

THE FOURTH GENERATION OF HUMAN RIGHTS IN THE DIGITAL AGE: THE IMPACT OF THE INTERNET AND MODERN TECHNOLOGIES***

Summary

Contemporary legal theory increasingly recognizes the emergence of a fourth generation of human rights in response to accelerated digitalization and profound technological transformation. This shift reflects fundamental changes in the ways human rights are exercised and protected in the digital environment. The expansion of the internet, artificial intelligence, mass data processing, and digital platforms has generated new forms of social power, but also new forms of individual vulnerability, which the existing normative frameworks do not fully address. This paper examines whether this fourth generation of human rights is theoretically and normatively justified as a distinct category of rights shaped predominantly by modern technologies. The central hypothesis is that digital technologies no longer function solely as means for the exercise of existing rights, but operate as *de facto* regulators of social relations, significantly altering the traditional relationship between the individual, the state, and private actors. The research is based on the normative-dogmatic method, comparative legal

* Senior Research Fellow, Institute of International Politics and Economics, Belgrade. Serbia.

E-mail: jelica@diplomacy.bg.ac.rs

ORCID: <https://orcid.org/0000-0001-8364-7405>

** Full Professor, University of Novi Pazar, Serbia.

E-mail: maida.becirovic@uninp.edu.rs

ORCID: <https://orcid.org/0000-0002-9738-6581>

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analysis of relevant international legal sources, and a critical review of contemporary legal theory on digital rights. Although the concept of a fourth generation of human rights theoretically encompasses a broader range of technologically conditioned rights – including bioethical rights, the right to genetic integrity, and the right to scientific and technological development – the paper focuses primarily on digital rights as its most developed and socially significant segment. The authors analyze the right to personal data protection, the right to internet access, the right to protection against algorithmic discrimination, and the right to cognitive autonomy. They conclude that these rights reflect an objective normative need of contemporary society and require both the systemic adaptation of existing legal frameworks and the development of new protective mechanisms in the digital sphere.

Keywords: Fourth Generation of Human Rights, Digital Rights, Internet Access, Artificial Intelligence, Data Protection, Algorithmic Discrimination, Cognitive Autonomy.

ČETVRTA GENERACIJA LJUDSKIH PRAVA U DIGITALNO DOBA: UTICAJ INTERNETA I MODERNIH TEHNOLOGIJA

Sažetak

Pored klasične podele na tri generacije ljudskih prava, savremena pravna teorija sve intenzivnije razmatra pojavu četvrte generacije ljudskih prava. Ova generacija razvija se kao odgovor na ubrzanu digitalizaciju društva i duboke tehnološke promene koje suštinski menjaju način ostvarivanja i zaštite ljudskih prava. Razvoj interneta, veštačke inteligencije, masovne obrade podataka i digitalnih platformi doveo je do nastanka novih oblika društvene moći, ali i novih vidova ranjivosti pojedinaca, koje postojeći normativni okviri ne obuhvataju u potpunosti. Cilj rada je da se ispita da li se pojava četvrte generacije ljudskih prava može teorijski i normativno opravdati kao posebna kategorija prava koja je nastala pod dominantnim uticajem savremenih tehnologija. Polazna hipoteza rada jeste da digitalne tehnologije više ne deluju isključivo kao sredstva za ostvarivanje postojećih prava, već kao faktički regulator društvenih odnosa, čime se bitno menja klasični odnos između pojedinca, države i nosilaca privatne moći. Istraživanje se zasniva na normativnodogmatskoj metodi, uporednopravnoj

analizi relevantnih evropskih i međunarodnih pravnih izvora, kao i na kritičkoj analizi savremene pravne teorije o digitalnim pravima. Iako se koncept četvrte generacije ljudskih prava teorijski odnosi na širi krug tehnološki uslovljenih prava – uključujući bioetička prava, pravo na genetski integritet i pravo na naučni i tehnološki razvoj – rad se primarno fokusira na digitalna prava kao njihov najrazvijeniji i društveno najrelevantniji segment. Autorke analiziraju pravo na zaštitu podataka o ličnosti, pravo na pristup internetu, pravo na zaštitu od algoritamske diskriminacije i pravo na očuvanje kognitivne autonomije. Zaključak je da ta prava predstavljaju objektivnu normativnu potrebu savremenog društva i da zahtevaju sistemsko prilagođavanje postojećih pravnih okvira, kao i razvoj novih mehanizama zaštite u digitalnom okruženju.

Ključne reči: četvrta generacija ljudskih prava, digitalna prava, internet, veštačka inteligencija, zaštita podataka, algoritamska diskriminacija.

1. Introduction

The rapid digital transformation of society is fundamentally reshaping the framework of human rights. In legal theory, human rights are generally understood as a set of rights and freedoms that belong to all individuals, irrespective of their own will or that of the state (Krivokapić, 2017, p. 10). In addition to this core characteristic, human rights are traditionally described as inalienable and universal, grounded in the idea of human equality, which traces its origins to ancient philosophy. The French Revolution of 1789, with its principles of *liberté, égalité, fraternité*, established the foundations for the modern conception of human rights and their subsequent normative development.

Each historical epoch has given rise to its own generation of human rights, designed to address social instability and promote development and progress. The generational dynamics of human rights reflect the progressive nature of legal evolution and the adaptation of legal institutions to shifting social needs (Popovich, 2025, p. 29).

The catalogue of human rights is not exhaustive; rather, human rights emerge and evolve in response to social needs, serving as instruments to enable society to function optimally. The development of the internet, artificial intelligence, mass data processing, and digital platforms has led to the emergence of new forms of social power and new forms of individual vulnerability that are not fully addressed

by existing normative frameworks. Digital technologies influence the enjoyment of traditional human rights, modifying them and shifting their previously established boundaries.

The emergence of digital technologies has generated not only new rights but also new obligations – obligations that earlier generations of human rights could not have anticipated. The timely and appropriate regulation of human rights, and their alignment with the demands of the modern world, is crucial for the strengthening of legal systems globally and contributes to the harmonious development of society as a whole (Dovhan, 2021, p. 289). In this context, contemporary legal theory increasingly recognizes the emergence of a fourth generation of human rights, which is evolving in response to the accelerated digitalization of society and profound technological change.

This paper examines whether the emergence of the so-called fourth generation of human rights could be theoretically and normatively justified as a distinct category of rights shaped by the dominant influence of digital technologies. The central hypothesis is that modern technologies no longer function solely as means for exercising rights, but have become *de facto* regulators of social relations, thereby significantly altering the traditional relationship between the individual, the state, and technology companies as private power holders. The paper addresses the following research questions:

1. Do digital rights represent a new generation of human rights, or are they merely a contemporary manifestation of existing rights?
2. What normative consequences does digitalization have for traditional categories of human rights?
3. What are the primary theoretical and practical challenges involved in the legal recognition and protection of fourth generation rights?

The research is based on the normative-dogmatic method, a comparative legal analysis of relevant international legal sources, and an examination of contemporary legal theory on digital rights. Although the fourth generation of human rights encompasses a wide range of issues – from biotechnology and genetic engineering to the ethics of artificial intelligence and the right to scientific development – this paper focuses exclusively on digital rights as the most developed and socially relevant segment. Considering their growing importance and impact on individuals' daily lives, special attention is devoted to the right to internet access, the right to protection against algorithmic discrimination, the preservation of cognitive autonomy, and the right to personal data protection. Additionally, the paper explores the potential extension of the concept of human rights to artificial entities and the challenges this possibility presents.

2. The Evolution of Human Rights: From the First to the Fourth Generation

From the perspective of international law, human rights are a dynamic category, subject to change and social innovation. In the early decades following the establishment of the United Nations, the dichotomous classification of human rights into two primary generations became predominant. The first generation includes civil and political rights, which emerged in the 17th and 18th centuries as a result of major social revolutions. This group includes fundamental rights and freedoms such as the right to life, liberty, property, freedom of thought and conscience, as well as the prohibition of torture and inhuman treatment. These rights are enshrined in the provisions of the Universal Declaration of Human Rights and the International Covenant on Civil and Political Rights, and are grounded in the idea of protecting the individual from abuse of state power. In the 19th and early 20th centuries, the second generation of human rights – economic, social and cultural rights – developed. They pertain to human well-being and quality of life, and include the right to work, education, health care, and an adequate standard of living. These rights are normatively affirmed in the Universal Declaration of Human Rights, and elaborated in greater detail in the International Covenant on Economic, Social and Cultural Rights of 1966. Their development expands the classical liberal framework of human rights, emphasizing the social responsibility of the state. In the second half of the 20th century, new issues emerged that extended beyond the individual protection and focused on collective interests. This led to the development of third-generation rights, such as the right to a healthy environment, the right of peoples to self-determination, the right to peace, development, and communication. These collective solidarity rights are rooted in key documents such as the Stockholm Declaration (1972), the Rio Declaration (1992), UN recommendations, and the final acts of international conferences. They focus on global and transnational challenges. Third-generation human rights are predominantly considered to fall within the domain of soft law. One of the few instruments that provides legally binding force for these rights is the African Charter on Human and Peoples' Rights, which enumerates and protects the right to development, the right to peace and security, and the right to a healthy environment.

The division of human rights into three generations is known as the Vašák classification, named after Karel Vašák, who proposed this conceptual framework for the systematization of human rights in the late 1970s. In theory, this categorization is regarded as the most practical, most frequently used, and the most comprehensive. It encompasses several significant dichotomies, such as the distinctions between negative and positive rights, individual and collective rights, and national

and international responsibilities (Domaradzki, Khvostova & Pupovac, 2019, p. 424). However, some theorists criticize this division, arguing that it is excessively Eurocentric and rooted in values derived from European historical experience, with insufficient regard for the cultural and socio-economic specificities of non-European societies (Popovich, 2025, p. 30).

Despite its enduring theoretical influence, Vašak's division now faces new challenges. The question arises as to whether this framework is sufficient for understanding contemporary forms of human rights violations and whether it can adequately address the changes brought about by technological advancement. Scientific and technological development has always shaped the evolution of human rights. At one point in history, the printing press represented one of the greatest technological innovations, significantly influencing the emergence of the concept of freedom of the press. Subsequently, radio and television further contributed to the development of the right to freedom of thought and expression. The next step in technological evolution was the internet, which has permanently transformed the ways in which humanity works, learns, communicates, educates, and informs itself. The COVID-19 pandemic has clearly demonstrated that many rights in contemporary society cannot be exercised without access to the internet (Gordanić, 2022). Following the expansion of the internet, artificial intelligence has emerged as a new technological paradigm that has already had a significant impact on all spheres of social life and is expected to have an even greater influence in the years to come.

These changes create an opportunity to reconsider the traditional classification of human rights and raise the question of whether a fourth generation of rights is necessary to address the challenges of the digital age. These questions provide the foundation for exploring the concept of fourth-generation human rights, which is the focus of the following chapter.

3. The Fourth Generation of Human Rights: A Normative Response to the Digital Age

The contemporary development of digital technologies poses a qualitatively distinct challenge to the human rights system when compared with earlier technological innovations. Whereas the printing press, radio, and television primarily served as more efficient means of exercising already recognized rights, digital technologies have the capacity to directly shape social relations, information flows, and the distribution of power within society. They are no longer merely instruments of communication; rather, they are increasingly becoming structural components of the contemporary social order. In such circumstances, the distinction between the

virtual and physical realities is becoming progressively less pronounced. An individual's digital life is increasingly complex and exposed, fundamentally transforming the manner in which human rights are exercised. Legal categories developed to regulate relations in the physical sphere are proving to be increasingly ineffective in the digital environment. Digital footprints, algorithmic decision-making, mass data processing, surveillance systems, and virtual reality collectively necessitate the development of new forms of legal protection. Accordingly, there is an objective need to adapt the traditional concept of human rights to the realities of digital society. Digitalization affects human rights in two principal ways. On the one hand, it transforms the manner in which existing rights are exercised: privacy acquires new dimensions in the context of digital footprints, political participation is reshaped through the e-democracy mechanisms, and the concept of property is expanding to include digital and virtual property. On the other hand, the digital environment creates new risks – algorithmic discrimination, mass surveillance, unauthorized data processing, and digital exclusion. These phenomena require not only the adaptation of existing norms but also the development of new legal instruments that reflect the specific characteristics of digital technologies and their impact on the realization of human rights (Popovych, 2025, pp. 31-32). It is in these circumstances that the concept of the fourth generation of human rights has emerged. Unlike previous generations of human rights, which emerged in response to political, economic, or global social challenges, the fourth generation is taking shape under conditions in which technology is no longer merely an instrument but an active agent in the regulation of social relations. This fundamentally alters the traditional relationship among the individual, the state, and holders of private power – particularly large technology corporations, which have access to vast quantities of data and increasingly sophisticated algorithmic systems.

The theoretical foundations of fourth-generation human rights have developed gradually over time. Early scholarly discussions primarily emphasized the broad impact of scientific and technological advancement on human existence. Bustamante Donas argues that modern technologies transform the very structure of social relations and the conditions under which rights are exercised, rendering the traditional human rights catalogue increasingly inadequate for addressing emerging forms of risk and opportunities. From this perspective, the fourth generation encompasses a broad range of rights associated with technological development, extending from bioethical rights and the protection of genetic integrity to those arising within the information society (Bustamante Donas, 2001). This approach has enabled the fourth generation to be conceptualized as a dynamic process of adapting human rights to evolving scientific and technological conditions. In his later work, Bustamante Donas increasingly narrowed this concept,

focusing primarily on the digital sphere, and emphasizing that the internet and digital networks have created a new form of social reality in which human rights are exercised in fundamentally different ways. He further develops the concept of digital citizenship, arguing that internet access, digital literacy, free information exchange, and protection against digital exclusion are becoming key elements of a new generation of rights (Bustamante Donas, 2010). In this context, broader reflections on the impact of technology on human rights have evolved into an understanding of digital rights as a central dimension of fourth-generation human rights. Within this broader theoretical framework, fourth-generation human rights encompass a range of emerging interests and rights, including the right to personal data protection, the right to digital identity, the right to cybersecurity, the right to genetic integrity, rights related to bioethics and biomedical technologies, the right to protection against the misuse of artificial intelligence, the right to access information and communication technologies, and the right to equal access to scientific and technological progress. Some authors argue that the unifying principle of this generation may be integration – namely, the integration of human beings into technological lifeworlds that also include entities whose intelligence may surpass that of humans (Birhane, van Dijk & Pasquale, 2024). Whereas the first generation of rights concerned the protection of individual freedoms, the second focused on social status, and the third emphasized collective efforts, the fourth generation, according to this understanding, is concerned with humanity's relationship to new intelligent entities (Risse, 2021, p. 9).

In addition to its technological dimensions, fourth-generation human rights also require a clear ethical foundation. Baroni proposes that, by analogy with earlier generations of rights, new reference values should be formulated to address the challenges of the digital age. Whereas the first generation was characterized by freedom, the second by equality, and the third by solidarity, the fourth generation, in his view, should be grounded in the principles of identity and precaution. He argues that these principles should assume a role equivalent to that of the foundational values of earlier generations of human rights (Baroni, 2024). The principle of identity acquires particular importance because modern technologies – especially artificial intelligence, neurotechnologies and biotechnology – have the capacity to fundamentally affect personal and collective identity, the perception of reality, and the social recognition of man as a subject of law. Conversely, the precautionary principle emerges as a general normative criterion under conditions of profound technological uncertainty, in that it enables the legal order to respond to potential risks before serious and irreversible consequences occur. In this context, identity and precaution constitute the value foundation of fourth-generation human rights (Baroni, 2024).

The COVID-19 pandemic provided a significant impetus for the development of digital rights. Under conditions of global restrictions on movement, nearly all spheres of social life shifted to the online environment. Individuals with access to the internet were able to work, pursue education, obtain information, and participate in social processes, while those without digital access were effectively excluded from numerous aspects of life.

This lived experience gave rise to a more robust theoretical reflection on the normative status of digital rights. Alsharif and Hnit introduce the concept of the *theory of normative equivalence*, according to which a certain right acquires the status of a human right when it becomes functionally necessary for the realization of already recognized fundamental rights. In their view, digital rights satisfy this criterion precisely because, in their absence, classic rights remain merely formal rather than practically attainable. Freedom of expression, without access to digital platforms, loses much of its practical scope, while the right to privacy, without effective protection of digital data, becomes increasingly difficult to exercise in meaningful terms. Accordingly, the authors conclude that digital rights represent a logical and inevitable continuation of the evolution of the human rights system in the digital age (Alsharif & Hnit, 2025). They therefore cannot be understood merely as an extension of existing human rights, but rather as a response to qualitatively new forms of power, surveillance, and control that emerge within the digital environment.

4. Digital Rights as the Core of Fourth-Generation Human Rights

Although fourth-generation human rights encompass a broad range of rights related to the development of modern technologies, digital rights are central to this framework. They constitute the most developed and operational segment of this new generation of rights, as they are directly linked to the everyday exercise of freedoms and rights within the digital environment. Contemporary society increasingly functions through digital platforms and information and communication technologies; accordingly, the protection and realization of digital rights have become central concerns of the modern human rights system.

Digital rights may be defined as a set of rights that enable individuals to access, use and actively participate in digital spaces. These rights encompass access to digital resources, the use of information technologies, as well as the right to create, exchange, and disseminate digital content. In this sense, digital rights do not constitute a mere technical upgrade of existing rights but rather a necessary precondition for their effective realization under contemporary social conditions. In a world in

which communication, education, work, and civic participation increasingly take place within digital environments, the exercise of human rights is scarcely conceivable without an appropriate level of digital rights (Bieliakov *et al.*, 2023). The group of digital rights includes the right to personal data protection, the right to digital identity, the right to cybersecurity, the right to protection against algorithmic discrimination, and the right to digital privacy. These rights address new forms of risk arising from mass data processing, algorithmic decision-making, and expanding surveillance within digital environments. In this context, digital rights become a key mechanism for safeguarding human dignity under conditions of continuous digitalization of social relations (Popovich, 2025).

Digital rights may, in theoretical terms, be systematized into several basic groups. First, a distinction can be made between rights of access to digital infrastructure, including access to the internet and information networks as key resources of contemporary society. The second group are rights relating to the use of digital technologies and platforms, including the use of software, digital tools, and communication systems. Finally, a distinct group comprises rights to create, exchange, and distribute digital content, including freedom of digital expression, access to information, and active participation in online communication. This typology represents one possible approach to the classification of digital rights and contributes to their more precise delineation in relation to traditional civil and political rights, while simultaneously highlighting their functional interdependence (Bieliakov *et al.*, 2023).¹

It is particularly important to emphasize the universal character of digital rights. They cannot be viewed exclusively as rights tied to specific states or legal systems, but rather as rights that arise from the general needs of a globally networked contemporary society. Digital rights arise as a direct consequence of technological transformation and the transition to the digital era; accordingly, they are justifiably viewed as a new generation of human rights adapted to the realities of the information society (Bieliakov *et al.*, 2023). This understanding is consistent with earlier theoretical considerations, according to which the development of modern technologies fundamentally alters the conditions under which human rights are exercised and necessitates their continuous adaptation to evolving social circumstances (Bustamante Donas, 2001; 2010).

In addition to their protective function, digital rights also have a strong emancipatory dimension. They enable individuals to participate in the digital economy,

¹ In legal theory, there is no universally accepted classification of digital rights; rather, they are conceptualized differently depending on the underlying criteria, including their understanding as a set of legal entitlements, an evaluative framework, or a form of collective action, which indicates the pluralism of approaches in contemporary literature (Roberts, 2025, p. 9).

public communication, education, and broader social processes. Accordingly, digital rights are increasingly seen as a functionally necessary condition for the exercise of traditional human rights. It is argued that, without digital rights, traditional rights such as freedom of expression, the right to information, and the right to privacy remain formally recognized but not fully achievable in practice. Digital rights therefore do not constitute an arbitrary expansion of the human rights catalogue but rather its logical and necessary development in response to the technological transformations of contemporary society (Alsharif & Hnit, 2025).

Understanding digital rights as the core of fourth-generation human rights enables a clearer appreciation of their practical and normative significance. They cannot be reduced to a merely technical category; rather, they constitute a set of concrete and operationalized rights, the realization of which is a prerequisite for the individual's full participation in society.

Bearing in mind that digital rights constitute one of the most important categories of fourth-generation human rights, the authors proceed to examine several key digital rights. In particular, attention is devoted to the right to personal data protection, the right to internet access, the right to protection against algorithmic discrimination, and the importance of cognitive autonomy. These rights have become integrated in everyday life, and their effective regulation and protection are essential not only for the dignity of the human person but also for the realization of other human rights. Digital rights are closely interconnected with first- and second-generation human rights. Inadequate regulation of digital rights consequently undermines the effective enjoyment of first- and second-generation human rights. In this sense, digital rights function as a bridge between the traditional human rights system and emerging forms of social reality, thereby confirming that the fourth generation of human rights is not an abstract theoretical construct but a normative response to the profound transformations brought about by the digital age.

4.1. The Right to Personal Data Protection

One of the central rights associated with fourth-generation human rights is the right to personal data protection. Although the protection of privacy has traditionally been classified as a civil and political right, mass data processing, automated decision-making, and the profiling of individuals have led to a situation in which classical concepts of privacy no longer afford sufficient protection. In the 21st century, the protection of privacy has become an exceptionally complex task. The processing of personal data in digital environments enables deep intrusions into individuals' personal, professional and social lives, often without their meaningful control or full understanding of the consequences of such processing. At

the same time, organizations invest substantial resources in securing their data to prevent unauthorized access by other entities. Paradoxically, however, the internet and modern technologies also make it comparatively easy to obtain personal data belonging to others, far more easily than in earlier times when such advanced technologies did not exist.

Many instances of personal data theft occur with relative ease as a result of insufficiently strong user passwords. In addition, the use of mobile devices does not necessarily guarantee the protection of data privacy. Numerous applications installed on mobile phones request access to location data, email addresses, dates of birth, and other personal information. If such data fall into the wrong hands, their misuse can cause significant harm for users. One of the crimes increasingly associated with the misuse of personal data is identity theft (Nuredin, 2023, p. 12). All data available on the internet, social networks, and digital applications constitute a form of economic value. Depending on the actors who utilize such data, the consequences may vary significantly.

The society of the future will be compelled to adopt a different mode of thinking, which will increase the complexity of criminal investigations and crime prevention while at the same time expanding regulatory challenges (Petrović, 2022, p. 483). Therefore, contemporary legal theory increasingly emphasizes the need to recognize data protection as a distinct and autonomous right that extends beyond the traditional framework of the right to privacy. In a digital society, the protection of personal data is not merely a matter of privacy but also implicates questions concerning the distribution of power, individual autonomy, and the preservation of human dignity.

4.2. The Right to Internet Access

One of the strongest candidates for inclusion within fourth-generation human rights is the right to internet access. As noted earlier, the internet is a technology that has gradually transformed not only everyday life but also the very concept of human rights. Regarded as a luxury available to a limited number of users in the 1990s, internet access has now become a routine feature of life for a substantial proportion of the world's population. According to data from October 2025, approximately 6 billion people, or 73.2% of humanity, use the internet. In the Netherlands, Norway, and Saudi Arabia, 99% of the population uses the internet (Statista, 2025).

Several states have recognized certain aspects of the right to internet access as a fundamental human right through various mechanisms. In 2000, the Estonian Parliament adopted the *Telecommunications Act*, which defines internet access as a human right essential to life in the 21st century. In Greece, a constitutional

amendment in 2001 recognized internet access as a human right. In July 2010, Costa Rica declared internet access a human right, while Finland established broadband access as a legal right by amending their *Communications Market Act*. Italy likewise addressed the digital rights through the adoption of the *Declaration of Internet Rights* in 2015, a non-binding instrument that recognizes internet access as a fundamental right of every person and as a condition for individual and social development (Gordanić, 2022, pp. 173-174). These examples indicate that states are increasingly adapting their legal frameworks to the realities of digital society by recognizing internet access as a key precondition for individual and social development.

The COVID-19 pandemic has further reinforced the importance of internet access. During the pandemic, nearly all spheres of life shifted to digital environments. Individuals with internet access were able to work, pursue education, obtain information, and exercise their human rights. This experience has clearly demonstrated that, under contemporary conditions, the absence of internet access may effectively impede the realization of a wide range of fundamental human rights.

Scholars argue that, even under ordinary circumstances, the full enjoyment of many human rights is not possible without adequate access to the internet. They emphasize that rights such as freedom of speech and expression, the right to privacy, the right to education, the right to health are closely linked to the internet and to conditions of free and equal internet access (Vijayan Pillai *et al.*, 2025, p. 239). The absence of internet access may therefore lead to the de facto exclusion of an individual from society. Those without access are deprived of meaningful opportunities to obtain information, and participate fully in the labor market, education, healthcare, and broader economic, political, and cultural life. In this sense, internet access is increasingly viewed not merely as a technical or economic issue, but as a matter of human rights and social equality. This phenomenon is described in the literature as the digital divide, a concept used to denote the gap between those who have access to the internet and those who are excluded from it (Van Dijk, 2020, p. 5). Individuals without internet access are consequently in a disadvantaged position in social, economic, informational, and educational terms relative to those who do use the internet. This inequality is often compared to the concept of literacy, highlighting the distinction between traditional literacy and digital literacy.

4.3. The Right to Protection Against Algorithmic Discrimination

The development of artificial intelligence and algorithmic decision-making systems represents one of the key challenges of contemporary human rights law. Algorithms are now widely used in the areas such as employment, credit allocation,

education, healthcare, criminal justice, and social policy, and the decisions they generate have a direct impact on the rights of individuals. In this context, increasing attention has been devoted to the right to protection against algorithmic discrimination as an integral component of fourth-generation human rights. Algorithmic discrimination occurs when automated decision-making systems produce or deepen inequalities among individuals or social groups, whether directly or indirectly. In principle, algorithms are often perceived as objective and neutral tools. However, numerous factors call their objectivity and neutrality into question. For example, the data used to train artificial intelligence systems may create a basis for algorithmic discrimination. The data on which artificial intelligence systems are trained may themselves be based on discrimination, in which case algorithms are likely to reproduce forms of discrimination that already existed. Consequently, algorithmic systems may systematically treat certain groups less favorably on the basis of gender, race, ethnicity, age, disability, socioeconomic status, or other personal characteristics (Prlja, Gasmi & Korać, 2023, p. 63). This phenomenon is particularly concerning because it may have long-term adverse consequences for affected individuals and perpetuate a self-reinforcing cycle of discrimination.

The most significant challenge posed by algorithmic discrimination lies in its often invisible and difficult-to-prove nature. Unlike traditional forms of discrimination, where it is generally possible to identify the human decision-maker and their intention, algorithmic decision-making operates through processes that are frequently complex and non-transparent. Individuals affected by such decisions are often unaware that they have been subjected to discriminatory treatment, nor do they possess effective means of challenging the basis, criteria, or underlying logic of the algorithmic decision-making. This calls into question fundamental principles of the rule of law, legal certainty, and procedural fairness.

Existing anti-discrimination frameworks are not fully adapted to these emerging forms of risk. Although the principle of non-discrimination formally applies to the digital environment, in practice it is often difficult to establish a causal link between algorithmic data processing and an adverse outcome affecting a particular individual. An additional challenge lies in the fact that holders of algorithmic power are large technology corporations, which are not subject to the same obligations of transparency and accountability as state authorities. In this context, the right to protection against algorithmic discrimination implies the development of new normative guarantees, including the right to an explanation of automated decisions, the right to human oversight of algorithmic processes, the obligation to assess the impact of algorithms on human rights, and strengthened institutional supervision over their implementation. These protections are intended to ensure that technological progress does not undermine the fundamental principle of equality.

The recognition of protection against algorithmic discrimination as part of fourth-generation human rights reflects the need to adapt human rights law to the realities of the digital society in order to prevent discrimination and promote greater transparency in algorithmic decision-making. This means that human rights should not be understood as a static category, but rather as a dynamic normative framework capable of responding to new forms of power and vulnerability in contemporary society.

4.4. The Right to Preserve Cognitive Autonomy

The fourth industrial revolution is not only transforming the ways of working and communicating, but also encroaching on the inner sphere of the human personality. Digital systems based on mass data processing, behavioral profiling, and algorithmic personalization make it possible to predict and direct individual behavior, thereby progressively blurring the distinction between information and manipulation. Under such circumstances, freedom no longer depends solely on formal legal guarantees, but also on the structure of the digital environment within which opinions are formed and decisions are made. Accordingly, contemporary human rights theory suggests that the traditional catalogue of rights no longer provides complete protection for the individual inner freedom. A new form of vulnerability emerges from the fact that control is no longer exercised primarily through open coercion, but rather through the structuring of informational environments in which individual consciousness is shaped. Algorithms do not directly restrict freedom; rather, they determine which information becomes visible, relevant, and emotionally amplified, thereby fundamentally shaping cognitive processes and influencing the individual decision-making. Through personalized recommendations and the selective visibility of content, digital platforms create specific “information bubbles” that may narrow individuals’ horizons of understanding and distort their perception of reality. Accordingly, freedom of expression in the digital age does not entail only the ability to speak, but also the right to an informational environment in which opinions may be formed autonomously and without systematic algorithmic guidance. It is precisely for this reason that the fourth generation of human rights is increasingly associated with the protection of the mental and moral integrity of the individual (Baroni, 2024).

This understanding of freedom is closely linked to the theory of epistemic rights, according to which freedom of thought necessarily implies the right to undisturbed conditions for its formation. If informational structures are non-transparent or systematically manipulated, individuals may formally retain the right to speak, yet in substantive terms lose autonomy of thought (Risse, 2021). Modern

technologies, particularly those based on predictive models and behavioral analysis, enable the shaping of individual decisions in ways that are often invisible and difficult to detect. This fundamentally alters the nature of freedom: it is no longer threatened solely by external restrictions, but also by the internal conditions under which it is exercised.

A distinctive dimension of cognitive autonomy is creativity. Human creativity is not merely the technical production of new combinations, but rather an expression of identity, value orientation, and inner freedom. Modern artificial intelligence systems are increasingly assuming functions related to content generation, idea recommendation, and creative processes modelling, thereby raising important question concerning the preservation of authentic human creativity. Suppressing the creative process in favor of algorithmic optimization risks reducing human beings to predictable objects of digital processing, which, in the long term, may impoverish the intellectual and cultural diversity of society.

Philosophical reflections by contemporary authors further emphasize that digital technologies are transforming the very concept of free will. If individual choices are pre-structured through invisible personalization mechanisms, the question arises as to whether such choices are truly free decisions or behavior directed by the interests of digital platforms. Freedom in the digital age therefore requires new normative safeguards, including algorithmic transparency, the right to an explanation of automated decisions, and the right to protection against manipulative design features in digital systems (Baroni, 2024).

The normative importance of protecting the inner sphere becomes even more pronounced in light of contemporary debates about the extension of rights to artificial entities. If the language of human rights is applied to technical systems, there is a risk of weakening their primary function – protecting human beings against the concentration of power (Gunkel, 2023; Gellers, 2021). Rather than subjectifying technology, the key task of fourth-generation human rights must be to preserve human autonomy in relation to technological systems. The right to preserve cognitive autonomy is therefore not a luxurious new right, but a response to a profound transformation in the ways freedom is threatened in digital society. In modern technological circumstances, the primary line of protection of human dignity no longer runs solely through the body, property, or political rights, but increasingly through the capacity of individuals to think independently. A society that permits the systematic shaping of human consciousness through non-transparent technological mechanisms may remain formally free, but essentially becomes susceptible to control. Accordingly, the right to preserve cognitive autonomy should not be understood as a theoretical novelty, but as a fundamental normative premise for safeguarding human dignity in the digital age.

5. “Robot Rights” in the Context of Fourth-Generation Human Rights: The Danger of Normative Extension of the Concept of Human Rights to Artificial Entities

The development of artificial intelligence and autonomous systems has increasingly raised questions concerning their legal status, often articulated through the emerging discourse of the so-called “robot rights.” In contemporary discussions, this concept is often presented as a logical continuation of the historical expansion of the category of legal subjects – from slaves and women to national minorities and other vulnerable social groups. However, such an analogy conceals a fundamental normative distinction between social struggles for the recognition of human dignity and contemporary demands to subjectify technical systems. It is precisely at this point that a central theoretical tension emerges: whether this development represents a further stage in the emancipation of rights or, alternatively, a conceptual transformation that may ultimately undermine the very idea of human rights.

One line of criticism proceeds from the ontological and normative assumptions of the concept of law. Within the contemporary legal order, rights are intrinsically linked to beings that possess the capacity to experience harm, suffering, social exclusion, and violation of dignity. In other words, rights constitute a normative response to human vulnerability within social relations of power. Artificial systems, regardless of their degree of technical complexity or operational autonomy, lack experiential subjectivity, cannot suffer violations of interests in a normative sense, and do not possess an existential perspective that could serve as the object of legal protection. They remain artifacts – tools designed and controlled within the framework of human purposes and institutional structures (Birhane, van Dijk & Pasquale, 2024).

This distinction is not only metaphysical, but also carries direct ethical consequences. Modern artificial intelligence systems already participate in the production of concrete social harms by enabling mass surveillance, systematic data exploitation, automated profiling, and the reproduction of structural forms of discrimination. In this context, a normative shift in focus from the protection of human beings to the potential protection of machines risks producing an inversion of the established value order. Rather than requiring law to respond to new forms of human vulnerability in the digital environment, attention is redirected toward entities that themselves function as instruments of these very risks (Birhane, van Dijk & Pasquale, 2024).

Such a value shift also raises a fundamental legal problem: the question of liability. If autonomous systems were recognized as subjects of rights, the possibility would arise for their gradual transformation into subjects of obligations. This

could formally shift responsibility for the harmful consequences of algorithmic decision-making from real actors – programmers, corporations, and users – to the technical systems themselves. The result would not be a strengthening of legal protection, but rather the creation of a new zone of normative uncertainty in which actual centers of power would remain shielded behind the “digital personality” of the robot or algorithm (Birhane, van Dijk & Pasquale, 2024). In contemporary legal and philosophical literature, some authors, such as Gunkel, seek to justify the possibility of recognizing rights for robots on the basis of a more flexible understanding of legal subjectivity. In this context, it is argued that legal entities, ships, and states are also legal constructs, and that the legal order is not necessarily confined exclusively to biological subjects (Gunkel, 2018; Gunkel, 2023).

Starting from this approach, the strictly anthropocentric understanding of law is called into question, and it is suggested that the normative system may adapt to new technological forms of agency. A further development of this argument rests on the view that advances in artificial intelligence and autonomous systems raise the possibility of recognizing certain rights for robots, particularly in light of their increasing autonomy, decision-making capacity, and ability to interact with humans. In this context, it is argued that modern humanoid and autonomous systems no longer function exclusively as passive instruments, but rather as complex agents capable of performing tasks without direct human control, thereby prompting reconsideration of their legal status. Nevertheless, even authors who support this perspective acknowledge that any eventual recognition of rights for robots would require a clear definition of their legal status, the scope of such rights, and their relationship to human rights, in order to avoid legal uncertainty and preserve the primary function of the legal system – the protection of human interests (Daksh & Singh, 2024).

Within a broader theoretical framework, similar considerations are also found in the theory of “non-human rights,” which advocates the extension of legal protection to animals, natural entities, and even artificial systems, on the premise that the circle of the moral community has historically expanded over time (Gellers, 2021). Although this approach possesses a coherent internal logic, it simultaneously recognizes that any such extension necessarily reshapes the hierarchy of normative priorities. In a world in which a substantial portion of humanity still lacks effective protection of fundamental rights, the extension of rights to technical systems risks relativizing human dignity and weakening of the very idea of the universality of human rights.

Empirical research further confirms that the concept of robot rights lacks a stable social basis. Analyses of public attitudes reveal a high degree of inconsistency and confusion: respondents frequently conflate elements of human rights, corporate privileges, and the moral protection of animals, often without a clear

understanding of the normative consequences that such an extension would entail. These findings indicate that robot rights do not yet constitute a concept that has matured normatively, but rather a notion whose content is being constructed *ad hoc* under the influence of technological discourse and media narratives (Mays, Cummings & Katz, 2024). The same research further demonstrates that such debates are conducted almost exclusively within the context of technologically advanced societies, while global inequalities, labor exploitation within technological production chains, and the asymmetric distribution of digital power remain systematically ignored. (Mays, Cummings & Katz, 2024).

On the whole, the idea of robot rights does not represent a neutral technical innovation within the legal order, but rather a profound transformation the understanding of legal subjectivity, responsibility, and the very function of human rights. In the context of fourth-generation human rights – whose central purpose is precisely to strengthen the protection of human beings against new forms of digital domination – such a normative expansion appears counterproductive.

6. Challenges and Criticisms of Fourth-Generation Human Rights

The emergence of the fourth generation of human rights, together with the growing question of its legal recognition – particularly in relation to digital rights – has increasingly become the subject of theoretical inquiry. Theorists argue that the recognition of new human rights and the expansion of the existing catalogue of rights constitute an important trend in the ongoing transforming the legal status of the individual, driven by the demands and evolving needs of contemporary society (Barabash *et al.*, 2024, p. 28). The human rights catalogue is not final. Just as third-generation human rights emerged, contemporary developments likewise point toward the necessity for fourth-generation human rights. However, it is not sufficient merely to recognize the changes brought about by technological and digital transformation as giving rise to new human rights; it is equally important to provide effective mechanisms for their implementation. Legislators must therefore decide which digital and technological developments society is prepared to accept as necessary for the normal existence and flourishing of humanity, and which should be regarded as potentially harmful because of their capacity to produce adverse consequences for future generations. Theorists warn of several shortcomings inherent in the concept of fourth-generation human rights.

A central question that arises is whether rights associated with the digital age truly constitute a new generation of human rights or should instead be understood as modern manifestations of existing rights, adapted to technological

circumstances. One strand of legal theory argues that the recognition of a fourth generation of human rights risks producing a fragmentation of rights. The proliferation of newly recognized rights may dilute both the legitimacy and the enforceability of the existing human rights framework (Alsharif & Hnit, 2025). According to this view, human rights lose normative force if the rights catalogue is continually expanded without clear criteria for distinguishing genuinely new rights from existing ones. From a traditional perspective, rights such as personal data protection, freedom of expression in the digital environment, and protection against discrimination can be subsumed under the framework of civil and political rights. Accordingly, the fourth generation of human rights does not represent an entirely new category of rights, but rather a new dimension of traditional rights within a new context. A counterargument to these conclusions holds that digital rights do not constitute an arbitrary expansion of the human rights catalogue, but rather a normative adaptation to new social circumstances. Human rights have historically evolved in response to social change, and the emergence of digital rights may therefore be understood as a natural continuation of that process. Rather than weakening the existing human rights system, digital rights may in fact reinforce it by enabling its effective functioning within a new technological context. In this sense, the recognition of digital rights does not threaten traditional rights, but instead operates as a mechanism for their preservation and modernization (Alsharif & Hnit, 2025).

On the other hand, recognizing certain digital phenomena as human rights may also create obligations for states that they are often unable to fulfill. For example, recognizing the right to internet access as a human right would imply that states are required to ensure universal internet access for all households, which may create technical and financial constraints. For low-income countries in Africa and Asia, this would be practically difficult, if not unrealistic. At the same time, the internet substantially facilitates the exercise of rights such as freedom of expression and freedom of association, and as such it has the potential to be a “time bomb.” In non-democratic regimes, it may serve as a means of coordinating and calling for collective action. Even in democratic societies, it can more easily bring attention to neglected issues and expose state failures and systemic dysfunctions. States are aware of this “time bomb” potential and therefore often demonstrate limited political will to recognize internet access as a human right. Instead, they employ a range of restrictive mechanisms, including content-blocking technologies, surveillance and identification of activists and critics, the criminalization of legitimate forms of expression, and the adoption of restrictive legal frameworks (Jelisavac Trošić & Gordanić, 2023, p. 388). Similarly, states frequently show insufficient interest in more advanced regulation of personal data protection, protection against algorithmic discrimination, or the right to preserve cognitive autonomy.

Attention may also be drawn to the currently underdeveloped normative foundation of fourth-generation rights. The first two generations of human rights acquired a firm normative foundation through binding international treaties, while the third generation has largely remained within the domain of soft law, with only limited instances of legally binding obligations. By contrast, the rights that theorists classify as fourth-generation rights still lack uniform recognition at the international level. In this context, contemporary doctrine advocates a more cautious approach to the recognition of new human rights, according to which such rights should first be affirmed at the national level, through legislative development and judicial practice, and only subsequently attain broader international recognition. This so-called “bottom-up” approach emphasizes the need for gradual normative development and verification of the sustainability of new rights in specific legal systems, before their incorporation into the international legal framework (Shany, 2024). In this regard, reference should also be made to earlier doctrinal positions emphasizing the need for a form of “quality control” in the process of recognizing new human rights, in order to avoid their inflation and preserve the coherence of the existing human rights system (Alston, 1984). The absence of universal consensus and binding legal instruments further calls into question the legal precision and practical applicability of this concept, particularly in a global context marked by significant disparities in technological development and in the institutional capacities of states. It should also be recognized that the international community continues to confront numerous issues of greater immediate urgency, and that excessive emphasis on the regulation of digital technologies and the recognition of fourth-generation human rights may risk diverting attention from pressing problems of more immediate importance.

Traditionally, the state has been the primary actor in international law. However, digital technologies have introduced a significant transformation in the constellation of relevant actors on the international stage. In particular, contemporary scholarship emphasizes that power in the digital environment is increasingly shifting from states to private actors, primarily large technology corporations, whose influence over freedom of expression, access to information, and the social visibility of individuals often exceeds the capabilities of traditional public oversight mechanisms. The largest technology corporations now exert a degree of influence on the international stage that, in some respects, surpasses that of many states. As such, they constitute a unique institutional challenge to the international human rights order. The effective enjoyment of digital rights increasingly depends more on the power relationship between individual users and large technology corporations that provide digital services and products than on the relationship between individuals and the states in which they live or work (Shany, 2025).

The operations of major technology corporations give rise to a number of fundamental challenges, including concerns relating to privacy, surveillance, online security, and data ownership. Considerable attention has also been directed toward the impact of online content moderation on democratic freedoms. Given the profound influence that technology corporations exercise on human rights, their future actions have the potential to cause serious harm to the democratic functioning of society (Frost, 2023, pp. 631-633).

With the rise of technology corporations, the international legal order established in the aftermath of the Peace of Westphalia is undergoing a profound transformation. The status of the state as the primary subject of international law has been increasingly challenged, while the power and influence of technology corporations continue to expand. As a result, the individual – as the ultimate beneficiary of human rights – is no longer situated exclusively within a relationship with the state, but also within a complex relationship with private holders of technological power. This development requires a reexamination of traditional theoretical assumptions underlying human rights, as well as the foundational postulates of international law. In light of these considerations, the authors devote special attention to the question of states' positive obligations in protecting digital rights. They emphasize that states can no longer remain passive observers of digital transformation, but instead have a duty to provide a legal and institutional framework that enables the safe and equal participation of citizens in the digital space. This includes protection against digital discrimination, the regulation of algorithmic decision-making, personal data protection, and guaranteeing universal internet access. According to the authors, effective protection of human rights in the 21st century entails an active role of the state in regulating the digital environment, since it is increasingly within the digital environment that fundamental rights and freedoms are today exercised (Alsharif & Hnit, 2025).

Despite these criticisms, the digital age undoubtedly exerts a profound influence on the field of human rights, as well as on the relationships among the principal international law actors and international relations. These transformations are already underway and cannot be ignored. Rather than insisting rigidly on the formal recognition of a new generation of rights, the fourth generation of human rights may be understood as an emerging normative framework that indicates the need to adapt existing legal mechanisms to the conditions of the digital age. Potential fourth-generation rights are not “too new”; rather, the central problem is that existing human rights protection mechanisms were not designed for the power relations of the digital environment, in which the state is no longer the sole – and not always the dominant – holder of power and control.

7. Conclusion

The analysis presented in this paper demonstrates that the accelerated digitalization of society and the expansion of modern technologies are fundamentally transforming the traditional framework of human rights. The internet, artificial intelligence, algorithmic decision-making, and mass data processing are no longer merely technical means for the exercise of existing rights; rather, they are becoming key factors shaping social relations, the distribution of power, and the actual capacity of individuals to enjoy these rights. In this sense, the initial hypothesis – that modern technologies act as *de facto* regulators of social relations and therefore require a normative reexamination of the classical concept of human rights – has been confirmed through theoretical and comparative legal analysis.

The development of the digital environment has given rise to new forms of vulnerability that are not fully addressed by existing generations of human rights. The right to personal data protection, the right to internet access, protection against algorithmic discrimination, and the preservation of cognitive autonomy represent rights that, in terms of their content, significance, and modes of exercise, extend beyond the traditional framework of civil and political rights. Although some of these rights may be interpreted as contemporary manifestations of previously recognized rights, their specificity lies in the fact that they are conditioned by an entirely new technological context and by reconfigured power relations among individuals, the state, and private technological actors.

The paper has demonstrated that the concept of a fourth generation of human rights should not be understood merely as an expansion of the catalogue of rights, but rather as an attempt to provide a theoretical and normative response to the qualitatively new challenges of the digital age. At the same time, it has highlighted well-founded criticisms of this concept, ranging from the risk of rights inflation and the fragmentation of the existing human rights system to practical difficulties of their implementation and the limited development of its international legal foundation. It is further emphasized that the recognition of digital rights as human rights necessarily entails the creation of effective mechanisms for their protection, as well as a clear definition of the responsibilities of large technological corporations, which in the contemporary world are increasingly becoming key holders of digital power.

In this context, discussions on the so-called “robot rights” highlight the limits of the conceptual expansion of human rights. Extending the notion of rights to artificial entities carries the risk of relativizing the very essence of human rights and shirking attention away from the fundamental objective of the fourth generation – protecting human beings from new forms of digital domination. The future development of law in the digital age must therefore remain firmly oriented toward

strengthening of human dignity, autonomy, and freedom, rather than toward the normative subjectification of technical systems.

It may be concluded that fourth-generation human rights still represent a normative framework in the making, while simultaneously reflecting an objective need of contemporary society. Its final affirmation will depend on the capacity of legal systems to recognize new forms of human rights violations and to develop adequate institutional mechanisms of protection. Digital rights should not be understood as a transient trend, but rather as an expression of a profound societal transformation in which the boundary between the physical and digital spheres is increasingly blurred. Accordingly, adapting human rights to the realities of the digital age is not merely a theoretical challenge, but a necessary condition for preserving their essential function – the protection of human dignity in all circumstances of modern life.

In relation to the research questions posed, it can be concluded that digital rights represent both a new stage in the development of human rights and a transformation of their content within a contemporary technological context, thereby transcending the traditional division into generations. Digitalization produces significant normative consequences, reshaping the manner in which existing rights are exercised while simultaneously creating the need for new legal institutions and protection mechanisms. At the same time, the key challenges associated with their legal recognition and protection include an insufficient international legal foundation, the risk of rights inflation, and the increasingly complex relations between the state and private holders of digital power.

References

- Alsharif, M. & Hnit, H. 2025. Digital human rights: Legal debates and emerging foundations under the international bill of human rights. *Social Sciences & Humanities Open*, 12, pp. 1-10. <https://doi.org/10.1016/j.ssaho.2025.102160>
- Alston, P. 1984. Conjuring Up New Human Rights: A Proposal for Quality Control. *American Journal of International Law*, 78(3), pp. 607-621. <https://doi.org/10.2307/2202599>
- Barabash, O., Dobkina, K. R., Klyuyeva, J. M. & Martiuk, A. S. 2024. The fourth generation of human rights: European standards and national experience. *Boletín Mexicano de Derecho Comparado*, 66(167), pp. 3-34. <https://doi.org/10.22201/ijj.24484873e.2023.167.18560>
- Baroni, M. J. L. 2024. Fourth Generation Human Rights in View of the Fourth Industrial Revolution. *Philosophies*, 9(2), 39, pp. 1-15. <https://doi.org/10.3390/philosophies9020039>
- Bieliakov, K. I., Tykhomyrov, O. O., Radovetska, L. V. & Kostenko, O. 2023. Digital Rights in the Human Rights System. *InterEULawEast journal for the international and*

- European law economics and market integrations*, 10(1), pp. 183-207. <https://doi.org/10.22598/iele.2023.10.1.10>
- Birhane, A., van Dijk, J. & Pasquale, F. 2024. Debunking robot rights metaphysically, ethically, and legally. *First Monday*, 29(4). <https://doi.org/10.5210/fm.v29i4.13628>
- Bustamante Donas, J. 2001. Hacia la cuarta generación de derechos humanos: repensando la condición humana en la sociedad tecnológica. *Revista Iberoamericana de Ciencia, Tecnología, Sociedad e Innovación* (1), pp. 1-15.
- Bustamante Donas, J. 2001. 2010. La cuarta generación de derechos humanos en las redes digitalessegundos pensamientos. *Telos: Cuadernos de comunicación e innovación*, 85, pp. 80-89.
- Daksh, A. & Singh, B. 2024. What Makes Robots Deserving of Rights? Some Notable Considerations. In: Singh, N. (ed.), *Digital Lawscape: Emerging Legal Challenges in the 21st Century*. New Delhi: Satyam Law International, pp. 157-173.
- Domaradzki, S., Khvostova, M. & Pupovac, D. 2019. Karel Vasak's Generations of Rights and the Contemporary Human Rights Discourse. *Human Rights Review*, 20(4), pp. 423-443. <https://doi.org/10.1007/s12142-019-00565-x>
- Dovhan, B. 2021. The Fourth Generation of Human Rights: General Theoretical Aspect. In: *Book of Abstracts of the Fifth International Scientific Conference for Bachelor, Master, Graduate Students and Young Researchers, Topical Issues of Humanities, Technical, and Natural Sciences*. Vinnytsia: LLC Nilan-Ltd, pp. 289-293.
- Frost, N. 2023. Going 'Global' on Big Tech Regulation. *NYU Journal of International Law and Politics* (56), pp. 623-679. <https://dx.doi.org/10.2139/ssrn.4441441>
- Gellers, J. C. 2021. *Rights for robots: Artificial intelligence, animal and environmental law*. London; New York: Routledge. <https://doi.org/10.4324/9780429288159>
- Gordanić, J. 2022. The Impact of the Covid-19 Pandemic on the right to access the internet as a human right. In: Milinković, I. & Vlaški, B. (eds.), *Challenges and Perspectives of the Development of Legal Systems in the XXI Century*. Banja Luka: Faculty of Law, University of Banja Luka, pp. 169-184. DOI 10.7251/NSTT12201169G
- Gunkel, D. J. 2018. *Person, thing, robot: A moral and legal ontology for the 21st century*. Cambridge, Massachusetts: MIT Press.
- Gunkel, D. J. 2023. The rights of robots. In: Alvarez Nakagawa, A. & Douzinas, C. (eds.), *Non-human rights: Critical perspectives*. Cheltenham: Edward Elgar Publishing, pp. 66-87. <https://doi.org/10.4337/9781802208528.00009>
- Jelisavac Trošić, S. & Gordanić, J. 2023. Priznanje prava na pristup internetu kao samostalnog ljudskog prava – potencijali i prepreke. *Strani pravni život*, 67(3), pp. 375-394. https://doi.org/10.56461/SPZ_23301KJ
- Krivokapić, B. 2017. Pojam ljudskih prava. *Strani pravni život* (1), pp. 9-20. <https://doi.org/10.56461/spz17101K>
- Mays, K. K., Cummings, M. L. & Katz, B. 2024. Robot rights and responsibilities scale: Measuring public attitudes toward moral and legal status of robots. *International Journal of Human-Computer Interaction*, 41(5), pp. 3413-3430. <https://doi.org/10.1080/10447318.2024.2338332>

- Nuredin, A. 2023. Fourth-Generation Human Rights and the violation of the Concept of Privacy. *Vision International Refereed Scientific Journal*, 8(1), pp. 9-23. <https://doi.org/10.55843/ivisum2381009n>
- Petrović, D. 2022. Privacy and Protection of Personal Data – Criminal Law Aspect. *Strani pravni život*, 66(4), pp. 469-489. doi: https://doi.org/10.56461/SPZ_22407KJ
- Popovych, T. 2025. The Fourth Generation of Human Rights: Meaningful Content in the Digital Society. *Конституційно-правові академічні студії* (1), pp. 28-35. <https://doi.org/10.24144/2663-5399.2025.1.04>
- Prlja, D., Gasmi, G. & Korać, V. 2023. Algoritamska diskriminacija. In: *Uporednopravni izazovi u savremenom pravu – In memoriam dr Stefan Andonović*. Beograd: Institut za uporedno pravo; Pravni fakultet Univerziteta u Kragujevcu, pp. 59-73. https://doi.org/10.56461/ZR_23.SA.UPISP_DPGGVK
- Risse, M. 2021. The Fourth Generation of Human Rights: Epistemic Rights in Digital Lifeworlds. *Research Working Paper* 21-027. Harvard Kennedy School, pp. 1-25. <https://doi.org/10.2139/ssrn.3973946>
- Roberts, T. 2025. *Understanding Digital Rights: Definitions, Conceptions and Myths*. Brighton: Institute of Development Studies. <https://doi.org/10.19088/IDS.2025.014>
- Shany, Y. 2025. Big Tech Companies' Obligations under International Human Rights Law. *Israel Law Review*, 58(1), pp. 1-25. <https://doi.org/10.1017/S0021223724000189>
- Shany, Y. 2024. The Case for a New Right to a Human Decision under International Human Rights Law. *Human Rights Law Review*. <https://doi.org/10.2139/ssrn.4887125>
- Statista. 2025. *Number of internet and social media users worldwide as of October 2025 (in billions)*. Available at: <https://www.statista.com/statistics/617136/digital-population-worldwide/>, 25. 5. 2026.
- Van Dijk, J. 2020. *The Digital Divide*. Cambridge, UK: Polity.
- Vijayan Pillai, A., Mathew, G., Vijayakumar, N. & Rajesh, N. 2025. Free and equal access to the internet: a cornerstone for the realization of freedom of speech and expression in the Digital Age. *Revista Acadêmica da Faculdade de Direito do Recife*, 97(1), pp. 228-242. <https://doi.org/10.51359/2448-2307.2025.264283>
- Young, L. 2021. Are robots deserving of rights? A critical analysis of how human technological innovation may result in an extension of rights to autonomous cyborg living. *Warwick Undergraduate Law Journal*, Issue I, pp. 1-17. Available at: https://warwick.ac.uk/fac/soc/law/aboutus/wulj/article_5.pdf, 25. 5. 2026.