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THE INTEGRATION OF DIGITALIZATION AND SOCIAL RESPONSIBILITY AS A FACTOR IN ACHIEVING SUSTAINABLE DEVELOPMENT

The object of this research is the management of social responsibility in the context of digitalization and sustainable development. The problem to be solved is the stems from the lack of tools to assess the synergistic effect of combining digitalization and corporate social responsibility (CSR), as current approaches treat these factors in isolation, creating a gap in our understanding of them as factors influencing sustainable development. The paper describes the economic and social effects of digital transformations. An analysis of CSR transformations in the post-war period and during post-war reconstruction was conducted. It was noted that national business entities currently do not make sufficient use of existing production reserves when implementing sustainable development initiatives. The existence of a certain gap between the achieved digitization of nationwide processes and the business sector's orientation towards responsible digitalization is substantiated. The paper identifies existing sustainability reserves and proposes measures to enhance social responsibility among entrepreneurs based on modern digital tools.

The work was carried out using methods such as comparison and systematic evaluation of phenomena and processes, as well as methods of logical generalization. It has been demonstrated that the practical application of cloud computing and artificial intelligence for monitoring social and environmental data can serve as a significant operational resource for Ukrainian enterprises. It has been substantiated that the implementation of online transparency is a key factor in enhancing the trust of partners, investors and customers. The recommendations presented may be of practical significance to business entities and senior company managers when implementing CSR initiatives, and to regional and national government bodies when formulating digitalization strategies that take into account socio-environmental rules, regulations and standards.

Keywords: social responsibility, digital transformation, sustainable development, production capabilities, ESG criteria, environmental sustainability, ethical standards.

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1. Introduction

Modern experience in the field of social responsibility shows the presence of its cardinal changes, namely the transition from the principles of voluntariness to the principles of obligation in terms of forming reports based on socio-ecological and managerial digital criteria. The conceptual principles of corporate social responsibility (CSR) management are the theory of shared values, which indicates the need for the effectiveness of socially responsible approaches not as charitable activities, but through the strategic formation of business income while simultaneously solving socio-ecological problems [1]. In scientific practice, leading scientists have substantiated the existence of certain types of responsibility, which relate to philanthropic, economic, legal and ethical. Recently, the digital industry has been actively introduced in the USA and other countries of the world in order to regulate supply processes and implement certain ethical aspects of business [2]. The digital experience of Britain shows the introduction of the obligation to identify financial risks caused by recent climate changes in the

world. British online devices successfully integrate environmental data into the financial reports of business companies [3]. According to the laws of the German government on the supply chain, there are certain requirements for business structures to implement IT devices to track violations of citizens' rights in their business partners around the world. This is in line with the scientific idea that digitalization should be beneficial for all parties to business activities, not just shareholders [4]. In France, a law on the duty of vigilance is in force, and companies use digital servers to collect information from their citizens and employees in the current period [5]. Also, the Norwegian State Pension Fund, using AI tools, automatically excludes companies that violate ethical and environmental rules from investment programs [6].

The issue of social responsibility management is constantly in the field of view of Ukrainian scientists. For example, the issues of social and labor relations based on the principles of social responsibility and balanced economic development have been considered very widely and thoroughly [7]. At the same time, the authors focused more attention on the social, labor and ethical aspects of business and society,

and practically did not consider the CSR issue in the global development of digitalization. Certain aspects and main promising approaches to managing digitalization in the realities of the Ukrainian economy have been analyzed quite systematically and critically in scientific works [8]. At the same time, they focused more attention on certain aspects of Industry 4.0, but the issue of identifying economic reserves of business is mainly considered in the context of economic efficiency, without taking into account social and environmental perspectives. Of interest are research [9], based on the implementation of certain adaptive systems for regulating business processes in changing and dangerous working conditions. Given the diversity of existing researches, the issue of corporate social responsibility as a tool for finding reserves of sustainable development during wartime and systemic digitalization of business processes is still insufficiently studied and requires more systematic consideration.

The object of research is the management of social responsibility in the context of digitalization and sustainable development.

The aim of research is to identify the relationship between digitalization and social responsibility of business. This will make it possible to optimize resource costs, ensure the implementation of the principles of transparency and business ethics, socialize public relations, increase the trust and loyalty of stakeholders, and as a result – promote sustainable development.

To achieve this aim, the following objectives were solved:

- to substantiate the features of CSR management in the digital economy;
- to determine the features of CSR transformation in the context of digitalization and sustainable development;
- to identify key sustainability reserves based on the use of digital tools.

2. Materials and Methods

The methodological basis of research is a number of general scientific and special methods. Among the general scientific methods of cognition, a system analysis was used to identify the significance of the relationship between CSR, digitalization and balanced development; when analyzing the digital responsibility of Ukrainian companies and applying ESG criteria, the comparative analysis method was used; the tabular method was used to visualize the models of the relationship between the studied phenomena and processes. The research was based on publications on the studied issues [1–10], materials of the Ministry of Economy and the Ministry of Digital Transformation of Ukraine [11–13], reports of the European Commission [14], Digital Economy and Society Indices (DESI) [15], financial and social reports of leading companies in Ukraine (in particular, DTEK [14], PrJSC MHP [16], Nova Poshta [17], Kyivstar [18]).

3. Results and Discussion

3.1. Features of CSR management in the context of digitalization

Social responsibility management in Ukrainian practice is changing dramatically due to factors such as the need to implement strategic sustainable development initiatives and digital solutions by 2030 [11]. In today's conditions, CSR is perceived not only as charity, but is becoming the main tool for survival and ensuring competitive advantages of management.

With the activation of business automation processes, the relationship between business structures and their stakeholders is changing dramatically, as well as the system of CSR guidelines, which, in particular, concerns:

- large-scale accumulation and processing of operational information of business entities, which makes it possible to develop non-financial reports according to European requirements and make them available to various stakeholders;

- implementation of sustainable development tasks capable of reducing the harmful impact on the environment when using advanced digital processes;

- carrying out transformations in various sectors of production and social relations, digitalization significantly affects the social and economic processes of organizations, changing their communication system, relationships between employees of organizations, etc.;

- since ESG approaches imply responsibility for the protection of personal data of ordinary citizens and business clients, the fight against cybercrime, compliance with digital ethics, this contributes to the corresponding humanization of online solutions.

By implementing socially responsible initiatives, Ukrainian business structures are increasingly focused on the implementation of strategic directions of sustainable development defined for the state until 2030, on basic national interests. The latter are related to reducing poverty, ensuring certain social guarantees for vulnerable segments of the population, preserving the health of citizens, promoting economic growth, and ensuring safety of labor activities, which is especially true in wartime conditions. This is provided for by relevant program documents for certain categories of employees and regions.

The problems caused by the war in Ukraine have in some way accelerated the use of digital tools in various spheres of citizens' lives. It is important to note that the social responsibility of business entities in modern conditions has dramatically changed its effectiveness – it contributed to the survival and stability of the country, its defense capability. In extremely difficult conditions, many Ukrainian businesses have chosen the path of special social initiative, in terms of assistance to the Armed Forces of Ukraine, volunteering, support for displaced persons, etc. In this case, online resilience also had a positive meaning, thanks to which important infrastructure facilities continued to function, and people worked or studied remotely. The CSR transformation in the online space requires the need for relevant digital specialists, managers with certain technological experience to ensure the integration of sustainable development projects into the digital structure of business organizations.

Analyzing digital changes as certain accelerators of sustainability, it is reasonable to recognize that on the basis of online solutions it is possible to provide solutions to initiative global projects of sustainable development much faster and better. In particular, such well-known digital tools as Big Data or AI make it possible to determine the volume of harmful emissions into the environment or to predict the work of logistics, reducing air pollution. Also, on the basis of "cloud" programs it is possible to reduce infrastructure costs, to ensure the efficiency of resource use [8]. Digitalization taken separately almost does not reflect the fact that it is the best or worst moment in the work of the organization, while the CSR toolkit directly makes it clear how the enterprise applies technological innovations. Thus, the responsible mission of the company is reflected in the ethics of digital solutions, while guaranteeing the protection of personal information of employees, clients, partners, as a CSR component. Socially responsible employers care about their staff, allocating funds for their development, training, in order to prevent digital backwardness, job losses due to automation of production and to create competitive advantages for them.

Modern conceptual principles indicate that solving environmental problems of society, directly related to sustainable development, cannot be achieved without digitalization. In addition, it is advisable to take into account that on the basis of digital technologies it is possible to conduct effective measurement and comparison of various social and environmental processes [14]. Thus, today it is difficult to conduct correct measurements of water use or minimization of production waste without appropriate digital devices or software tools.

The latter is especially important for ensuring transparency in the recovery of the national economy, on the basis of digital innovations it is possible to introduce CSR principles into management activities

at the state level and large companies, in order to ensure a reduction in corruption and transparency. With the help of digital solutions, social processes can be managed, because CSR activities are aimed at helping the military, internally displaced persons, people with disabilities, pensioners, and in wartime conditions they are especially widespread and diversified.

3.2. Determining the features of CSR transformation in the context of digitalization and sustainable development

Considering the above, it is advisable to generalize that digitalization processes are aimed at providing the production system with the latest technological innovations, and sustainable development at the same time directs to appropriate global actions. At the same time, the CSR system provides proper support for ethics, social values, that is, it controls the specified processes. How this looks in reality can be considered as follows (Table 1).

Table 1

Analysis of the relationship between CSR processes of digitalization and sustainable development

| CSR guidelines | Ethical initiatives | New technologies | Ensuring sustainability |
|-------------------|--|--|---|
| Eco-projects | Reducing pollution | IoT, Big Data, AI for analyzing environmental changes | Minimizing energy costs, harmful emissions, environmental friendliness of logistics |
| Social activities | Human development, inclusion | Online resources for distance learning | Improving education, health, well-being, reducing inequality |
| Management system | Ensuring transparency, reducing corruption | Blockchain, online systems for planning and forecasting, digitalized reporting | Increasing trust of partners, investors, cyber protection |

Note: * compiled on the basis of [12, 19]

The specified three-in-one combination of the effectiveness of such components as the digitalization of business processes, their CSR initiatives and sustainability strategies gives a qualitatively new synergistic effectiveness, which cannot be achieved with the independent use of the specified components. The use of the latest digital tools reorients the conventional CSR system to a new strategic direction of action. This ensures the definition and control of the system of using digital solutions not only for the purpose of obtaining additional income, but also ensuring the principles of ethics, social orientation, greening of business, etc.

An important advantage of implementing these approaches is the possibility of ensuring transparency of business activities, based on technology, any partners, investors or clients can analyze the environmental or social activities of the enterprise in real time. For the Ukrainian economy, the specified synergistic relationship is very important for the post-war reconstruction of the country. Digitalization positively changes the ethical features of the management of Ukrainian organizations, the system of management and control over their intangible and financial resources. The use of technologies such as Big Data, as shown by research, provides a reduction in energy costs by up to 15–20%, which is both an important economic result of business and ensuring greening thanks to the CSR mechanism. Digital devices also enable companies to automatically form a database of information resources for non-financial reports, which reduces corruption and increases investor attractiveness by up to 25–30%. For Ukrainian practice, there is a certain specific relationship between the parameters of sustainable development, digitalization and social responsibility (Table 2).

Table 2

Features of the relationship between indicators of sustainable development, digitalization and CSR in the conditions of Ukraine

| Indicator | The impact of digitalization on CSR | Practical implementation |
|---------------------|---|--|
| Sustainability | Remote work opportunities and digital job creation | Cloud systems (Kyivstar, IT sphere) |
| Transparency | Charitable fundraising based on digital platforms, blockchain reports | “Diiia” application, platform UNITED24 (transparent reporting on the use of funds) |
| Ecological recovery | Monitoring environmental damage when using satellites | “EcoApplication” project |

Note: * compiled on the basis of [13, 15]

Regarding the above issues, attention can be drawn to the Diiia. Business project and the digitization of state services. Although it is a state initiative, it is the foundation for CSR in the private sector. The introduction of an online system for transmitting information and documents, as well as electronic signatures, significantly reduces corruption in various areas of citizens' lives, reduces paper consumption, and ensures transparency of management.

Digital accumulation of data for the development of social reports is of particular importance for Ukrainian practice from the standpoint of ensuring the country's integration into the European space. After all, the European community requires business entities to publish information about their social and environmental actions, which is directly related to guarantees of providing financial resources, inclusion in grant programs, and simplification of procedures for entering international markets. With increasing transparency of business risks, the trust of partners, clients, and investors also increases. That is, the international investment system is becoming increasingly dependent on non-financial reporting of organizations, which is being digitized.

Of particular interest is the conceptual model of business management “Industry 4.0”, focused on the large-scale integration of digital tools that function to prevent certain production shortcomings and accidents [19]. Based on the integration of online tools into the modern business system, quite clear mechanized programs are created:

- modern Internet of Things networks, for example, smart homes, fitness bracelets, smartwatches, operating online without any human participation;
- software for cyber-physical systems that can not only collect data, but also make certain decisions, which, in particular, is used when using unmanned vehicles, drones, industrial robots, etc.;
- AI and Big Data systems can carry out systematic analysis of large-scale information in order to form forecasts, appropriately adjust business processes and optimally make management decisions;
- the use of digital twins, which are online analogues of certain physical systems, which make it possible to model and provide testing under conditions of various changes with uninterrupted business operation;
- the use of cloud technologies, which allow calculations to be performed on remote servers, “in the cloud”, which does not require users to purchase the appropriate equipment or install certain tools on their own devices;
- digitalized CSR control, which involves the involvement of IT tools in order to audit compliance with relevant ethical and environmental standards in business practice.

In recent years, the concept of “double transition”, which is based on the simultaneous implementation of digital transformations and the so-called “green” transformations, has been particularly popular in the West. In this case, the introduction of digital tools and the activation of the “green” transition complement and reinforce each other at the same time.

Based on the implementation of modern digital devices, it is possible to quickly and accurately analyze the volume of carbon emissions, optimally distribute energy resources at the enterprise, minimize the volume of various production waste (predictive analytics) [20]. At the same time, the greening of online systems should be carried out on the basis of the development of energy-efficient networks, systematic recycling of electronic waste, the introduction of renewable energy resources to ensure the operation of data centers, so that digital servers do not pollute the environment. The latter is of some interest to business entities, since potential investors and financial structures, in today's conditions, as a rule, support those projects that confirm their double efficiency. In particular, this may be the implementation of IT programs that contribute to reducing the cost of certain resources, while the EU Green Deal places requirements on suppliers to comply with the requirements, environmental friendliness and online transparency, which, for example, concerns the introduction of digital passports for certain goods. Digitalization and acts as a certain tool for ensuring transparency. When using modern blockchain systems, it is possible to monitor compliance with environmental or social standards in the production process of certain types of products or track the presence of child labor, etc.

From the perspective of social aspects, platforms created for distance learning provide opportunities for systematic and large-scale mastering of knowledge and skills by employees whose professional activities may become redundant due to digitalization. This is an important aspect of social responsibility to the team. Creating accessible digital programs for people of any age is becoming the new norm of responsible business [10]. Regarding the effectiveness of environmental projects, for example, the use of the "cloud" reduces energy consumption in production by 30–90%, if compared with local data centers. Also, AI tools when planning the need for certain resources (water, materials, raw materials) help prevent excess production and unnecessary current expenses [9].

With the presence of these advantages, digital modernization also involves the emergence of certain risk factors in the field of socially responsible business management. The latter, in particular, is associated with the emergence of digital inequalities or gaps among employees. Rapid automation of production processes, as a rule, leads to the loss of jobs of insufficiently qualified workers, which is quite a negative point from the point of view of sustainable development. This issue requires a socially responsible attitude of business and can be resolved on the basis of the implementation of training and retraining processes for employees. A certain challenge is the issue of cybersecurity and data privacy, because the leakage of individual data of customers or employees is considered a direct violation of ethical norms of CSR. At the same time, work in the field of information security should become one of the socially responsible tasks of companies in order to protect the interests of people.

Digital innovations require appropriate control and transparency, as they sometimes lead to certain not entirely ethical consequences. This, for example, concerns manifestations of discrimination in the hiring process or when assessing the creditworthiness of clients. A topical issue often raised by IT specialists is the significant consumption of electricity by powerful online devices. In this regard, sometimes foreign companies, in particular the USA, refuse to use them. Therefore, when choosing online solutions, it is worth justifying their advantages and disadvantages in detail. At the same time, it is advisable to take into account the rules of "green" IT, i. e. ensuring digitalization with optimal energy consumption, reducing harmful emissions and long-term use of tools.

Based on real information from the most responsible companies such as Private Joint-Stock Company "DTEK Kyiv Electric Networks" (DTEK), Private Joint-Stock Company "MHP" (PrJSC MHP), Nova Poshta, Kyivstar and Limited Liability Company "KERNEL-

TRADE" (LLC "KERNEL-TRADE") of Ukraine, a comparison of their main strategic directions of CSR was made (Table 3).

Table 3

Comparison of digital CSR innovations of leading companies in Ukraine

| Company | Sustainability Priority | Digital tool | Efficiency for business and society (production reserves) |
|------------------|---|--|---|
| DTEK | Greening and decarbonization | Smart Grid | Reduction of electricity losses, automation of CO ₂ emission control |
| PrJSC MHP | Social and food security | Implementation of employee feedback platforms and automated well-being assessment systems (HR digitalization) | Monitoring of employee well-being, automation of personnel training. This ensures prompt response to personnel needs in crisis conditions |
| Nova Poshta | Social resilience | Digital Logistics Ecosystem, a digital ecosystem for logistics, uses a mobile application and internal systems | Operational management of humanitarian cargo based on an online application, which ensures its free delivery to places close to the front, coordination of volunteers |
| Kyivstar | Social measures and cybersecurity | Online learning servers, digital medicine, electronic tools for collecting financial aid and cybersecurity | Availability of constant interconnection, online inclusion, information security for customers |
| LLC KERNEL-TRADE | Environmental projects and their benefits | Implementation of special drones, IoT tools, satellites in the precision crop production system | Savings on fuel and fertilizers up to 15–20%, through satellite observation, while reducing soil load and harmful emissions |

Note: * compiled on the basis of [16–18, 21]

Analysis of the effectiveness of business automation using the example of the above-mentioned business organizations made it possible to identify the main priorities of sustainability and the corresponding potential opportunities for innovative solutions in terms of saving raw materials, electricity, environmental protection, etc. Based on a research of the experience of forming non-financial reports of Ukrainian business entities, it was concluded that in modern conditions, a transformation of traditional, mainly cost-based CSR is taking place. In particular, the modern digitalized CSR model, due to the use of the latest software solutions, is increasingly reoriented to the optimal use of various types of organizational resources.

Automated systems ensure the effective formation of business reporting, which includes environmental and social information, and contribute to the identification of additional production opportunities, for example, when optimizing resource costs or logistics transportation routes.

In general, the most acceptable approaches to using CSR in the context of digital change can be considered:

1. Applying appropriate interconnection using mobile devices, for constant dialogue, communication with various stakeholders, in particular, customers, employees, investors, competitors, etc. This makes it possible to quickly respond to the emergence of relevant social requests, edit and specify CSR activities.

2. Giving a certain priority to lifelong learning when organizing modern intra-cooperative educational events and programs. Socially responsible managers should provide their employees with opportunities to obtain digital knowledge and skills in advance, before the digitalization of business processes.

3. Replacing manual collection and processing of information with modern automated one for the formation of CSR reporting, in order to provide opportunities for its objective assessment by potential investors and business partners. This has a corresponding impact on the allocation of financial resources for Ukrainian organizations, in particular, for economic recovery.

4. Constant support for the principles of digital ethics when implementing certain corporate documents, codes, programs for the use of AI and large-scale information. Managers must guarantee their employees the protection of their personal data.

5. IT infrastructure facilities should be used in compliance with established environmental standards, in general, it is advisable to choose cloud providers that operate on renewable energy, and to spread the experience of energy efficiency when using working digital tools. It is not necessary to allow an increase in the company's carbon footprint due to online technologies.

6. Active participation in public-private digital projects involves interaction at the state level based on modern digitalized environmental systems, which, in particular, concerns integration with the "Diia" system. The latter improves the process of inclusion in providing assistance, ensures the spread of socialization of public relations in the country.

Comparing with well-known international organizations, it is possible to note that Ukrainian socially responsible strategies today also meet global benchmarks. For example, the world-famous English company Microsoft uses AI to regulate energy consumption in data centers, and its main goal is to achieve its full carbon neutrality by 2030. This demonstrates how digital infrastructure is transforming into a system of environmental responsibility. Also, the well-known British company Unilever quickly and effectively uses digital tools to minimize logistics costs, optimize production and sales of products, a blockchain system to track raw material supplies, and to certify its non-involvement in deforestation. Its activities are an example of the company's digital transparency. The foreign organization Siemens shows an example of the widespread use of "digital twins", which makes it possible to form models of wear and tear of production equipment, prevent accidents and do not harm the environment. The company's digital tools effectively monitor water and electricity consumption in production. For example, at the German plant in Mannheim, this has helped to significantly reduce the carbon footprint [14]. The latter is a direct technological reserve of production.

3.3. Identification of the main sustainability reserves based on digitalization

The methodological tools for analyzing the above approaches provide for the need to use the following performance indicators (KPIs) when conducting CSR digitalization:

- share of employees or clients who are provided with the opportunity to use the organization's online services;

- reduction in air pollution due to the implementation of a digital documentation system;
- percentage of employees retrained or trained to work on modern digital devices;
- volume of digitization of social reports, which refers to information that is accumulated automatically without human intervention.

A comparison of digitalization and technological reserves of sustainable development was made (Table 4).

When comparing Ukrainian digitalization indicators and the EU, it is advisable to indicate the presence of relevant reserves for sustainable development. Thus, in Ukraine, the level of digitization of public services significantly exceeds similar indicators in the EU, namely 97% compared to 82%. Therefore, this situation indicates the presence of a specific reserve for the implementation of open CSR reports and digitalization of environmental supervision at the level of state bodies. At the same time, it is important to note that there is a significant lag in Ukrainian development in cloud innovations, if in Ukraine it is 20–25%, then in the EU it is 45%. It is important to note that this fact can be perceived in two ways: on the one hand, as backwardness, and on the other, as hidden potential and opportunities for accelerated development. An interesting point is that the transition to green information resources and the cloud in Ukraine can be carried out more optimally than in other countries, at lower costs and carbon footprint – skipping some stages of the implementation of too energy-intensive digital objects. As a special social reserve, it is also worth considering the rather high endurance and competence of human potential. Even in war conditions, the digital skills of Ukrainian citizens (52%) are practically identical to their average level in the EU (54%). This indicates the presence of an important human reserve that can be used if people are ready to quickly obtain modern knowledge. The latter is also related to the principles of social responsibility of business entities when implementing digital projects.

In the current conditions of global transformations, digitalized CSR is mainly perceived as a strategic function of business management and sustainable development, and not as populist or image projects, as it was before. At the same time, business partners, stakeholders, have the opportunity to systematically monitor the socio-ecological consequences of the activities of business entities, which is reflected in the effectiveness of their work.

Since digital devices, in general, consume a lot of electricity, to ensure the sustainable development of the organization, it is advisable for entrepreneurs to choose automated systems for themselves correctly, to give preference to less energy-consuming tools. Along with the positive aspects of using online technologies, new problems and challenges arise. This, for example, concerns the loss of jobs, the need to acquire new knowledge and skills, the implementation of new training programs, etc.

Table 4

Comparative characteristics of digital tools and sustainability reserves in Ukraine and the EU, 2023–2024

| Indicator | Ukraine (2024) | EU average | Technological reserve for sustainable development |
|---|--|----------------------------|--|
| Cloud computing adoption | 20–25% of enterprises | 45% (2030 target – 75%) | High: switching to the cloud reduces energy consumption of local digital servers |
| AI application | 5–7% (mainly IT sector) | 8–10% (leaders – over 20%) | 8–10% (leaders – over 20%) |
| Digital intensity of small and medium enterprises | Average level (emphasis on e-commerce) | 58% (2030 target – 90%) | Implementation of systems for transparent CSR reporting |
| Digital government services (E-Government) | 97% (leadership group) | 82–85% | Open data for assessing the social impact of enterprises |
| Level of digital skills | 52% of population | 52% of population | Reserve in training personnel to work with eco-technologies |
| Cybersecurity and data protection | High (due to martial law) | High (GDPR regulation) | Ensuring ethical handling of customer data |

Note: * compiled on the basis of [12, 19]

If do not invest in training, social problems may arise in society (job loss, social inequality), which does not correspond to the concept of sustainability. In wartime conditions in Ukraine, digitalization plays an important role in supporting social development, through the provision of remote work for citizens, online learning, the provision of certain services and assistance, and communication. From the perspective of the prospects for economic recovery and attracting financing for Ukrainian enterprises, the use of blockchain projects in the formation of CSR reports is important. At the same time, the principles of accessibility and transparency are implemented, corruption is reduced. As a certain reserve of production, one can also consider the possibility of involving such categories of people as displaced persons, people with disabilities, war veterans, etc. in active labor activity in a digital format.

It is worth considering certain limitations when using these research results. Limitations in the use of these approaches, for example, may be associated with the high cost of digital devices, which makes them inaccessible to certain entrepreneurs, which especially applies to small and medium-sized business structures. This manifests itself in the shortcomings of institutional development, digital awareness, and material inequality in society, which limits the scaling of digital innovations among users. Individual digital objects, in the absence of regular control, require a lot of electricity and can create additional environmental pollution. The limitation is also due to the spread of the so-called greenwashing, which involves a purely formal implementation of CSR, in order for a business to imitate its image, without affecting changes in social development. In this regard, the implementation of the above-mentioned approaches should be carried out with the correct justification of many factors. This, in particular, concerns taking into account financial and intellectual capabilities and digital priorities, paying due attention to laws and regulations regulating the specified processes. Close cooperation with investors and partners, the use of internal and external training centers for employees to acquire online knowledge and competencies, constant monitoring of electricity consumption and pollution, etc. will have a positive impact. The outlined approaches can orient Ukrainian entrepreneurs towards the active use of digital systems for data processing when forming social reports. This can contribute to reducing corruption, increasing the investment attractiveness of companies, improving their image among investors, partners and clients, and using business reserves.

The prospects of this research can be focused on a deeper study of existing ethical problems and digital security in the business social responsibility management system.

4. Conclusions

1. CSR is transformed from a traditional costly mechanism in the past into a more attractive modern toolkit for business, which is able to reveal certain hidden production reserves. In the conditions of Ukrainian practice, CSR in the context of digitalization is transformed from a traditional voluntary social initiative into a strategic direction of post-war survival. This approach is especially important in forming the conditions for Ukraine's integration into the European space.

2. The practical implementation of CSR projects and automated systems provides for a certain synergistic efficiency, provides for the possibility of simultaneously solving many social problems. This concerns obtaining relevant economic benefits while simultaneously solving environmental, social and ethical tasks, which corresponds to the principles of sustainable development. Digitalized CSR in the conditions of martial law in Ukraine is an important tool for survival and maintaining national stability. In the conditions of the digital economy, there are possibilities for remote management of business processes while maintaining safety of work, training, ensuring transparent financing of renewable projects, etc. In order to eliminate such risks

of online CSR as gaps in awareness among people and the presence of cyber threats, it is proposed to address these issues on the basis of an effective and systematic system of training and retraining of citizens. It is also advisable to attach due importance to the popularization of the principles of digital ethics and responsibility, the dissemination and stimulation of best practices of CSR business through social networks and the media.

3. In the context of the analysis of digital CSR projects, opportunities for the implementation of additional business reserves were identified, by supporting its transparency and attractiveness for the implementation of investment programs. Since the investment system depends significantly on ESG reporting of business, approaches to its improvement and dissemination in practice are proposed. The issue of the strategic importance of CSR digitalization and sustainable development for ensuring the integration of the Ukrainian state into the European space is substantiated.

Conflict of interest

The authors declare that they have no conflict of interest regarding this research, including financial, personal, authorship or other nature, which could affect the research and its results presented in this paper.

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Data availability

The manuscript has no associated data.

Use of artificial intelligence

The authors confirm that artificial intelligence technologies were used in the creation of the presented work. The Gemini model (version 1.5 Pro) was used to check grammar, spelling, punctuation without changing the text, search for literature sources and visualize author data in the form of tables.

All of the above results obtained in the manuscript, using AI tools, were carefully checked by the authors. In particular, language edits were checked manually for compliance with the scientific style, and the used literary sources were checked and edited through scientific databases.

Artificial intelligence tools did not affect the research results, their interpretation, and the formulated conclusions, and all the main provisions of the manuscript were obtained by the authors independently.

Authors' contributions

Tetiana Chervinska: Investigation, Validation, Formal analysis, Visualization, Project administration; **Hanna Bratus:** Conceptualization; **Liubov Chervinska:** Writing – original draft, Writing – review and editing; **Iryna Kalina:** Methodology, Funding acquisition; **Kyrylo Hanhanov:** Supervision, Funding acquisition.

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