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Technoscience and the Shift of Civic Ideals: Ethical and Cultural Dimension

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The impact of modern technological advances on the changing cultural, ethical and social ideals has been of interest in recent decades. The proponents of technological determinism are convinced that the essential basis of culture is technology as it shapes its semantic context and determines civic ideals. However, the developers of cultural constructivism state that technologies themselves are shaped by cultural values and practices, thus acting as an integral part of their functioning. The article demonstrates the one-sidedness of these approaches, showing that the relationship between technology, culture, and social ideals is neither linear nor uniquely determined. It rather involves the processes of adaptation, transformation, and mutual formation. With this in view, the method of analysis and the comparative method were used in the article. The conclusion about the ambiguity of this mutual influence and mutual creation has been made. The latest technologies, on the one hand, create favourable conditions for the revival of culture and ethics. On the other, they pose a serious challenge to the very foundations of our humanity. It has been stated that for the 'survival' of a human and the culture in the conditions of a new technological reality, a new rationality is required, that is, a clear understanding of who we are, where we are going and why. This, in its turn, necessitates the ethics, aimed at developing clear moral norms regarding the creation of new technological and scientific opportunities and their controlled use to minimise negative impacts on humans, their values and ideals.

Keywords: technoscience, technoethics, technology, culture, civic ideals

INTRODUCTION

We have entered the 'age of technoscience', the era of the emergence of a new technosocial reality, within which technologies become an integral dimension of human existence, influencing the formation of social norms, values and ideals (Nordmann 2011: 23). It was Martin Heidegger who emphasised that the essence of modern technology is not limited to its instrumental function, as it lies in a special way of revealing and mastering the world, which structurally changes the horizons of human experience and determines the modes of common existence (Heidegger 1953). Nowadays, the ideas of technological determinism are becoming increasingly widespread, and technology plays a decisive role in shaping social life (Davies 2025: 42; Goñi 2025: 2).

Society can as well influence the development of technoscience and change its social nature. Technological development is not a natural but a social process: not autonomous from but very much dependent upon the interplay of forces and institutions in society (Stocchetti 2020: 3). One can state the process of mutual formation of technology and social life as inseparable and intertwined dimensions (Felt, Irwin 2024: 4).

Technoscience dethrones the science we are used to, the goal of which was to search for truth and seek to explain various phenomena. Henceforth, the task of technoscience is to create effective and adaptive technologies that ensure the comfort of human existence. These changes may signal the emergence of the fourth technological wave, replacing the third, informational wave, which was spoken of by Alvin Toffler (Toffler 1984). Here technologies are becoming the main values and resources that are being fought for. It is another arena, albeit a fundamental one, in which social forces compete for the control over the distribution of values in society (Stocchetti 2020: 1). Thus, technology turns into a strategic resource, becoming a weapon in the struggle for power. The famous saying 'Who owns the information, owns the world' can be rephrased as 'Who owns the technology, owns the world'.

The 'technological turn' causes mixed reactions on behalf of the philosophers, sociologists and scientists, whose views range from the most optimistic hopes to the most pessimistic, almost apocalyptic expectations, which suggests comparisons of the achievements of technoscience with Pandora's box (Veiga et al. 2021). These metaphors help reveal the dual nature of the new technologies, which can bring both benefits and harm to people. It depends not on technology, but on people, namely, on how and for what purposes they will use these technologies and whether they are ready to take responsibility for the consequences of this application. The above-mentioned issues require changes in socio cultural norms, the creation of 'new rules of the game' that would allow controlling the further process of development of technoscience.

Today, one can find numerous research works that consider the topic of the interplay of technology and culture/ethics (Alsaleh 2024; Collins 2026; Rimkus, 2026; Rimkus 2024; Bowen, Pashentsev 2025; Chursinova, Sinelnikova 2022; Chursinova, Sinelnikova 2024; Diab, El Hajj, 2024; Goñi 2025; Sjursen 2025; Magaudda 2024; Petrushenko 2019; Glazebrook 2022; Nordmann 2011; Stocchetti 2017; Stocchetti 2020; Veiga et al. 2021). Although, a holistic theoretical model that would help to understand the complex interaction between technoscience and social ideals has not yet been formed. The existing approaches tend to focus on the ethical analysis of individual technological practices or on the empirical assessments of political culture, avoiding a systemic view of their internal interdependence. Therefore, the key question remains, i.e. how, taking into account the influence of the accelerated production of knowledge inherent in the technoscientific paradigm, the forms of civic participation are modified, the value orientations are revised, and the new ethical and cultural dimensions are formed.

The article considers the transformation of civic ideals in the age of technoscience through the prism of ethics, culture, human rights and freedoms. The use of an interdisciplinary approach is used to capture the nature of changes and form directions for preserving human dignity, responsibility and morality in the world where the role of technological decision-making is growing.

The work focuses on three interrelated aspects. Firstly, it is necessary to find out whether culture will be able to 'survive' in a new, technological era. Secondly, it is important to explore the new challenges that technoscience poses to the ethics. Thirdly, one should outline the threats that arise in the area of human rights and freedoms in the context of technologisation.

WILL CULTURE COPE WITH THE CHALLENGES OF TECHNOSCIENCE?

The rapid development of technoscience is becoming both the semantic centre of the world today, and an integral part of our culture. It is hard to figure out whether culture influences technology more, or vice versa in this strange symbiosis.

On the one hand, as is stated by the proponents of technological determinism, the impact of technology on culture is obvious. Technology acts as a catalyst for cultural exchange, innovation and adaptation, enabling unprecedented global communication and the exchange of ideas (Alsaleh 2024: 1). Therefore, culture directly depends on the development of new technologies, and technological development is the main driving force of social and cultural change. 'It is largely by technology that contemporary society hangs together. It is hugely important not only as an economic force but also as a cultural force' (Franssen et al. 2018).

Thus, technology is not just a passive tool created by a human, it is an active element in the formation of all cultural processes. In addition, technology encourages the emergence of new types of culture, such as technological and digital culture. This ensures a wider access to cultural heritage for different segments of the population (virtual museums, online libraries and archives, audio books, etc.). The possibilities of culture itself to preserve its heritage, to find ways of its self-expression and enrichment are increasing.However, this is a too one-sided approach that does not take into account the influence of social and cultural factors on technological development. After all, technologies themselves are often shaped by cultural values and practices. They are not culturally neutral, woven into the sociopolitical order, developing alongside other aspects of society. Technology is to be understood as the outcome of processes deeply rooted in the cultural context in which it emerges (Magaudda 2024: 61). This gives grounds for supporters of cultural constructivism to proclaim that it is culture that plays a key role in shaping technological development. Technology is seen as something much more than just 'things' becoming a kind of cultural frame (Magaudda 2024: 62).

This article suggests an intermediate position between technological determinism and cultural constructivism, emphasising that culture and technology mutually shape and condition each other. The relationship between technology and culture is much more complex and multifaceted than it seems at first glance. It additionally helps to understand culture as a dynamic system that includes the latest technologies, which are now becoming one of the key elements of its functioning.

The attention is drawn to the dual nature of technological influence, namely, it contributes to cultural enrichment and connectivity, while at the same time it is a source of new risks to cultural diversity and equality. The advances of modern technoscience have contributed to the unprecedented global connectivity and cultural exchange, though they also raised concerns about cultural homogenisation and the erosion of traditional values (Jokhio 2023). Therefore, the initial task of modern society is to control technological development, directing it towards the preservation, not the destruction, of the cultural heritage of humanity. The future of our culture depends on critical awareness, equal access, and culturally sensitive policies. This requires changes from the culture itself, which must adapt to new technological conditions without losing its own authenticity.

TECHNOSCIENCE AND ETHICS: NEW OPPORTUNITIES AND CHALLENGES

'Technoscience is a human project and embeds human values' (Davies 2025: 196). This is exactly the way technologies become an integral part of our moral creativity, contributing to

the formation of techno ethics, which successfully seizes the initiative in traditional morality in posing and resolving key questions that mankind is not yet ready to answer unequivocally. Among them there are the following issues: What does it mean to be a human? 'Whose values and visions count?' (Beck, Forsyth 2020: 220). Humans or machines/technology? Has ethics lost its power and weight in the age of techno science? Is ethics capable of guiding technology?

For a long time, scientists have been quite skeptical about the ability of ethics to govern technology. Heidegger, Severino, and others believed that technology would eventually completely be destined to absorb human rationality in all its facets, brushing away all its residual anthropological content (values, desires and passions) (Viafora 2018: 20). Due to this, the main emphasis in human self-regulation gradually shifted towards regulating their behaviour, morality, and even biogenetic nature through the means of science and technology. Another piece of evidence supporting the position of skepticism is that the consequences of the development of technoscience are too complicated to predict and practically impossible to control. Skeptics are partially right about this, i.e. ethics sometimes has to catch up with technology.

However, a different approach is increasingly being supported today, according to which the development of new technologies and ethics is synchronous and interconnected (Viafora 2018: 18). At this point, technology is not an independent force that operates outside or independently of humans. We are able to create the right conditions for technology to become an element of our morality, that is, a technological environment suitable for a dignified human life. To fulfill this, it is necessary to rationally and, above all, morally manage the forces that a person receives from technology. It has been this approach that Jurgen Habermas once offered as a starting point for a more critical understanding of the relationship between ethics and technology (Habermas 1990). After all, the alleged ethical powerlessness in the face of technological onslaught is a mere appearance that we can successfully change.

The challenges faced by ethics in the technoscience era can be attributed to a particular way of understanding the impact of technology on ethics (Ladrière 1997: 37). This impact is far from ambiguous, as, on the one hand, technology destabilises ethics, though, on the other, it stimulates it. Therefore, the fundamental question of ethics is the problem of how to manage not the potential of a single technology, but our technological universe as a whole (Ladrière 1997: 42). This requires the responsible management of technology, the creation of a fundamental moral imperative on which our human dignity will depend. In view of this, the traditional concept of responsibility must be significantly revised and expanded. A reference point here can be Hans Jonas' 'ethics for technological civilization', according to which a person is able to direct new technological opportunities towards certain goals defined by him (Jonas 1985).

In other words, the technological turn should be directed towards ethics. As a result, ethical regulation should be considered a priority in the context of understanding the directions of development of science and technology. In this way, technoethical discourse performs a normative stabilisation function, i.e. it simultaneously mitigates the pressure of innovation and establishes new moral horizons of legitimacy within the existing social order. In case technoscience changes the material conditions of human action, then technoethical discourses provide their normative formulation. There is a steady reconfiguration of fundamental civic notions. The suggested analytical perspective ensures the conceptual integrity of the study and paves the way for further hermeneutical understanding of the dynamics of these changes in terms of ethical and societal transformations.

HUMAN RIGHTS AND FREEDOMS IN THE AGE OF TECHNOSCIENCE

Technology has consistently acted as a catalyst for societal transformation (Nawaz 2023: 73), including public values and ideals. The latest technologies have penetrated our society so deeply that they have not only changed the traditional understanding of human rights and freedoms, but have as well created new ideas. This is the right to information, education, culture, privacy, personal integrity, freedom of speech, etc. In return, people have faced new threats, such as mass surveillance, control, disinformation, fake news, objectification, trends towards unbridled consumption, the dominance of materialism, etc. Many researchers today express concerns about the possibility of radical social change under the influence of technoscience (Stocchetti 2017). This shows that technology is not merely a tool but an active participant in shaping societal norms (Alsaleh 2024: 2). Thus, calls for democratising technology are pervasive in current technological discourse (Goñi 2025:1).

In the last century, the French sociologist Jacques Ellul warned that new technologies offered unprecedented opportunities for social control that were hardly compatible with democratic governance (Ellul 1964: 213). Today we receive numerous warnings related to the appropriation of new technologies, especially artificial intelligence (AI), with the logic of the market and the private company (Mowshowitz 2001; Mowshowitz 2002). Modern society is increasingly immersed in the Internet space, and the authorities are trying to control as much as possible the publicly available data published on social networks. Undoubtedly, such a high level of state surveillance undermines the individual's right to freedom of speech and threatens the foundations of democracy. Social inequality is increasing due to technological backwardness and unavailability/impossibility to pay for the Internet if a person is on the 'digital periphery'.

The vector of technological development is shifting towards the speed and efficiency, one is committed to quick money and quick time, a world where that and information are far more important than knowledge and wisdom (Inayatullah 1998: 216). Trying to meet such needs, modern technoscience reorients the goals of scientific research towards the implementation of innovations that bring profit in the market. Science ceases to be the business of individual talents and geniuses. Today it resembles a workshop for the development of new knowledge, new technologies and techniques, a kind of 'scientific market' (Perez-Llantada, 2012: 114). Technologies teach us how to consume, not how to create. This is how 'democracy succumbs to the economy' (Hassan 2009: 8).

Under the influence of modern digital technologies, the norms of human communication are being redefined and social networks and artificial intelligence are changing human identity, creating an 'illusion of individuality' (Fromm 2021: 64), which gives a person a deceptive sense of freedom.

The Internet dictates to a person how to dress, look, what to read, what movies to watch, how to live, and what to strive for. This can lead to a loss of one's own uniqueness and identity. There is a risk of automaticity and uncriticality, as search engines such as Google often limit human freedom (Galindo, Garcia-Marco 2017) by filtering or blocking content and even disabling access. Martin van Drunen defines it as the 'platforms' control over the way users access content' (Drunen 2020: 174).

In a technological world, there is no longer any place for responsibility to others, as there are no real relationships between true selves, everyone exists for immediate short-term gratification, rather than working together to achieve a common goal. Responsibility goes hand in hand with irresponsibility and the desire to avoid the negative consequences of one's actions.

This raises a number of urgent issues. What will happen to a person deprived of freedom and responsibility? Will technology, including AI, be able to take over the rights and freedoms that were once human? Is it about the technological rights or the rights of technology?

The answer to these questions is obvious. Instead of trying to squeeze human rights and freedoms into a framework that no longer fits them, we need to reassess the very foundations of what the concept of human rights consists of, and to examine the potential risks associated with the rapid development of technology. Therefore, it is possible to increase the number of addressees and expand the rights of the subjects. The former is at the expense of existing legal entities, companies, and organisations that have gained a significant influence in the changed relations. The latter is due to artificial personality and artificial intelligence. In addition, it is necessary to create a concept of joint, collective responsibility of everyone involved in the development and use of technological and scientific achievements.

CONCLUSIONS

Technologies are increasingly integrated into the life of modern society, which makes it possible to increasingly talk about their mutual development and mutual formation in recent decades. This research reveals the complex ways in which technological progress shapes and changes cultural/ethical contexts, outlining broader opportunities, freedoms, and rights for the individual. The beneficial effects that culture can have on the development of technoscience are demonstrated. Considering these interactions will facilitate further ethical and cultural integration of technologies. To accomplish this, it is necessary to focus on creating social systems that would involve more than just technoscience adhering to certain requirements, restrictions, or recommendations to avoid risks or reduce threats to humans. They should focus on using the full potential of technology to improve human life, the person him or herself, without compromising their cultural, ethical and civic values and ideals. Therefore, ethics in the technological sphere is not an auxiliary component of its development, it is a fundamental principle of any further technoscientific innovations.

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Technomokslas ir pilietinių idealų kaita: etinis ir kultūrinis matmuo

Santrauka

Pastaraisiais dešimtmečiais vis labiau domimasi šiuolaikinės technologinės pažangos poveikiu kintantiems kultūriniams, etiniams ir socialiniams idealams. Technologinio determinizmo šalininkai įsitikinę, kad esminis kultūros pagrindas yra technologijos, nes jos formuoja kultūros prasminį kontekstą ir lemia pilietinius idealus. Vis dėlto kultūrinio konstruktyvizmo atstovai teigia, kad pačias technologijas formuoja kultūrinės vertybės bei praktikos, tad technologijos tampa neatsiejama jų veikimo dalimi. Straipsnyje atskleidžiamas šių požiūrių vienpusiškumas ir parodoma, kad technologijų, kultūros ir socialinių idealų sąveika nėra nei tiesinė, nei vienareikšmiškai nulemta – veikiau tai nuolatinis adaptacijos, transformacijos ir tarpusavio formavimo procesas. Atsižvelgiant į tai, straipsnyje taikyti analizės ir lyginamasis metodai. Prieita prie išvados, kad šis tarpusavio poveikis ir kūrimas pasižymi dviprasmiškumu. Viena vertus, naujausios technologijos sudaro palankias sąlygas kultūros ir etikos atgimimui. Kita vertus, jos kelia rimtą iššūkį pamatiniams mūsų žmogiškumo pagrindams. Todėl teigiama, kad žmogui ir kultūrai išlikti naujos technologinės tikrovės sąlygomis būtinas naujas racionalumas – aiškus suvokimas, kas esame, kur einame ir kodėl. Tai savo ruožtu reikalauja etikos, padedančios nustatyti aiškias moralines normas, reglamentuojančias naujų technologinių bei mokslinių galimybių kūrimą ir jų kontroliuojamą naudojimą, siekiant sumažinti neigiamą poveikį žmonėms, jų vertybėms bei idealams.

Reikšminiai žodžiai: technomokslas, technoetika, technologijos, kultūra, pilietiniai idealai