

*I. NOVIK, V. KOVTUNENKO***THE IMPACT OF DIGITALIZATION AND ARTIFICIAL INTELLIGENCE ON CORPORATE SOCIAL RESPONSIBILITY IN INTERNATIONAL ECONOMIC RELATIONS**

The article analyzes the transformative, often paradoxical, influence of digitalization and Artificial Intelligence on Corporate Social Responsibility in the context of International Economic Relations. The research reveals how these technologies, which have become defining forces of the global economy, are fundamentally changing the very nature of corporate responsibility, shifting it from a voluntary initiative to an imperative for maintaining a social license to operate. On one hand, digitalization creates unprecedented opportunities for enhancing the transparency and effectiveness of CSR. Technologies such as blockchain and the Internet of Things enable the creation of verifiable supply chain tracking systems, while digital platforms democratize social engagement, facilitating global volunteering and crowdsourcing initiatives. On the other hand, these same technologies generate profound systemic risks. The collection and analysis of Big Data pose threats to privacy, and unequal access to technology deepens the "digital divide," exacerbating socio-economic inequality through the "Matthew effect." Artificial intelligence acts as a double-edged sword: it can be a powerful tool for achieving sustainable development goals by optimizing energy consumption and monitoring environmental changes, yet it is also a source of new ethical threats. These include algorithmic bias, which reproduces and amplifies societal discrimination; disruptive impacts on labor markets through automation; and the environmental paradox associated with the high energy consumption of AI systems themselves. It is found that traditional CSR approaches are insufficient to address these new challenges. In response, a new conceptual framework is proposed - "Digital Social Responsibility" - as an integrated paradigm that embeds ethical and social considerations directly into the lifecycle of digital technologies based on the principle of responsibility by design. DSR is founded on five key components: algorithmic accountability, data stewardship, digital inclusivity, a sustainable technology lifecycle, and human-centric automation. DSR is viewed as a necessary evolution of CSR, enabling businesses not only to manage risks but also to build sustainable competitive advantages based on trust, transparency, and responsibility in the global digital economy.

Keywords: Corporate Social Responsibility, digitalization, artificial intelligence, international economic relations, Digital Social Responsibility, AI ethics.

*I.O. NOVIK, V.B. KOVTUNENKO***ВПЛИВ ЦИФРОВІЗАЦІЇ ТА ШТУЧНОГО ІНТЕЛЕКТУ НА СОЦІАЛЬНУ ВІДПОВІДАЛЬНІСТЬ БІЗНЕСУ У МІЖНАРОДНИХ ЕКОНОМІЧНИХ ВІДНОСИНАХ**

У статті проаналізовано трансформаційний, часто парадоксальний, вплив цифровізації та штучного інтелекту на корпоративну соціальну відповідальність у контексті міжнародних економічних відносин. Дослідження розкриває, як ці технології, що стали визначальними силами глобальної економіки, фундаментально змінюють саму природу корпоративної відповідальності, перетворюючи її з добровільної ініціативи на імператив для збереження соціальної ліцензії на діяльність. З одного боку, цифровізація створює безпрецедентні можливості для підвищення прозорості та ефективності КСВ. Технології, такі як блокчейн та Інтернет речей, дозволяють створювати верифіковані системи відстеження ланцюгів постачання, тоді як цифрові платформи демократизують соціальну залученість, уможливаючи глобальні волонтерські та краудсорсингові ініціативи. З іншого боку, ці ж технології генерують глибокі системні ризики. Збір та аналіз великих даних створює загрози для конфіденційності, а нерівномірний доступ до технологій поглиблює «цифровий розрив», посилюючи соціально-економічну нерівність за «ефектом Матвія». Штучний інтелект виступає як двосічний меч: він може бути потужним інструментом для досягнення цілей сталого розвитку, оптимізуючи енергоспоживання та моніторячи екологічні зміни, але водночас є джерелом нових етичних загроз. До них належать алгоритмічна упередженість, що відтворює та посилює суспільну дискримінацію; руйнівний вплив на ринки праці через автоматизацію; та екологічний парадокс, пов'язаний із високим енергоспоживанням самих ШІ-систем. Виявлено, що традиційні підходи до КСВ є недостатніми для адресації цих нових викликів. У відповідь запропоновано нову концептуальну рамку - «Цифрова Соціальна Відповідальність» - як інтегровану парадигму, що вбудовує етичні та соціальні міркування безпосередньо в життєвий цикл цифрових технологій за принципом responsibility by design. ЦСВ базується на п'яти ключових компонентах: алгоритмічна підзвітність, управління даними як довірою, цифрова інклюзивність, стійкий життєвий цикл технологій та людиноцентрична автоматизація. ЦСВ розглядається як необхідна еволюція КСВ, що дозволяє бізнесу не лише управляти ризиками, а й будувати стійкі конкурентні переваги на основі довіри, прозорості та відповідальності в умовах глобальної цифрової економіки.

Ключові слова: соціальна відповідальність бізнесу, цифровізація, штучний інтелект, міжнародні економічні відносини, цифрова соціальна відповідальність, етика ШІ.

Introduction. Modern international economic relations operate in a state of permanent transformation, catalyzed by the processes of digitalization and the rapid development of artificial intelligence. Digitalization in this context is understood not just as digitization - i.e., converting analog information into a digital format - but as the deep integration of digital technologies into all aspects of business activity and societal life. It is the process of using digital technologies to change a business model and provide new revenue and value-producing opportunities; it is the process of moving to a digital business. Thus, digitalization is a broader and more transformational phenomenon that changes the logic of interaction among economic agents. These technologies are no longer mere tools for optimizing business processes; they have become defining forces that fundamentally change production models, market

structures, management paradigms, and the very nature of international interaction.

Digitalization acts as a key factor in the economic growth and competitiveness of nations, opening new markets and lowering entry barriers, especially for small and medium-sized enterprises[1].

Parallel to these technological shifts, the global business environment is witnessing a growing demand for socially responsible corporate behavior. The concept of Corporate Social Responsibility, interpreted as a voluntary commitment by businesses to contribute to sustainable development by considering the interests of society and stakeholders, has evolved from a peripheral PR function into a central element of corporate strategy[3].

It is worth providing a more detailed definition. Corporate Social Responsibility is a management concept

whereby companies integrate social and environmental concerns into their business operations and interactions with their stakeholders on a voluntary basis. It is based on the idea that a business has a responsibility not only to its shareholders (to maximize profit) but also to a wider range of individuals and groups, including employees, customers, suppliers, local communities, and the environment. The classic CSR model, known as the "Triple Bottom Line," suggests that companies measure their success not only by financial performance but also by their social and environmental impact. At the intersection of these two megatrends - the technological revolution and heightened social expectations - a key scientific problem emerges. The integration of digital technologies and AI into all aspects of corporate activity necessitates a radical rethinking of what "responsible" business conduct means in the 21st century. Traditional CSR frameworks, primarily focused on environmental issues, labor relations in physical supply chains, and local philanthropic initiatives, are proving inadequate to address the new ethical, social, and economic challenges generated by the digital age. Thus, there is an urgent need to analyze the synergistic yet contradictory impact of digitalization and AI on the theory and practice of CSR in a global context.

Literature analysis. Researching the issues at the intersection of digitalization, AI, and CSR requires a synthesis of three separate but interconnected fields of scientific thought.

The first field covers classical and modern theories of CSR. These concepts view social responsibility as a philosophical and sociological category that reflects the voluntary obligations of business to society, which extend beyond purely legal requirements and are aimed at achieving sustainable development[4]. The main emphasis is on considering stakeholder expectations and integrating social and environmental standards into the organization's activities[3].

Central to this field is the stakeholder theory, pioneered by R. Edward Freeman. Unlike the monistic, shareholder-focused approach, this theory asserts that managers must consider the interests of all groups that can affect or are affected by the company's activities. This creates a complex map of responsibility, where the business acts as a node in a network of social connections rather than as an isolated economic unit. Modern concepts, such as "Creating Shared Value" by Michael Porter and Mark Kramer, go further, proposing that social and economic benefits need not be antagonists; instead, companies can achieve competitive advantages by addressing societal problems within their core operations.

The second field is dedicated to the study of digital transformation in international economic relations. Numerous studies confirm that digitalization is a catalyst for economic growth, enhances the global competitiveness of national economies, and creates new opportunities for international trade[1]. At the same time, scholars draw attention to the negative externalities of this process, particularly the widening of the "digital divide" - inequality in access to technology and the skills to use it, which can exacerbate socio-economic asymmetry both within and between countries[7].

The "digital divide" is a multidimensional concept. It includes not only the "first-level" divide (physical access to the Internet and devices) but also the "second-level" divide (the skills and digital literacy needed to use technology effectively) and the "third-level" divide (the ability to convert digital access and skills into real economic, social, or cultural benefits). It is this third level that is critical in the context of international economic relations, as it determines whether countries and specific population groups can fully participate in the global digital economy or will remain on its periphery. The third, and most dynamic, field of research focuses on the integration of artificial intelligence into business and society. On one hand, the benefits of AI for optimizing business processes, increasing productivity, and creating innovative products and services are analyzed[8]. On the other hand, there is a growing body of work dedicated to the ethical and legal challenges associated with the use of AI. These include problems of algorithmic bias leading to discrimination; threats to data privacy; issues of liability for erroneous decisions made by AI systems; and the opacity of deep learning models, known as the "black box" problem[11].

Despite a significant number of publications in each of these areas, there is a lack of comprehensive research that systematically analyzes the combined and interactive impact of digitalization and AI on the theory and practice of CSR, specifically within the context of international economic relations. Existing works often examine these phenomena in isolation, failing to account for their synergistic effects and dialectical contradictions. Thus, a scientific gap exists in understanding how technological transformation is changing the very essence, tools, and imperatives of corporate social responsibility in a globalized world. This article aims to fill that gap.

Problem statement. The purpose of this article is to analyze the transformative impact of digitalization and artificial intelligence on the concept and practice of corporate social responsibility within the system of international economic relations, to identify key opportunities and ethical challenges, and to propose an updated paradigm of responsible corporate behavior in the digital age. The need for such an analysis is dictated by the fact that the pace of technological change far outstrips the development of ethical norms and regulatory frameworks. Corporations operating in the global market find themselves in a situation where they must independently define the boundaries of responsible technology use, balancing innovation, competitiveness, and social expectations. The absence of a clear responsibility paradigm creates significant risks - from reputational losses to legal sanctions and a loss of consumer trust. Therefore, forming a scientifically grounded concept of responsibility in the digital age is not only an academic but also an urgent practical task.

Presentation of the main research material.

Traditionally, corporate social responsibility is defined as a voluntary business initiative that goes beyond legal requirements to make a positive contribution to society and the environment[3]. However, digitalization, which permeates all spheres of economic life, fundamentally changes the very context in which this responsibility is

realized. The transition to a digital economy, where data and algorithms become key assets, means that the influence of corporations is no longer limited to physical supply chains or local communities[2]. It extends into the digital space, affecting aspects such as data privacy, digital inclusion, algorithmic fairness, and information integrity.

This leads to a gradual erosion of the "voluntariness" principle, which has historically been a cornerstone of CSR. This principle, articulated in classic CSR theories, stipulated that companies voluntarily undertake additional obligations beyond those clearly prescribed by law. This was seen as an act of "corporate citizenship." However, in the digital sphere, the line between ethical choice and legal obligation is becoming increasingly blurred. For example, protecting user data was long considered a voluntary practice, but with the adoption of regulations like the GDPR in the EU, it has transformed into a strict legal requirement with multi-billion fines for violations. While ensuring fairness or avoiding discrimination was previously seen as an ethical choice, in the age of AI, these issues take on a systemic character. An algorithm used for hiring, lending, or even insurance decisions can have an immediate and large-scale impact on the lives of millions. The potential for systemic harm, for example, through the proliferation of biased algorithms that discriminate against certain social groups, is enormous[12]. In such conditions, public and regulatory expectations inevitably change. What was once the domain of voluntary ethics is becoming a de facto mandatory condition for maintaining a social license to operate. A striking example of this trend is the development and adoption of the Artificial Intelligence Act in the European Union, which establishes strict requirements for transparency and risk management for high-risk AI systems[11]. Thus, digitalization is moving elements of digital ethics from the periphery of CSR to the core of corporate obligations, blurring the line between voluntary responsibility and necessary ethical governance.

The digital transformation has a dual impact on the practice of corporate social responsibility, creating powerful new tools for its implementation while also generating new systemic risks.

On one hand, digital technologies open up unprecedented opportunities for increasing the efficiency and transparency of CSR. Technologies such as blockchain and the Internet of Things allow for the creation of reliable and immutable data registries, ensuring the transparency of global supply chains. Companies can track the origin of raw materials, working conditions in production, and environmental indicators in real-time, providing consumers and investors with verifiable evidence of their responsible behavior[14]. This represents a qualitative leap from declarative reports to evidence-based responsibility. Furthermore, digital platforms democratize social engagement. Corporations can create online ecosystems for volunteering and implementing social initiatives, combining company resources, employee time, and skills with the needs of non-governmental organizations on a global scale. An example of such synergy is the charitable crowdsourcing

platform Open Tech by SoftServe, which engages IT professionals in developing solutions for social challenges in healthcare, ecology, and education[16].

On the other hand, digitalization creates serious risks. The collection and analysis of vast amounts of personal data pose threats to privacy and security. Data breaches or their unethical use can cause significant harm to both consumers and a company's reputation[15]. Another systemic risk is the deepening of the "digital divide." Although digitalization is a driver of economic growth, it creates and exacerbates inequality between those who have access to technology and relevant skills and those who do not[7].

This problem extends beyond mere internet access. It is described by the so-called "Matthew effect," where the benefits of technology are distributed unevenly: those who already have access and resources accumulate advantages at an accelerated rate, while those who do not fall further behind[12]. This creates a self-reinforcing cycle of deepening socio-economic inequality, which in the long term threatens social stability and the sustainability of global markets. From this perspective, corporate initiatives aimed at bridging the digital divide - such as educational programs and providing access to technology for vulnerable populations (e.g., initiatives by Microsoft and Capital One) - are no longer purely philanthropic acts[13]. They become strategic investments in the long-term health of the market environment. A company whose business model depends on the digital literacy of consumers and a skilled workforce has a direct interest in making this base as broad as possible. Thus, bridging the digital divide becomes an element of strategic risk management and market development within CSR.

Artificial intelligence is the most powerful and, at the same time, the most controversial technology in the arsenal of modern business, having a paradoxical impact on social responsibility.

AI as a tool for achieving sustainable development goals. The application of AI opens up significant opportunities for solving global environmental and social problems. In the environmental sphere, machine learning algorithms are used to optimize energy consumption in data centers, monitor deforestation using satellite imagery, predict extreme weather events, increase agricultural efficiency, and manage waste[14]. For example, Amazon uses AI to optimize packaging, which reduces waste, and to forecast demand, which cuts down on excess inventory and associated emissions[7]. Tesla's business model is entirely built on the use of advanced technologies, including AI in its Autopilot systems, battery management, and manufacturing processes, to accelerate the world's transition to sustainable energy[9].

AI as a source of new ethical threats. Alongside its immense potential, AI generates unprecedented ethical challenges. One of the key problems is algorithmic bias. AI systems learn from historical data, which often reflects existing societal stereotypes and inequalities. As a result, algorithms can reproduce and even amplify discrimination in critical areas such as employment, lending, and law enforcement[12]. A second major challenge is the transformation of the labor market. AI-based automation

leads to the displacement of routine professions, threatening mass unemployment and deepening income inequality if large-scale retraining and social adaptation programs are not implemented[5]. Finally, there is the environmental paradox of AI. Despite its ability to solve environmental problems, AI systems themselves are extremely resource-intensive. Training and operating large language models require vast amounts of electricity and water for cooling data centers, creating a significant carbon footprint and contradicting decarbonization goals[9].

This dual nature of AI can be systematized in a table illustrating its impact on key aspects of CSR.

Table - The Dual Impact of Artificial Intelligence on Key Aspects of CSR

| Aspect of CSR | Positive Impact (Opportunities) | Negative Impact (Risks and Challenges) |
|-----------------------------------------|---------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|
| Environmental Sustainability | Optimization of resource use, emissions monitoring, development of "green" technologies. | High energy consumption of data centers, water consumption for cooling, electronic waste. |
| Labor Relations and Employment | Improvement of working conditions (automation of hazardous tasks), creation of new professions. | Mass displacement of jobs, increased income inequality, need for mass retraining. |
| Ethical Conduct and Human Rights | Detection of fraud and corruption, increased safety (Tesla Autopilot). | Algorithmic bias and discrimination, violation of data privacy, the "black box" problem and accountability. |
| Stakeholder Engagement | Personalized communications, increased transparency through data analysis, digital platforms for public engagement. | Risk of spreading disinformation ("deepfakes"), manipulation of consumers through hyper-targeting, lack of human oversight. |

The analysis of the aforementioned opportunities and challenges indicates the need for a transition to a more comprehensive and integrated paradigm of corporate responsibility. By analogy with the concept of "digital intercultural competence," which arises in response to the new realities of international communication, it is proposed to introduce the concept of "Digital Social Responsibility" into scientific discourse.

DSR is not a replacement for traditional CSR, but its necessary evolution and expansion for the digital age. It is an integrated corporate philosophy that involves embedding ethical and social principles directly into the processes of developing, implementing, and managing digital technologies and AI systems. DSR shifts the focus from reactively addressing negative consequences to

proactively designing responsible technologies. This approach is known as "responsibility by design" or "ethics by design." It requires engineers, managers, and product developers to consider the potential social and ethical consequences at every stage of the technology's lifecycle - from the initial idea and data collection to deployment and decommissioning. This is a radical departure from the traditional approach, where ethical issues were often treated as an afterthought or addressed only after an incident occurred.

The key components of the DSR paradigm are:

1. **Algorithmic Accountability.** This is the commitment to ensure the fairness, transparency, and non-discriminatory nature of AI systems. It includes conducting regular audits for bias, developing methods of Explainable AI to understand the logic behind algorithmic decision-making, and establishing clear mechanisms of liability for harm caused by AI[11].

2. **Data Stewardship.** This component goes beyond mere compliance with regulatory requirements. It involves proactive responsibility for the ethical collection, use, storage, and protection of all stakeholders' data, viewing data not as an asset but as a trusted resource.

3. **Digital Inclusivity.** This is an active commitment by the company to mitigate the digital divide. It is realized through supporting digital literacy programs, creating accessible technologies for people with disabilities, and ensuring the fair distribution of benefits provided by the digital economy.

4. **Sustainable Technology Lifecycle.** This is the responsibility for managing the full environmental impact of technologies - from the energy consumption and carbon footprint of data centers during operation to the responsible disposal of electronic waste at the end of the equipment's life cycle.

5. **Human-Centric Automation.** This is a strategic approach to implementing AI and automation that places the human at the center. Instead of focusing solely on replacing workers and cutting costs, this approach prioritizes the augmentation of human capabilities, investing in retraining and upskilling staff, and creating synergy between humans and machines[13].

Conclusions. The conducted research demonstrates that digitalization and artificial intelligence are causing a fundamental paradigm shift in the concept and practice of corporate social responsibility within the system of international economic relations. These technologies are not neutral tools; they have a profound and dual impact, creating both significant opportunities for social good and systemic risks that extend far beyond the traditional scope of CSR.

It has been established that digital tools can dramatically increase the transparency of supply chains, the efficiency of environmental monitoring, and stakeholder engagement. At the same time, their proliferation gives rise to new ethical dilemmas related to algorithmic fairness, data privacy, the deepening of digital inequality, and the transformation of the labor market. The potential of technology to promote sustainable development is inextricably linked to the threats it creates.

In response to these challenges, traditional approaches

to CSR are proving insufficient. A transition to a new, more integrated paradigm is necessary, which is proposed to be defined as "Digital Social Responsibility". This concept involves the proactive embedding of ethical and social principles into the entire lifecycle of digital technologies -from design to disposal. DSR is a key strategic framework for companies seeking to achieve sustainable and ethical leadership in the global digital economy, transforming responsibility from a risk management function into a source of innovation and long-term competitive advantage.

Further scientific research in this area could focus on developing standardized metrics for auditing algorithmic bias, conducting comparative studies of DSR implementation in different regulatory environments, and a deeper analysis of the impact of AI on the structure and governance of global value chains.

References

1. Novikova O. F., Deich M. Ye., Pankova O. V. Sotsialna vidpovidalnist: filosofsko-sotsiologichniy vymir. 2013.
2. Tsyfrovizatsiia yak kliuchovyi faktor ekonomichnoho zrostantia ta konkurentospromozhnosti natsionalnykh ekonomik. *AKADEMICHNI VIZII*. 2025. Vyp. 42.
3. Osoblyvosti protsesiv tsyfrovizatsii u sferi mizhnarodnoi torhivli. *Ekonomika i prohozuvannia*. 2018.
4. Tsyfrovizatsiia: perevahy ta shliakhy podolannia vyklykiv. *Razumkov Centre*. 2021.
5. Drozdovskyi Ya. P., Kohutych V. A., obei A. H. Vykorystannia shuchnoho intelektu v mizhnarodnomu biznesi. *Naukovyi visnyk Uzhhorodskoho natsionalnoho universytetu. Serii: Mizhnarodni ekonomichni vidnosyny ta svitove hospodarstvo*.
6. ShI v biznesi: kto vidpovidaie za pomylovky alhorytm? *Yurydychna Hazeta Online*. 2025.
7. Tsyfrovizatsiia lantsiuhiv postachannia yak chynnyk transformatsii biznes-modelei. *Ekonomika ta suspilstvo*. 2024. Vyp. 64.
8. Vykorystannia shuchnoho intelektu dlia monitorynhu ekolohichnoi polityky. *Efektivna ekonomika*.
9. Yak shuchnyi intelekt vplyvaie na dovkillia: interv'iu z ChatGPT. *Speka.media*.
10. Etychni pytannia vykorystannia ShI u biznesi: hlybina zastosuvannia shuchnoho intelektu ta ryzyky deleghuvannia rishen. *Speka.media*. 2025.
11. Shuchnyi intelekt: revoliutsiia novoho chasu ta yii hlobalnyi vplyv. *Palai.media*. 2024.
12. SoftServe zapustyv platformu dlia sotsialnykh ta volonterskykh initsiatyv. *European Business Association*. 2021.
13. Tsyfrovyy rozryv chy tsyfrova nerivnist: novi vymiry hlobalnykh asymetrii sotsialno-ekonomichnoho rozvytku i mizhnarodnoi torhivli v umovakh tehnohlobalizmu. *ResearchGate*.
14. Amazon. 2024 Sustainability Report. *Amazon Sustainability*. 2024.
15. Tesla. 2021 Impact Report. *Tesla Inc*. 2021.
16. AI Transparency Report at NETFLIX, INC. *Principles for Responsible Investment*. 2024.

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