking Press, 2005).

[18] The foundations of the cybernetic agenda were laid as far back as 1948 and 1950 by Norbert Wiener, in *Cybernetics: Or Control and Communication in the Animal and the*

Machine (Cambridge, MA: MIT Press, 1948) and *The Human Use of Human Beings* (Boston, MA: Houghton Mifflin, 1950).

[19] See, for example, parts II–VII (seven out of nine) of the now much-cited *Transhumanist Reader*, ed. Max More and Natasha Vita-More (Chichester: Wiley-Blackwell, 2013), 65–360, each devoted to a specific technological field.

[20] Steve Connor, "First Human Embryos Edited in US," *MIT Technology Review*, July 26, 2017, https://www.technologyreview.com/s/608350/first-human-embryos-edited-in-us/; Hong Ma et al., "Correction of a Pathogenic Gene Mutation in Human Embryos," *Nature*, August 2, 2017, https://www.nature.com/articles/nature23305; Florence Rosier, "Corregir une mutation génétique chez un embryon humain, c'est possible," *Le Temps*, August 2, 2017, https://www.letemps.ch/sciences/2017/08/02/corriger-une-mutation-genetique-chez-un-embryon-humain-cest-possible.

[21] Kevin Warwick, "Cyborg 1.0," *Wired Magazine*, January 2, 2000, https://www.wired.com/2000/02/warwick/.

[22] Marcelo Ienca and Roberto Andorno, "Towards New Human Rights in the Age of Neuroscience and Neurotechnology," *Life Sciences, Society and Policy* 13, no. 5 (2017), https://lsspjournal.springeropen.com/articles/10.1186/s40504-017-0050-1.

[23] https://www.cochlear.com/us/en/professionals/products-and-candidacy/nucleus/implant.

[24] Dan Howarth, "US Tech Company Offers to Turn Employees into Cyborgs with Microchip Implants," *Dezeen Magazine*, July 25, 2017, https://www.dezeen.com/2017/07/25/us-tech-company-three-square-market-offers-employees-microchip-implants-cyborgs-biohax/.

[25] Ross Bryant, "People 'Will Start Becoming Technology' Says Human Cyborg," *Dezeen Magazine*, November 20, 2013, www.dezeen.com/2013/11/20/interview-with-human-cyborg-neil-harbisson/.

[26] Jean-Michel Besnier, *Demain les posthumains: Le futur a-t-il encore besoin de nous?* (Paris: Hachette, 2009), 153–67.

[27] See, for example: Gregory Stock, *Redesigning Humans: Our Inevitable Genetic Future* (Boston, MA: Houghton Mifflin, 2002); Ramez Naam, *More than Human: Embracing the Promise of Biological Enhancement* (New York: Broadway, 2005); Simon Young, *Designer Evolution: A Transhumanist Manifesto* (Amherst, NY: Prometheus Books, 2005).

[28] Mihail C. Roco and William Sims Bainbridge (eds.), *Converging Technologies for Improving Human Performance* (Dordrecht: Kluwer, 2003).

[29] Céline Lafontaine, *Le corps-marché: La marchandisation de la vie humaine à l'ère de la bioéconomie* (Paris: Seuil, 2014).

[30] Klaus Schwab, "The Fourth Industrial Revolution," *Foreign Affairs*, December 12, 2015, https://www.foreignaffairs.com/articles/2015-12-12/fourth-industrial-revolution.

[31] Kevin Warwick, *I, Cyborg* (Champaign: University of Illinois Press, 2002), 4.

[32] In the sense used by Robin Mackay and Armen Avanessian in *#Accelerate: The Accelerationist Reader* (Falmouth: Urbanomic, 2014).

[33] Mihail C. Roco, William Sims Bainbridge, Bruce Tonn, and George Whitesides (eds), *Convergence of Knowledge, Technology and Society: Beyond Convergence of Nano-Bio-Info-Cognitive Technologies* (Dordrecht: Springer, 2013), xv.

[34] Ibid., 372.

[35] Ibid., 364.

[36] In 2014, the Council of Europe expressed support for all projects working toward the convergence of nanotechnologies, nanobiology, and health by following up CKTS with a series of other publications, including Rinie van Est et al., *From Bio to NBIC Convergence — From Medical Practice to Daily Life: Report Written for the Council of Europe, Committee on Bioethics* (The Hague: Rathenau Instituut, 2014).

[37] Claude Touzet, "Avec Neuralink, Elon Musk ambitionne de réorienter l'Intelligence artificielle," *The Conversation France*, July 9, 2017, http://theconversation.com/avec-neuralink-elon-musk-ambitionne-de-reorienter-lintelligence-artificielle-80641.

[38] https://www.partnershiponai.org/#s-goals.

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Abstract

EnglishThis article examines transhumanism from the perspective of political science. It demonstrates, in detail, that it can be regarded as a true political ideology that aims to bring about a "new human being." By adopting a "solutionist" strategy, transhumanism fractures into numerous discursive fields, one for each specific context, in order to achieve its goals. An analysis of transhumanist discourse shows that it supports and

justifies a further commodification of human life, as the fourth industrial revolution leads to mass adoption of NBIC technology convergence, giving rise to a significant rupture in the evolution of capitalism. Hence, transhumanism—having grown into a political "grand narrative"—advances the interests of multinational tech giants, which in turn support its large-scale dissemination.

TRANSHUMANISM | SCIENCE | TECHNOLOGY | ECONOMICS | IDEOLOGIES

Outline

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