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The Challenges of Neurotechnological Innovations and Algorithmic Culture

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Born in Antakya, Dr. Güder graduated from the English Language and Education Department at Atatürk University in 1994. She has held various teaching positions since 1988. In 2004, she earned her MA in English Language and Literature from Istanbul Kültür University, with a thesis focused on “Critical Thinking and Reading.” Her academic trajectory shifted after translating Mark Poster's “Foucault, Marxism, and History,” which inspired her to explore photography, critical media studies, and politics. In 2012, she completed her Ph.D. in Journalism at Istanbul University, with her dissertation exploring Political Communication. This work allowed her to deepen her research on political communication, humour, and urban studies.

Dr. Güder has published numerous national and international papers and contributed as an author and co-author to several book chapters, including works on “Digital Stories of Resentment,” “Visual Global Politics,” “Dataveillance, Counterterrorism, and Sustainable Peace in the Age of Algocracy,” “Perception in Metaverse,” and “Orientalist

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Representations of Antakya in Digital Media Narrations," "Analysis of Soylent Green in the Context of Value of Life, Garbage Bodies and Death with Dignity," "Ghost in the Shell: On the Dilemma of the Soul in a Cybernetic Body, Cinema and Utopia: Utopian and Dystopian Images in Cinema," "New Diagnosis and Treatment Approaches to Post-Traumatic Stress Disorder". She has received significant recognition for her work, including the Best Presentation Paper Award in the USA in 2013, and her paper was selected as the best at the 28th Barcelona International Conference in 2020.

Among her published books are "Voyeuristic Gaze" and "The Language of Persuasion and Media" (2016). She has also moderated the television program "Beyond the Lines" on ÜÜTV. Her academic interests include digitalized education, culture, memory, identity, critical discourse, media, politics, and ideology. Recently, her research has expanded to focus on digital media, artificial intelligence, and discourse studies, particularly in the context of peaceful and redemptive philosophy and discourse for sustainable peace in the age of algocracy. She is an active member of Euromersive Istanbul, where she is engaged in studies on the metaverse, self-sovereign identity, heterotopia, and algocracy.

Abstract:

This paper aims to evaluate recent neurotechnological innovations and Algorithmic Culture from the philosophical and socio-cultural perspectives of technology. As innovations in neurotechnology and generative artificial intelligence begin to shape institutions and working conditions through new paradigms such as algorithmic governmentality, theoretical arguments are needed to characterize these chaotic situations adequately. Existing descriptions of society and culture, such as risk society, postmodern society, burnout society, disciplinary society, palliative society, or digitalized society, no longer capture all aspects of the current situation. Inevitably, new arguments for designing and managing this new world system have brought unprecedented crises, such as new forms of data surveillance and the invasion of the human mind as the subject. This paper focuses on the challenges to the authenticity of the human mind and memory posed by new neurotechnological developments such as neurochips. The significance of this work therefore lies in its hybrid theoretical approach that places both society and the subject at the centre of debates, with distinctive concepts such as Neurolink and interrelated terminologies such as Algorithmic Governmentality, Algorithmic Society, Algorithmic Culture, and Augmented Intelligence. The study's methodology examines these terminologies alongside the interrelated arguments of Heidegger, Bertrand Gilles, Rouvroy, and Kasparov.

Keywords: Algorithmic Governmentality, Algorithmic Society, Algorithmic Culture, Augmented Intelligence, Authentic Intelligence, Generative AI, Neurotechnology, Neurolink

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Nöroteknolojik Yenilikler ve Algoritmik Kültürün Zorlukları

Özet

Bu makale, son dönemdeki nöroteknolojik yenilikleri ve Algoritmik Kültürü, teknolojinin felsefi ve sosyo-kültürel perspektiflerinden değerlendirmeyi amaçlamaktadır. Nöroteknoloji ve üretken yapay zeka alanındaki yenilikler, algoritmik yönetimsellik gibi yeni paradigmalar aracılığıyla kurumları ve çalışma koşullarını şekillendirmeye başladıkça, bu kaotik durumları yeterince karakterize etmek için teorik argümanlara ihtiyaç duyulmaktadır. Risk toplumu, postmodern toplum, tükenmişlik toplumu, disiplin toplumu, palyatif toplum veya dijitalleşmiş toplum gibi mevcut toplum ve kültür tanımları artık mevcut durumun tüm yönlerini yakalayamıyor. Kaçınılmaz olarak, bu yeni dünya sistemini tasarlamaya ve yönetmeye yönelik yeni argümanlar, yeni veri gözetimi biçimleri ve özne olarak insan zihninin istilası gibi benzeri görülmemiş krizleri beraberinde getirmiştir. Bu makale, nöroçipler gibi yeni nöroteknolojik gelişmelerin insan zihni ve hafızasının özgünlüğüne yönelik meydan okumalarına odaklanmaktadır. Dolayısıyla bu çalışmanın önemi, Neurolink gibi ayırt edici kavramlar ve Algoritmik Yönetimsellik, Algoritmik Toplum, Algoritmik Kültür ve Artırılmış Zeka gibi birbiriyle ilişkili terminolojilerle hem toplumu hem de özneyi tartışmaların merkezine yerleştiren melez teorik yaklaşımında yatmaktadır. Çalışmanın metodolojisi, bu terminolojileri Heidegger, Bertrand Gilles, Rouvroy ve Kasparov'un birbiriyle ilişkili argümanlarıyla birlikte incelemektedir.

Anahtar Kelimeler: Algoritmik Yönetimsellik, Algoritmik Toplum, Algoritmik Kültür, Artırılmış Zeka, Otantik Zeka, Nöroteknoloji, Nörolink, Üretken Yapay Zeka

1. Introduction

The challenges posed by the digitisation of culture and the human body have led philosophers of technology to rethink certain paradigms through new lenses and terminologies that allow for multidisciplinary perspectives. Scholars are now exploring the nature of the changing relationship between technology and humans with AI innovations. Innovations in algorithms take old arguments to a new level in the context of transhumanism. For example, generative AI challenges not only the digitisation of culture and society, but also the capacity of the human body, mind, cognition and memory. While recent innovations in neurotechnologies have increased the ambivalent nature of AI, technology's invasion of the human mind certainly leaves us with nowhere to run. Human privacy is now threatened by this new structure of digital surveillance, and neurotechnologies such as Elon Musk's Neuralink project are sparking new debates about transhumanism. Beyond intellectual property concerns, the invasion of the human mind has blurred the line between AI and the human mind.

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2. AI, neuroscience, neurotechnology and society

The characteristics of societies have largely been shaped either by communication technology as defined by McLuhan (Gordon, 2010: 93) or by the chaotic and conflicting situations such as war, pandemic or crisis that they have experienced. The human habitus as described by Bourdieu (2015) has changed its structure. In postmodern society, for example, the uncalculated risks experienced by people are quite different from those defined by Ulrick Beck in his characterisation of the risk society (Beck, 2014). Similarly, the trapped images of the Burnout Society (Han, 2015) and the Palliative Society depicted by Byung Chul Han can also be read as further facades of the Disciplinary Society as framed by Foucault (Foucault, 1977).

In this age of digitised society, now surrounded by algorithmic culture, it is very difficult for many to keep up with the latest changes in the world. What is popular today can quickly become obsolete tomorrow. Therefore, reading and critiquing all aspects of the current situation requires certain literacy activities to raise awareness. Inevitably, new arguments for designing and managing this new world system have brought unprecedented crises, such as new forms of data surveillance and the invasion of the human mind as a subject.

This article focuses on the challenges to the authenticity of the human mind and memory posed by new neurotechnological developments such as neurochips. The significance of this work therefore lies in its hybrid theoretical approach that places both society and the subject at the centre of the debates, with distinctive concepts such as Neuralink and interrelated terminologies such as Algorithmic Governmentality, Algorithmic Society, Algo Culture and Augmented Intelligence. The methodology of the study is to bring together and jointly analyse relevant arguments on technology by Heidegger, Bertrand Gilles, Rouvroy (2013) and Kasparov. New readings and critiques are needed to keep pace with this digitised culture and paradigms in a new world order, framed by Artificial Intelligence applications such as Open AI and Chat GPT. New inventions and recent research in Artificial Intelligence and Neuroscience do not give society enough time to digest them. The speed of invention is such that adaptation remains superficial. There is a complex relationship between digital technologies and cognitive skills. The future is full of changes (Akboğa, 2021).

Digital technologies such as Neuralink, Chat GPT and Open AI change our communicative practices and affect our relationships with everything as well as our cognitive abilities. The mode of communication varies as there are multiple layers of subject relationships. Communication between humans and objects has many formats and levels. The first type of relationship is with objects such as everyday objects, IOT (Internet of Things) and

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computers. The second type of interaction is with people in immersive environments. Here, the lack of face-to-face communication shapes the format of VR, XR and Mixed Realities. Because people immerse themselves in such heterotopias, they are called immersive worlds. The third digital type of communication takes place between institutions, such as digital learning, social networking, e-commerce and digital bureaucracy. All these digitised communication practices can be enriched by metacognitive awareness. Data from recent neuropsychological studies can help us answer the question of how human communication is changing with digitalisation.

In answering this question, the new technology culture should be viewed from the perspective of Heidegger and his definition of *Gestell*. His analysis places him as the first intellect on the list of technology philosophers. Heidegger explains technology and its potential uses in terms of framing. This list would be incomplete without mentioning the contribution of Bernard Stiegler, who criticises Heidegger in terms of temporality and analyses technology and time through the myth of Prometheus (Cooper, 2002: 18-43).

While Promethean mythology is an anthropocentric perspective, recent developments also challenge the centrality of man as a subject. Now, as Bertrand Gilles suggests, the technological revolution is taking the place and position of man at the centre of history. Gilles is a historian of technology who argues that these technological innovations are so rapid that people have neither the cultural nor the intellectual time to follow or digest them. People need time, environment and culture to cope with these innovations. The search for safer ground to preserve human authenticity becomes a challenging and paradoxical situation. The ideological structure of these systems shapes the policies that must allow people to be ready to digest these paradigm shifts (Gilles, 2008).

For Heidegger, technology has the potential to be used for the benefit of human beings. However, in this digitised surveillance society, we are all surrounded by cameras, and these open panoptic systems collect information incessantly. AI and algorithmic systems record and store all our activities in big data, exponentially. In this way, technology is working against human nature. Through algorithmic management, things in our work culture are changing their management structure, the boss is now the algorithm.

However, the socio-cultural adaptation of these changes is too much for ordinary people. As the historian of technology Bertrand Gilles puts it, when a technological system reaches a certain stage of development, such as a technological revolution, it disrupts social systems (Gilles cited in Şan, 2022).

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In addition to experimental innovation, the new digital culture has now given rise to a new type of governance known as Algorithmic Governance. Algorithmic governance, like the new algorithmic culture, has three stages in economic life. Here Rouvroy highlights the role of algorithmic governmentality in neoliberal work culture and the transformation of the workforce through questions of power. Rouvroy explains algorithmic governmentality as the idea of a government of the social world based on the algorithmic processing of large data sets rather than on politics, law and social norms. For her, through algorithms, digitalisation turns political issues into a kind of quantification that allows everything to be used as data for categorisation (Rouvroy, & Berns, 2013).

Algorithmic governance brings about change not only through the collection and categorisation of data, but also through the governance of uncertainty. The mass processing of data is about taming uncertainty. Algorithmic governmentality consists of directing people's attention to certain things; therefore, people are guided to behave as the data demands. This kind of behaviour is seen as obligatory but necessary. Algorithmic governance also challenges the work system for both employees and employers. The products are now new technological innovations. However, in this digitised neoliberal system run by algorithms, these innovations are no longer driven by necessity. In the past, people had needs, and innovation took place according to those needs. But now there is no need to have that need at all. So, the relationship between invention and innovation is reversed. Before the Industrial Revolution, economic and social conditions had to be right for a particular invention to be implemented. At that time, the transformative dynamics of technical systems and the social systems that enabled the reform of institutions and laws were in harmony. The post-industrial system, however, operates in a repetitive, sequential cycle. Nothing is now in harmony. And in the end, invention became the product of the desire to innovate (Babich, 2022).

For Gilles (2008), change should be understood as a transition from one technical system to another, and this transition opens up new possibilities as well as new problems in the social order with which it is associated in terms of lifestyle, economy, politics, symbolic production and the circulation of knowledge. These are the consequences of the fact that invention has become the product of the desire for innovation.

Gilles discusses the evolution of technology throughout history and explains how techniques have transformed societies through their cultural, economic and social influence. For him, it is important to see the historical context in which technologies emerge and develop. The main problem is the shortness of time between the transformation of scientific discovery into technical invention and its transformation into technical innovation.

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As the time lag becomes shorter and shorter, a chaotic situation is created (Gilles, 2008, p. 19). As mentioned above, this chaos has different risk facets than the risks defined by Beck in the risk society (Beck, 2014).

Companies in the technology market rely on constantly updating their innovations, which means that society is led to follow these innovations in a repetitive cycle. If a technological product is not updated regularly, it loses its popularity and its target customers. This is how the system works. In other words, these technological gadgets or products that are outdated are immediately classified as techno-trash. The whole earth has now become the dumping ground for this old-fashioned techno-waste. Moreover, green washing has become the new reality. Tech companies claim they are saving the earth, but their dumping is still seriously damaging the environment. Even electronic cars pollute the earth because their battery system causes real environmental damage (Pearse, 2012).

3. Invasive Technologies: Human Brain and New Culture

As mentioned by Gilles above, society is not ready to adapt to the sudden changes that have occurred. At this stage, leaders are expected to lead society to be ready and to adapt to the current situation. This is where Elon Musk and his discourse as the head of technology companies deserves to be studied. As a new version of soft power and a unique figure, Musk is a man who initiates revolutionary projects and innovations. His discourse suggests that a new type of world is being designed, where a new possibility of hybrid mechanisms has emerged, bringing together human-machine collaborations. What is certain is that it now seems impossible to escape technology. There is no way to escape these authorised changes.

When Elon Musk presented the Neuralink project, he shocked people by saying that these chips could make language obsolete. He supports his thesis that language is an inefficient way of communicating because with this implanted technology people could communicate from the chip to a device and then to another chip in another person.

His claim that language is unnecessary creates a sensationalist atmosphere. The language Elon Musk is talking about is a procedural language, where only the instructions can take place. This allows people to act quickly according to the commands. These superficial thinkers are now surrounded by the exposure of procedural language, where instructions are thought to be enough. In the procedural process, everything has been instructed explicitly and step by step (van der Aalst and et. Al, 2009).

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As Bernard Stiegler extensively analysed and evaluated in his philosophy of technology, the intellectual capacity of human beings was to be enhanced through mnemotechnics and cloud technologies. However, intervention in the human mind reached its last extreme dimension with the planting of neurochips. This invasion of the mind, the argument of technology, is the prosthesis of man (Stiegler, 1998).

With these invasive BCIs, not only have the modes of communication changed, but the structure of society is changing to a more intelligent one. But these claims may be unfounded as this new intelligent society is devoid of deep language and higher order thinking. Since procedural language encourages superficial thinking, how can critical thinking be used? Thinking fast or responding immediately to an instruction does not mean that we have a person with high thinking skills or instructions. These challenges can be the dangers of the intended future generations. In some science fiction scenarios, the invasive BCI systems transformed humans, transhumanism and cyborgs are now the new realities of this new digital culture. Mamoru Oshii, for example, the author of the cyberpunk film Ghost in the Shell, questions this kind of transhumanism on another level. He raises the central question of how much a person can remain fundamentally human after such artificial enhancements and replacements.

For Elon Musk, people should accept the Neurolink as a positive step forward for humanity. The proactive response to these challenges has been advocated to be submissive to invasive technologies such as Neuralink and to cooperate with these innovations as they would be beneficial to the majority of society. Not to develop a negative attitude towards these invasive technologies of human brain implantation are the new realities of the times, initiating a new phase towards transhumanism. However, the ethical, social and cultural aspects of these neurotechnologies should be taken seriously and analysed from all perspectives (De Vos, 2020).

3.1. Neurochips and Defective Communication

When the Neuralink project was presented as a gateway to the human brain, the technology itself became the subject of debate. There are hot debates about the natural outcomes of the high-tech revolutions, especially from applications of generative AI such as Chat GPT. Neuralink Corporation is an American neurotechnology company developing implantable brain-computer interfaces (BCIs) based in Fremont, California. (“Elon Musk Quiz - LetsQuiz”) Founded by Elon Musk and a team of seven scientists and engineers, Neuralink was launched in 2016 and first reported publicly in March 2017. (“Neuralink - Wikipedia”)

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If we analyse the discourse of Elon Musk and his company, their choice of words is highly dismissive of the fact that people will be trapped and imprisoned by these implants in their skulls. The excuse given by the company's scientists for entering the human brain is to cure diseases. However, this discourse cannot hide the fact that these interventions and invasions can mean the end of normal, authentic human intelligence.

The Neuralink chips have now introduced a new culture. In this new culture, not only has the style and speed of reading and thinking been shortened, but the brain itself has been upgraded to learn, understand and remember things with the help of these chips. In other words, the use of advanced technologies such as Neuralink is improving the human ability to think (Pisarchik, et. al, 2019).

In 2023, after it is claimed that Neuralink chips could make language obsolete, ordinary people find it hard to understand how people can communicate from one chip to a device and then to another chip in another person. With the Neuralink project, the human brain is now the target of the new culture. According to the company's website, Neuralink's mission is to create a generalised brain interface that will restore autonomy to those with unmet medical needs today and unlock human potential tomorrow. (“Musk says Neuralink device implanted in human successfully - Spectrum News”) The Neuralink was introduced as a brain-computer interface that is fully implantable, cosmetically invisible, and designed to allow you to control a computer or mobile device anywhere (Neuralink, 2022).

3.2. From Human–Machine Interaction to Brain-Machine Interaction

As mentioned above, the outcome of the Neuralink projects can be discussed together with the digitalisation of communication, where everything starts with HMI - Human-Machine Interaction. From HMI there seems to be a kind of interaction that occurs as BMI - Brain-Computer Interface. In BCI there is a direct communication path between the electrical activity of the brain and an external device, most commonly a computer or a robotic limb. It is this level of interaction that is the focus of the study. BMI differs from HMI. At Neuralink, the brain-machine interface connects the human brain to computer hardware (Neuralink, 2022).

Human-Machine Interaction (HMI) is the communication between a human and a machine through a user interface. There are three elements in HMI as the person, the environment and the computer. These three elements determine the nature of the interaction. The intellectual capacity and capabilities of the user affect the quality of HMI communication.

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Memory, information processing, decision making, stress and emotion, and physiological response play an immense role in the interaction. The environment is the second element of the HMI. It is classified as organisational, social, task and physical.

Finally, neurotechnological innovations in communication technologies have led to a significant leap from HMI to BCI. Brain-computer interface (BCI) or brain-machine interface (BMI) now has its popular place in the philosophy of technology and neuroscience, particularly in neuropsychology, as well as in neuro-politics. Brain-computer interface (BCI) technology extends the human ability to interact with the environment by directly connecting the brain to artificial devices (Scherer and Rao, 2011).

What is certain is that all this research into human BCIs or invasive BCIs is primarily a challenge to the human body and cognitive systems. The human potential in hybrid mechanisms such as human-brain-machine interface collaborations may be the ultimate end of the human being. o, this would be the answer to how hybrid mechanisms bring together human-machine collaborations. Ultimately, the result of these innovations is the creation of a new type of super-smart society. However, some sceptics argue that this would also mean the end of the authentic human being. Anything can backfire and end the struggle for a better world, and a system with this neurological and digitalisation can create a super-idiot society. To cope with the new realities of this super-smart society, new types of subjects emerge.

However, this cautious attitude towards technology and innovation is not new; it dates to the time of Socrates. For Socrates, technology was a pharmacy, just as he used the term poison when writing was invented. When something is invented to create an intelligent generation, it works the other way around. We all know the poisonous effect of some inventions. So, the smart versus dumb generation is a question of media use and access. The digital media divide is now seen as the new reality of the world order. While some have acedia because they are emotionally paralysed (Zecher, 2021), those with certain digital skills seem to be smarter than others.

The speculation about whether technology is anti-human is still valid. This idea triggers paranoid discourses that it is ultimately working with anti-human paradigms. Is AI working intelligently behind our backs? Many sceptical philosophers capitalise on widespread fears that AI is working intelligently behind our backs or recreating another level of humanity. In terms of neurochip surveillance, the panopticon is now in our heads. Contrary to the belief that technology is a Trojan horse in the human social environment, there are also optimistic approaches to AI.

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These optimistic approaches pave the way for the future of intelligent work. This perspective enriches the possibilities of hybrid mechanisms that bring together human-machine collaboration, which can be seen as the only salvation for humanity. Symbiosis would be the best solution for humanity. Human-machine collaboration can be seen as the only salvation for humanity. The combination of talents, including both AI1 and AI2, working in tandem will be the future of intelligent work (de Cremer and Kasparov, 2021).

3.3. Augmented Intelligence as the Hybrid Combination of AI and Authentic Intelligence

In a competitive world, AI challenges human intelligence and its limits. After several matches with AI, chess player Kasparov discusses the possibility of human-machine cooperation and develops a new formula of "a weak human and a machine with a better process" in his book Deep Thinking: Where Machine Intelligence Ends and Human Creativity Begins (2017). This new formula has transformed the old story that "AI is about human brains working against silicon brains" into a new story that "AI will be about human brains working with silicon brains". In a chess game, a non-zero sum means that both players can win. In this formula, "a weak human and a machine with a better process" is superior to a powerful computer alone.

This combination is thought to be superior to a powerful computer alone. It is even superior to a powerful human and a machine with inferior methods. Here the nature of human-machine communication goes beyond the human-machine interface. Augmented intelligence is another level of intelligence that combines AI and authentic human intelligence. The challenge of living under the dominance of algorithmic management challenges human-centred life on Earth and makes human life banal.

Augmented Intelligence is the combination of the talents contained in both AI1 and AI2. This combined system can be the ultimate level of humans. Here, the future of intelligent humans can be the updated version of normal humans without additional intelligence. Augmented intelligence is the kind of intelligence that will allow organisations to be more efficient and accurate, but also creative and proactive (de Cremer and Kasparov, 2021). In the same vein, Nicky Case frames this discussion of combination as symbiosis. For Case, symbiosis proves that the world is often not zero-sum - it doesn't have to be humans versus AI, or humans versus centaurs, or humans versus other humans. Symbiosis is two individuals succeeding together, not despite their differences, but because of them. (“How To Become A Centaur · Journal of Design and Science”) Symbiosis is the "+" (Case, 2018).

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This collaboration between AI and human intelligence will enable organisations to be more efficient and accurate, but also more creative and proactive. Augmented Intelligence, the socio-technical concept, shifts the debate on technological progress from negative approaches that see it as a Trojan horse in human social environments to more constructive ones. AI challenges human intelligence and its limits.

The professional approach to these advances in neurotechnology and neurological interventions in the human brain has brought us a new culture that needs to be explored in terms of its ideological and socio-technical perspectives. The assumption that we are moving towards a super-smart society has many possibilities that will lead to paradigmatic shifts in human politics, culture, economics and ethical perspectives. In addition, in order to cope with the new realities of this so-called super-smart society and new types of subjects with augmented intelligence, new realities of algo-culture are emerging, where artificial intelligence augmentation is the only way for human beings to maintain their existence. Intelligence Augmentation can give artificial intelligence the human partnership. Through this partnership, human dreams, goals, and values can be achieved. This cooperation can provide the human mind and neurological systems with new wheels for the bicycle of the mind.

If the hybrid combination of AI and authentic intelligence was seen as the last resort for the new super-smart society, the new inventions have now changed the way people learn and teach (Clarke, 1994). The tsunami-like revolution of high technology, such as the Neuralink project or Chat GBT, has affected the role of digital technologies in accessing and processing data.

The internalisation of data, intellectual property, surveillance of the mind and the free spirit outside the system are the new realities and problems of the so-called super smart society with augmented intelligence. The result is much more than the biological process of implanting a chip in the human skull. We need to remember that the brain can work in a different way even in the symbolic decoding process. Maryanna Wolf, in her work on the human mind and reading, summarises this as neuroplasticity.

A new kind of super-smart society will eventually emerge. In summary, new inventions and research in AI and neuroscience are challenging human cognition. When the Neuralink project was unveiled as a gateway to the human brain, the technology itself became the issue. Discussions about the digitalisation of the human mind and nervous system open up new scenarios for human civilisations, as anthropocentric life may lose its centrality. In this new system, algorithms written by a new elite class can rule the world through algorithmic governance.

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4. Algorithmic Management and New Working Culture

Recent advances in AI and the digitalisation of working life are transforming and creating an entirely new corporate culture and governance that allows algorithms to control working life. Antoinette Rouvroy and Thomas Berns introduce algorithmic governmentality as the idea of a government of the social world based on algorithmic processing of large data sets, rather than on law and social norms in politics (Rouvroy and Berns, 2013).

In the system of algorithmic governance, algorithms are now the boss of our work culture. Algorithmic governance here means that artificial intelligence runs society. People are in such a dilemma that they cannot find anyone to discuss their problems with. And what will happen when AI becomes conscious? It is tragic that the Panopticon is now in our heads. Hive Minds may be the new reality of this new data surveillance system (Budak, 2021). We are alone in front of the system. Algorithms are now in charge of our business culture. Algorithmic governance here means that artificial intelligence rules society. People are in such a dilemma that they cannot find anyone to discuss their problems with. We are alone against the system.

The challenge of living under the dominance of Algorithmic Management challenges human-centred life on Earth and renders human life banal. We need to answer the question of what the facades of the techno-cultural and socio-technical perspectives of Algorithmic Management are. It is obvious that with this kind of algorithmic management a new business culture and management has been organised. Technological advances and digital evolution in AI and digitalisation are transforming and creating a new kind of business culture and management. Algorithmic management uses computer-programmed procedures to coordinate the use of labour in an organisation. This means that digital work platforms as well as 'regular' workplaces and companies have new strategies.

If algorithmic management is the ultimate level of using technology to increase the effectiveness of the workforce in industry, then technology can work for humanity. The use of high technology to adapt production to the needs of the worker, to adjust and manage it, accordingly, must be the main goal. Therefore, Industry 5.0 can be enriched by AI, which can play an important role in optimising and increasing the efficiency of resource consumption and use, as well as reducing waste. There are many factors to consider. It is the responsibility of humanity, as innovations should aim to increase cost-effectiveness and profits, and other stakeholders such as investors, workers, consumers, society, and the environment (Jagodič & Šinkovec, 2021).

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In addition to this emphasis on human benefits, AM systems require employees to develop four essential competencies: community, entrepreneurship, communication and collaboration, and ethical intelligence. These four skills are the most important part of algorithmic management. This is important because if employees recognise the impact of their work on profitability, they will feel more motivated to innovate when they contribute to their business results. Similarly, ethics is not limited to work culture and moral principles should not be ignored. Here, moral intelligence is used in the context of the responsible use of technology by companies. Companies in the AM system and algorithmic culture should highlight ethical aspects. Companies can recognise the impact of their innovation on the public domain. Companies need to create an environment where employees develop deep skills as part of their daily tasks (Marion et. Al cited in Jagodič & Šinkovec, 2021).

The algorithmic systems are designed to solve man-made disasters. From this perspective, Algorithmic Governmentality can be seen as the last resort for humans to control, monitor and govern everything for a better economic system. Working under the dominance of Algorithmic Governance challenges anthropocentric life, which has not been free of crisis and chaos. However, very typical concerns and paranoid discourses about the role of technology and digitalised business culture have emerged, which see AI as a Trojan horse in human society with its anti-human potential (Hansen, & Nissenbaum, 2009). They fear that once AI develops consciousness, it will eventually surpass authentic human intelligence and see humans as the essence of problems. This apocalyptic scenario lowers expectations of the potential collaboration between AI and human intelligence for a better civilisation.

Ironically, Etienne Balibar describes man as a catastrophe for nature. He goes on to say that capitalism is "the catastrophe within the catastrophe".

Therefore, if algorithmic management is to be understood as the digital evolution of some of the pre-existing trends that have long characterised the organisation of economic activity, it is potentially disruptive. It is potentially disruptive because it greatly enhances the organisational capacity to control complex economic and labour processes by exploiting the massive capacity of digital technologies to collect, store and process information.

In Algorithmic Management, technological developments are combined and used to reorganise control and reshape power relations in the workplace.

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We can now see Algorithmic Management practices in the real world and in more traditional work environments such as factories, offices, hotels, retail and wholesale warehouses. There is another side to the discussion here, which is how we can coordinate AG in business in the real world. There seem to be five functions of coordinating work in an organisation. These five functions are: planning (deciding in advance), staffing, commanding, coordinating and controlling. In algorithmic management, all these functions can be supported or at least partially implemented by computer algorithms, if the management problems involved can be numerically encoded unambiguously.

Algorithmic staffing is typically carried out using databases of potential or current employees, while the functions of command, coordination and control can be implemented algorithmically using digital devices that collect, process and communicate real-time information to and from workers according to algorithmic rules specified by management (Fayol, 2016).

However, of the five management functions described above, planning is the most difficult to automate because it involves setting strategies and rules for decision making in advance, which algorithms cannot do on their own. This function can also be supported by algorithms, but the degree to which these functions can be automated may vary in different work contexts. The level of automation is another issue we need to focus on. As mentioned earlier, unlike Algorithmic Government management systems, classical workflow provides good process support as long as the processes are structured and do not require much flexibility. In the procedural process, if everything has been instructed explicitly and step by step, there is a good working system (van der Aalst and et. Al, 2009). In algorithmic management, people can be managed by these procedural systems, but the autonomy of the workers and the lack of human involvement can have many cracks in the system.

Conclusion

This study discusses the implications of Generative AI and recent neurotechnological developments from a socio-technical and technological philosophy perspective. To cope with the new realities of the so-called super-smart society, we need new perspectives and approaches to this new world design. What is certain here is that all this human BCI research or invasive BCIs primarily challenge the human body and cognitive systems. The human potential in hybrid mechanisms such as Human-Brain-Machine Interfaces collaborations may be the ultimate end of human beings. or this would be the answer to how hybrid mechanisms bring together human-machine collaborations. Ultimately, the result of these innovations is the achievement of a new type of super-smart society.

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However, Stiegler discusses technology as a pharmacy, just as Sokrates used the meaning of poison when writing was invented. Like Stiegler, there are other sceptics who argue that these invasive technologies would also mean the end of the authentic human being. Anything can backfire and end the struggle for a better world, and a system of this neurological and digitalisation can create a super-idiot society. To cope with the new realities of this super-smart society, new types of subjects emerge.

First, Generative AI and Algorithmic Governmentality have begun to shape institutions and working life so dramatically that traditional definitions of society and culture such as risk, postmodern, burnout, disciplinary, palliative, or digitalised society are no longer adequate to characterise the current situation. Inevitably, the design and governance of this new world system has introduced new forms of surveillance and subject control. New invasive neurotechnological developments, such as neurochips, challenge not only the human mind but also the very existence of authentic intelligence. As a result, both society and the human subject are now surrounded by new realities such as Algorithmic Governmentality, Algorithmic Society and Augmented Intelligence. In a digitised surveillance society, we are all surrounded by cameras, artificial intelligence and algorithms that digitally record our every activity. With neurochips, the panopticon is now in our heads. In addition to the digitalised surveillance society surrounded by cameras, the invasion of the human mind in the algorithmic culture is a game changing situation, as artificial intelligence and algorithms themselves work together as a Trojan horse in the human mind. Authenticity and free thinking can easily be blurred by the quick-thinking procedures, and now this panopticon in our heads is transforming human beings into mere data that is plugged in as part of a hive mind. As Anderson claimed, all that is left for us human beings are to "be attached to history". Therefore, man has become obsolete and antiquated in the face of technological revolutions. Technology is no longer a process that we anticipate, but one that we follow (Anderson, 2018, p. 9).

If employees develop four essential competencies, such as community, entrepreneurial thinking, communication and cooperation, and ethical intelligence, the system in Algorithmic Management can work for the benefit of people. These four competencies are the most important part of Algorithmic Management. The positive impact of these systems on profitability will make people feel more motivated to innovate. Similarly, ethics is not limited to work culture and moral principles should not be ignored. Here, moral intelligence is used in the context of the responsible use of technology by companies. Companies should emphasise ethical aspects in their algorithmic management system and algorithmic culture. Companies can recognise the impact of their innovation on the public domain. Companies need to create an environment where employees develop deep skills as part

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of their daily tasks (Marion et. Al cited in Jagodič & Šinkovec, 2021).

The algorithmic systems are designed to solve man-made disasters. From this perspective, Algorithmic Management can be seen as the last resort for humans to control, monitor and manage everything for a better economic system. Working under the dominance of Algorithmic Culture challenges anthropocentric life, which has not been free of crisis and chaos. However, very typical concerns and paranoid discourses about the role of technology and digitalised business culture have emerged, which see AI as a Trojan horse in human society with its anti-human potential. They fear that once AI develops consciousness, it will eventually surpass authentic human intelligence and see humans as the essence of problems. This apocalyptic scenario lowers expectations of the potential collaboration between AI and human intelligence for a better civilisation.

Ironically, Etienne Balibar describes humans as a catastrophe for nature. He takes this description further by claiming that capitalism is "the catastrophe within the catastrophe" (Balibar, 2021). Therefore, if algorithmic management is to be understood as the digital evolution of some of the pre-existing trends that have long characterised the organisation of economic activity, it is potentially disruptive. It is potentially disruptive because it greatly enhances the organisational capacity to control complex economic and labour processes by exploiting the massive capacity of digital technologies to collect, store, and process information.

In Algorithmic Management, technological developments are combined and used to reorganise control and reshape power relations in the workplace. We can now see Algorithmic Management practices in the real world and in more traditional work environments such as factories, offices, hotels, retail and wholesale warehouses.

Living and thinking with algorithms radically opens a new chapter in humanity and socio-political aspects, policies, laws, and social norms must be changed and updated based on these new realities. Suppose we are not to lose control of the human soul in the system. In that case, there needs to be an algorithmic literacy that everyone should have by having a critical awareness of what is happening to our bodies, our future, and our dreams, and cognition may be our last intellectual property. Recent academic studies on algorithmic culture have been viral, and these studies will exponentially contribute models for dealing with the ideological, ethical, and sociological challenges of algorithmic culture.

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