

The New Human Factor in the Brazilian View

Rebeca de Aguiar Pereira Neves

¹(Lawyer. PhD student in the Postgraduate Program in Environmental Management at Universidade Positivo, Brazil. Master in International and Digital Law at Universidade Positivo, Brazil. Researcher at the Association of Indicators in Human Rights for Development (AiDH). Professor of the USP/Esalq MBA in the Agribusiness, Data Science and Analytics and Digital Business Courses)

ABSTRACT: *New technologies are rapidly transforming human interactions with the world, driven by the acceleration of technical changes with profound social, political, and economic repercussions. This study examines three key themes related to these transformations: the acceleration of time, the instrumentalization of the human body, and the future of humanity. First, the concept of time is explored through the lens of modernity, emphasizing how technological advancements have reshaped our perceptions of time, space, and social interactions. Second, the human body is analyzed in the context of genetic manipulation and biotechnology, raising ethical concerns about the instrumentalization of life and the risks of eugenics. Finally, the study reflects on the future of humanity, discussing the potential for self-replicating technologies, artificial intelligence, and the emergence of cyborgs, which blur the lines between humans and machines. These themes prompt critical reflections on the ethical and philosophical implications of technological advancement, particularly on how society must balance progress with the preservation of human values and rights in an increasingly digital and automated world.*

KEYWORDS - acceleration, cyborgs, future, human body, replication.

I. INTRODUCTION

New technologies are rapidly changing how people interact with the world around them because the transformations resulting from the application of new technologies are linked to a process of accelerating technical changes with social, political, and economic repercussions, both in national and international development.

It is essential to highlight that new technology is changing the way human beings live together, which now counts on the evolution of digital communications, the impact of new technologies on the human body itself, new techniques for manipulating genetics, the development of artificial intelligence, and the closer relationship between human beings and machines.

This study will address the issues of time, the human body, and a reflection and understanding of what the options are for the future of human beings. The first theme deals with the acceleration of time and the new perspective on the concept of time in today's accelerated world. The second theme deals with the human body in its new genetic dimension and instrumentalization. The third theme deals with evocations about the future of human beings in relation to the power of self-replication and the emergence of cyborgs.

II. TIME ACCELERATION

How can we understand acceleration over time? This question is linked to the constant evolution of the universe. According to Reinhart Koselleck, a German historian from the post-war period, in order to answer this question it is necessary to understand the meaning of historical time. For the aforementioned scholar, historical

time consists of investigating the way in which, in a given present time, the temporal dimension of the past relates reciprocally to the temporal dimension of the future. The relationship between the past and future is determined by the terminology of experience versus expectation, thus constituting historical time (i.e., [1]).

Assuming that, within the sphere of present time, human beings long for an unprecedented future with the possibility of accelerating time, it is worth highlighting Koselleck's understanding of the acceleration of time. The scholar states that time that accelerates itself robs the possibility of experiencing the present itself, losing itself in a future that has no relation to the present since it has not been experienced and can only be recovered through the philosophy of history. Therefore, modernity defines a new way of relating people and time, and in some way, with history. In other words, the time that accelerates becomes the history of humanity itself, studied, and expressed through the philosophy of history (i.e., [1]).

According to sociologist Hartmut Rosa, several accelerations are present in the daily lives of human beings, namely technology, social change, and pace of life (i.e., [2]).

Explaining each of them, the following comments were made.

Technical acceleration promotes a revolution in the space-time regime, being able to radically alter the way goods are produced, how communication is carried out, and how people and things are transported (i.e., [2]).

In turn, the acceleration of social change is linked to temporal understanding that occurs in romantic relationships or professional activities (i.e., [2]).

Finally, the acceleration of the pace of life requires the synchronization of individual actions with the objective rhythm of society, becoming a temporal allocation. In this aspect, human beings need to act faster, have less free time, perform several activities simultaneously, and accelerate the speed of understanding (i.e., [2]).

Furthermore, it is worth considering that in the accelerated world of human beings, time loses its orientational character in 4 (four) situations: on the Internet, in emails, in postmodern culture, and in the biological era (i.e., [2]).

To explain it better: in the case of the internet, information is received at different times and locations, that is, it is "allocal" information; in emails, information can be accessed at any time, being considered asynchronous communication; in postmodern culture, information circulates faster than time due to technological advances; and in the biological sphere, biological time gives way to the response time of medical advances (i.e., [2]).

For Hartmut, acceleration transforms man's relationship with all aspects of life, namely time, space, people, and things. Hartmut believed in the emancipation of time in relation to space; that is, relationships are transformed in the same generation, replacing the physical wear and tear of human beings with the moral wear and tear of society, as accelerations influence social relationships and the individual himself, thus triggering the acceleration of social change (i.e., [2]).

Furthermore, sociologist Hermínio Martins explains that the technological transformations that arise over time lead to changes in society's main values. For example, the use of artificial intelligence is present in all sectors of human life, and with its intensification, new technical interconnections will emerge, causing the replacement of human beings by machines and robots that are much more efficient than human beings themselves. In this way, the main values of society would no longer be related to the idea of Humanism, but to the concept of digital politics (i.e., [3]).

III. HUMAN BODY

With the advancement of technology, new processes for processing digitally collected information about the human body have emerged, altering the understanding of the human genetic structure. The expanded knowledge of the physical structure of human beings, through the collection of new data, has directly influenced the concept of what is understood as the selection of the human species, which has become an unnatural process.

In other words, human uniqueness, studied with the resources of new technology and the aid of nanotechnology, enables the expansion of scientific knowledge regarding the molecular system of the human

body. Therefore, with new technologies, the study of the human body becomes a confluence between genetic data and data from sciences that study the human body, especially neuroscience, demonstrating that human beings have a new mastery of human nature (i.e., [4]).

Currently, this genetic revolution affects humans at two specific levels, either as a human species or as an individual. However, this revolution may not be positive for humans. For example, in the case of human species, if genetics were misused in indiscriminate commercial exploitation, it could encourage the return of eugenics, the consequence of which would be racial discrimination. Incidentally, eugenics is a theory that studies agents capable of selecting, in a collective, the racial qualities of future generations, whether physical or mental. In the case of an individual, if research was to be carried out on genome sequences as a way of mapping an individual's predisposition to certain types of behavior, it could harm freedom, dignity, and human rights (i.e., [4]).

According to Pierre Sané, the founder and president of the Imagine Africa Institute and former deputy director of UNESCO (United Nations Educational, Scientific, and Cultural Organization), and Jérôme Bindé, director of UNESCO's Organization for Analysis and Forecasting, both are concerned with preserving human beings and believe that it is up to bioethics to do so, establishing a general line of conduct for scientific and technological progress that is valid at the national and international levels. The purpose of bioethics is to facilitate the confrontation between ethical and bioethical issues that may arise throughout a person's professional life. It is not about imposing rules of behavior, but rather offering support so that people can reflect on and know how to behave in relation to situations in their professional life in which there is an ethical conflict (i.e., [4]).

It should be noted that bioethics is the science that aims to indicate the limits and purposes of human intervention in life, identify rationally proposeable reference values, and denounce the risks of possible human interventions.

On the other hand, Laymert Garcia dos Santos, who holds a Ph.D. in information sciences from the University of Paris VII, believes that the problem of the genetic revolution is more complex and deeper than the question of the misuse of genetics or its commercial exploitation. Laymert recalls the fact that technoscience, a concept widely used in the interdisciplinary community of science and technology studies to designate the social and technological context of science, is an ally of globalized capital, and both deconstruct, through digital and genetic technologies, the traditional and modern conceptions of man, which is the greatest problem of human beings (i.e., [5, 6, 7]).

It is noted that this deconstruction can only be examined from the moment it is applied directly to the human body, that is, through the path of post-human medicine (i.e., [5, 6, 7]).

3.1 INSTRUMENTALIZATION OF THE HUMAN BODY

A human being is a representation of individualization. Individualization is composed of the particularities of each citizen. Regardless of individualization, human beings are sources of scientific research on the human being itself, since they are generally seen by science as technical objects driven by their own wills. In this way, the technical and scientific development of human beings comes from the instrumentalization of human life.

Regarding the aspects of the instrumentation of human life, as regards social studies of biomedicine and life sciences, Catherine Waldby, an Australian academic, researcher, and author, clarified the relationship between the VHP (Visible Human Project) and the Human Genome Project (HGP) (i.e., [5, 6, 7]).

For the Australian author, the Visible Human Project was an attempt to map the topography of the human species as a coherent biological unit in a stable relationship of difference with the categories of other species. Although the Human Genome Project is an attempt to map the microstructure of the human species and the genetic instructions, they are understood as those that determine the unfolding of the morphology of the human body (i.e., [5, 6, 7]).

In short, both projects aim to collect data to transform the human body into a digital file, which becomes raw material for technological operations. In other words, the human body in a digital file becomes raw

data that can be used in all types of information architecture operations. In this sense, both the VHP and HGP are orders of the human body broken down according to the logic of the different orders of instrumentalization of human life (i.e., [5, 6, 7]).

The fact is that the projects mentioned above are associated with the branch of modern medicine, which considers the human organism as an instrument of life and can be studied in depth when associated with digital technology, thus being the post-human phase (i.e., [5, 6, 7]).

The intention of these projects is to develop techniques for detailing and specifying the human body as a species in order to make the body a resource for knowledge. In other words, biotechnology is understood as a mediator between two aspects of the human body, one as a human subject and the other as a human species, and biotechnology can be used to separate the subject from the species to establish a hierarchy between them in which the species is made available to the subject as a resource (i.e., [5, 6, 7]).

Biotechnology is considered an applied area of biology for technological and commercial purposes, through the use of living organisms to generate new products, processes, or services aimed at adding value, income, and well-being to the population.

According to Waldby, the digital structuring of the human body operates to develop a translation work that transforms life into information and the organism into code (i.e., [5, 6, 7]).

In Donna Haraway's dynamic, an American philosopher, biologist, and feminist theorist, the translation of the human body into a data file, considering the human organism solely from a molecular perspective, is called the "cybernetic turn" (i.e., [8]).

According to Haraway, the cybernetic turn occurred in the field of technoscience, privileging, on the one hand, the informational dimension of different organisms as one, which is common to them, and on the other, the informational reciprocities between organisms and techniques (i.e., [8]).

From the cybernetic turn, Haraway observed that communication sciences and life sciences are constructed by a common operation, that is, the translation of the world in terms of coding, where living organisms (including humans) come to be seen as biotic components, which are considered special types of information processing devices (i.e., [8]).

From the perspective of Martin Heidegger, a German philosopher and professor, in the cybernetic turn, the human body must be considered real as operative. Therefore, it must be understood that operativity is connected to functionality. In turn, the cybernetic function linked to control, ordering, and planning is translated through mere calculation (i.e., [9]).

According to Laymert, the term "cybernetic turn" refers to the idea of "cultural turn," that is, the author argues that capitalism is transformed by incorporating cybernetic culture into its valorization process. With these aspects previously established, the cybernetic turn is constituted by the disappearance of the human body in the process of digitalization of human life in the face of the dynamics of technoscience. Furthermore, with the development of the study of the ontology of living, which concerns the branch of philosophy dedicated to analyzing the nature of being, its existence, and reality, based on the convergence of cybernetics and molecular biology, it is clear that human life is the result of a certain informational matrix (i.e., [5, 6, 7]).

IV. EVOCATIONS ABOUT THE FUTURE OF HUMANS

Considering that the future of man may be problematic and controversial owing to the influence of technological development and the emergence of genetic transformations, without any type of limit, the following reflection is proposed on the possible variations in human life.

The proposal begins with the perspective of the disappearance of human beings to discuss their transformation into cyborgs and post-humans, ultimately reaching transhuman conditions.

The variations listed below were proposed by men and women who worked with information technology, biology, culture, and philosophy.

4.1 FIRST VARIATION: POWER OF SELF-REPLICATION

The first variation was formulated by Bill Joy, a computer scientist who seeks to explain why new technologies of the 21st century could threaten the extinction of human beings.

One of the concerns highlighted in Bill Joy's texts concerns what would happen if intelligent machines were developed with the capacity to replace humans. The scientist outlined two possibilities: i) if machines were to make decisions, the human species would be at their mercy; and ii) if the machines were to remain in the hands of humans, a small elite would dominate the rest of the masses (i.e., [5, 6, 7]).

Thus, Joy understood that the end of the species would not be an unexpected consequence since its extinction was already being outlined in the future of human reality. What caught his attention the most was the calmness with which human beings accepted and faced their disappearance, since the hypothesis of the extinction of the human species had already been considered in robotics, genetic engineering, and nanotechnology. All of them had already warned about the new threat to humanity with the power of self-replication of human data in digital form (i.e., [5, 6, 7]).

It is interesting to note that the loss of control by humans and the threat to their species are linked to the self-lives that new technologies seem increasingly likely to acquire.

According to scientists' calculations, if everything continues at an accelerated pace characterized by technological innovation, by around 2030, the power of self-replication would be consummated, since this would be the year that experts would have to create an intelligent robot capable of creating evolved copies of itself.

It is also worth remembering that, at the same time that robots would begin to compete with humans, transgenic species created by genetic engineering would compete with biological species.

Bill Joy concluded that it would be the destructive power of self-replication of human data in genetics, nanotechnology, and robotics that would force humans to rethink the future of their species in the face of technological evolution. Therefore, the hypothesis arises that a species, in this case the human being, would become, through its own actions (voluntary actions), a danger to itself and other species (i.e., [5, 6, 7]).

A computer scientist clearly states that he is in favor of imposing limits on ongoing technological evolution so that the order of life is respected and preserved. He understands that renouncing certain research is the only realistic alternative to limiting the development of technologies that are dangerous to the preservation of the human species, restricting the search for certain types of knowledge by human beings themselves (i.e., [5, 6, 7]).

4.2 SECOND VARIATION: THE CYBORGS

In the previous context, the first variation raised the possibility of the disappearance of the human species owing to the emergence of a new, superior species linked to self-replication. In turn, the second variation, formulated by Donna Haraway, an American philosopher, biologist, and feminist theorist, does not see the issue as a competition between species but as a transformation of the human species itself (i.e., [8]).

Haraway believes that the aforementioned transformation has already begun with the advent of so-called cyborgs, as she considers the transformation to be an evolution of the human species in which the human body must adapt to the new technological conditions of the world. In this sense, there would be a replacement of the current human species by a species composed of connections between man and machine, positively modifying the human being without, however, altering its essence (i.e., [8]).

Donna Haraway argues that cyborgs have a hybrid sexuality. In other words, the cyborg would be an organism composed of two halves, where one would be the machine and the other would be the human being, therefore possessing a human and at the same time a non-human identity. Therefore, it would be contradictory to attribute the condition of the human species to the cyborg, unless the concept of human beings is expanded (i.e., [8]).

It should be noted that with the emergence of the cyborg, one could consider the establishment of a belief in divinity, given that the cyborg is a hybrid, non-autopoietic organism that does not have the capacity to replicate copies of itself. The unitary idea of human gender would also disappear, giving way to the cyborg gender, which consists of the union between machines and human beings (i.e., [8]).

The purpose of the cyborg and its functional system is to provide an organizational set in which robots are capable of solving everyday problems automatically and unconsciously, allowing humans more time to dedicate themselves to their abilities to explore, recreate, think, and experience the world around them (i.e., [8]).

Donna Haraway conceptualizes the cyborg as a hybrid of machine and organism. Furthermore, she states that currently, the human inhabitant of a technological polis can also be considered a cyborg (i.e., [8]).

The following questions arise from this line of reasoning by the philosopher: Why are modern humans compared to a cyborgs? How can such a generalization be justified?

According to American theorist Haraway, the cyborg emerges in contemporary culture from three crucial breaches of boundaries, which authorizes what she calls “a fictional political analysis.” The breaches consist of i) transgression of the boundary between the human and the animal, ii) breaking the distinction between the human organism and the machine, and iii) erasure of the boundaries between the physical and non-physical (i.e., [8]).

The first breach consists of breaking the separation between nature and the biological and evolutionary aspects of the biosphere. For example, dogs created in laboratories are now integrated into nature and are capable of fighting for their own preservation. In this sense, the creation of the cyborg does not have the power to separate man from other living species, but rather an attempt to achieve coupling between man and machine (i.e., [8]).

The second rupture encompasses the idea of breaking the distinction between human beings and machines, where the cyborg emerges as an example since it is a symbiotic being made up of both organic and inorganic parts (i.e., [8]).

Finally, the third rupture involves eliminating the boundary between the physical and non-physical aspects of the human being. This theme is related to the virtualization of the world, the dematerialization of the world, and the lack of differentiation between the visible and the non-visible, and between the physical and non-physical (i.e., [8]).

Haraway's fictional political analysis seems to conceive of the cyborg as the last link in the ape-man-cyborg evolutionary line; this configures the future of the human species, just as the ape configured the past of the human being (i.e., [8]).

The concept of cyborgs translates the world into digital information and living beings into genetic information. Therefore, the cyborg directly impacts the evolution of the human species, reconfiguring the concept of the human being, which becomes a living system, given the possibility of modifying or improving its cells. In other words, the emergence of the cyborg breaks down barriers, changes social reality, and enables the idea of modifying human beings, which are composed of inorganic matter. However, human beings maintain their identity, making it essential to overcome the contradictions in the concept of the human species. This means a world of affinity between the human being and the machine, and not the appropriation of one identity by another, given that there would be the constitution of a single identity.

V. CONCLUSION

Based on the research above, the acceleration of time, resulting from technological advances created by man, would change the relationship between human beings and time, space, people, and things, since new values would emerge in life in society.

In this sense, by using artificial intelligence in human life, new technical interconnections between human beings and machines would be created, together with the construction of intelligent robots, more efficient and productive than human beings themselves. This hypothesis would transform the values of society by replacing the idea of Humanism with a digital policy, which would change the idea of the concept of the human body.

With regard to the concept of the human body, the use of new technologies would provide human beings with new control over their nature, since genetic data could be processed digitally, especially in the field of neuroscience.

In this way, the human body would become a means of instrumentalization, since it could be transformed into a digital file, being raw data, in this case, raw material, for any type of operation in the information architecture. The translation of the human body into a data archive from a molecular perspective alone marks the so-called “cybernetic turn,” mentioned by Donna Haraway (i.e., [8]).

With the “cybernetic turn,” the theme of “the disappearance of the human being” should be a priority in discussions about the future of the human being, especially because the creation of cyborgs and post-humans, who would have a transhuman condition, cannot be ruled out.

This idea of a transhuman species is linked to the destructive self-replication power of human data in genetics, nanotechnology, and robotics, the result of unmeasured technological evolution, which could result in the annihilation of the human species itself through the voluntary action of the human being. In other words, the human being would be a danger to himself and to other species.

Therefore, in order to preserve human life and maintain the normal course of nature, it is imperative to set limits on technological evolution, prohibiting certain research from being developed, as it could affect the continuity of human life. This would be the only effective alternative to prevent the extinction of human life.

However, we cannot fail to admit that the creation of a cyborg, as an organizational set, with the purpose of making human life easier, in which robots would automatically and unconsciously solve everyday problems, would be a positive option, as it would allow human beings to dedicate themselves to their exploration and recreation skills, in addition to providing more time to think and experience the world around them.

In short, the cyborg is the translation of the world into digital information and living beings into genetic information, reconfiguring the concept of a human being, who becomes a living system, in which its cells can be modified and improved. The power of technology can be used in favor of the evolution of the human species and not in the search for its annihilation.

In this sense, when the human body is translated as data in digital format, it is possible to relate this raw data of the human being to the personal data regulated by the General Data Protection Law, which is conceptualized by Article 5, item I, of the LGPD, being information related to an identified or identifiable natural person. Therefore, it is extremely important for the law to protect and regulate these new personal data of human beings, guaranteeing citizens their freedoms and fundamental rights, imposing sanctions, and assigning responsibilities in case of legal non-compliance (i.e., [10]).

Therefore, the General Data Protection Law (LGPD), which has been in force since August 2020, was created in the national territory, being a specific legislation in the Brazilian legal system that regulates the processing of personal data, acting as a means of enforcing personality rights (i.e., [11]).

The law is dedicated to the protection of the personal data of natural persons, with the scope of regulating the activities of entities that store or process the personal data of natural persons in order to guarantee the right to privacy (i.e., [12]).

The main objective of the legal regulation is to unify the processing of personal data, within the scope of privacy law, eliminating any inconsistencies in other laws on the subject, and modernizing the legislation for current technological, economic, and political challenges (i.e., [12]).

It is also worth remembering that in 2022, Constitutional Amendment 115/2022 was enacted, ensuring the protection of personal data as a fundamental right and guarantee of the citizen, under the terms of Article 5, LXXVIII, of the Federal Constitution. Its addition to the list of fundamental rights is justified, since the right to privacy and the protection of personal data is essential to people's dignified lives, especially in the context of digital life (i.e., [10]).

Furthermore, the challenge of today's society, with new technologies and acceleration of time, focuses on the search for a balance between respect for privacy and the benefits of digital innovations, given that, with the constant evolution of technology, the personal data of a natural person, as classified in the LGPD, must be protected and preserved, avoiding its misuse or even its use for the annihilation of the human species.

REFERENCES

- [1] K. Reinhart, *Futuro passado: contribuição à semântica dos tempos históricos* (Rio de Janeiro: Contraponto, 2006).
- [2] R. Hartmut, *Aceleração: a transformação das estruturas temporais na modernidade* (São Paulo: Unesp, 2019).
- [3] M. Hermínio, *Aceleração, progresso e experimentum humanum*. In *Experimentum humanum: civilização tecnológica e condição humana* (Lisboa: Rélogio D'Água Editores, 2011).
- [4] M. Hermínio, *Tecnologia, modernidade e política* (Lua Nova, 1997).
- [5] S. G. Laymert, *Humano, pós-humano e transumano*. In N. Adauto, *Mutações: novas configurações do mundo* (São Paulo: Sesc, 2017).
- [6] S. G. Laymert, *Tecnologia e seleção*. In *Politizar as novas tecnologias: o impacto sócio-técnico da informação digital e genética* (São Paulo: Editora 34, 2003).
- [7] S. G. Laymert, *Experimentum humanum, risco e economia política*. In C. V. Manuel. G. L. José. J. M. Helena, *Razão, tempo e tecnologia: estudos em homenagem a Hermínio Martins* (Lisboa: ICS, 2006).
- [8] H. Donna, *Manifesto ciborgue: ciência, tecnologia e feminismo-socialista no final do século XX*. In S.T. Tadeu, *Antropologia do ciborgue: as vertigens do pós-humano* (Belo Horizonte: Autêntica, 2000).
- [9] H. Martin, *A questão da técnica* (São Paulo: Scientiæ Zudia, 2007).
- [10] M. N. Viviane. B. O. Renato, *LGPD: lei geral de proteção de dados comentada* (São Paulo: Thomson Reuters Brasil, 2019).
- [11] C. Márcio. O. Ricardo, *Lei geral de proteção de dados pessoais (LGPD)* (São Paulo: Thomson Reuters Brasil, 2019).
- [12] P. P. Patrícia, *Proteção de dados pessoais: comentários à lei n. 13.709/2018 (LGPD)* (São Paulo: Saraiva Educação, 2020).