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Tetiana V. Gorokhova, Candidate of Economic Sciences (PhD), Associate Professor, Department of Marketing and Business Administration, Pryazovskyi State Technical University. Dnipro, Ukraine.

ORCID: 0000-0003-0435-5047, Scopus: 57216523061

Corporate social responsibility in the era of digital transformation: Bridging technology and sustainability

Abstract: The article explores the critical intersection of corporate social responsibility and technological innovation within the context of digital transformation. In an era where rapid technological advancements are reshaping industries, the integration of corporate social responsibility principles has emerged as both a strategic necessity and a moral obligation for businesses. The study examines the relevance of corporate social responsibility in fostering sustainable development, emphasizing its role in addressing key societal and environmental challenges, including data privacy, digital inclusion, and environmental sustainability. The study object is the evolving relationship between corporate social responsibility and digital transformation, focusing on how organizations navigate their ethical responsibilities while embracing innovation. The study aims to analyze the strategic role of corporate social responsibility in technological advancements, identify challenges in its implementation, and propose actionable solutions for enhancing its integration into corporate practices. The study draws on a comprehensive review of seminal works by scholars such as Al-Shammari, Kim, Barauskaite, etc., who have explored the interplay between corporate social responsibility, corporate performance, and financial outcomes. Using qualitative analysis, the research synthesizes findings from existing literature, case studies, and international frameworks such as the European Green Deal to outline the best practices and emerging trends in CSR-driven digital transformation. The results highlight the dual benefits of aligning corporate social responsibility with technological innovation: enhanced competitiveness and long-term societal value creation. Key findings include the importance of robust frameworks for data security, the necessity of promoting digital skills and inclusion, and the potential of leveraging technology to address global challenges like climate change and resource management. The article concludes that integrating corporate social responsibility into technological innovation supports sustainable development and enhances organizations' trust, collaboration, and innovation. These insights offer valuable guidance for academics, policymakers, and business leaders striving to balance technological progress with social responsibility.

Keywords: corporate social responsibility, digital transformation, technological innovation, sustainable development, data privacy, digital inclusion, environmental sustainability.



Abbreviation:

CSR is corporate social responsibility,

EGD is European Green Deal,

ESG is environmental, social, and governance,

ERP is enterprise resource planning,
GDPR is General Data Protection Regulation,
IIoT is the Industrial Internet of Things,
NGO is non-governmental organization,
SDG is Sustainable Development Goal,
SIAs are social impact assessments,
SMEs are small and medium-sized enterprises.

Introduction

Rapid technological advancements and digital transformation reshape industries, economies, and societies in the contemporary era. These shifts offer unparalleled economic growth and social development opportunities, but they also pose significant challenges. Against this backdrop, CSR has emerged as a crucial framework that bridges business objectives with ethical imperatives, addressing the growing need for sustainable and inclusive progress (Velte, 2022).

CSR encompasses the economic, environmental, and social commitments that businesses must fulfill. It ensures that technological innovation while driving progress, aligns with broader societal and environmental goals. As organizations adopt new technologies to remain competitive, CSR provides a guiding framework to balance profit motives with responsibilities toward stakeholders, communities, and the environment.

The relevance of this study lies in the increasing interplay between CSR and digital transformation. Scholars emphasize the transformative potential of CSR in shaping ethical, sustainable, and inclusive technological advancements. For instance, Al-Shammari et al. (2022) highlight CSR's role in guiding technological innovation, focusing on responsibilities businesses should uphold during innovation processes. Kim S. et al. (2021) introduce the concept of "dual responsibility", examining how companies balance social responsibilities with economic goals and the resultant impact on corporate performance. Meanwhile, Barauskaite G. et al. (2021) explore the relationship between CSR and financial performance, addressing how socially responsible practices influence business outcomes while identifying gaps in conceptual clarity and evaluation methods.

This study aims to delve deeper into the strategic role of CSR in digital transformation. The study object is the interaction between CSR and technological innovation, focusing on their combined impact on sustainable development. The primary purpose is to analyze how CSR can guide digital transformation to address societal challenges, enhance corporate accountability, and promote long-term sustainability. The objectives include examining how CSR influences technological innovation, identifying challenges in CSR implementation during digital transformation, and proposing actionable strategies for integrating CSR into business practices.

The research employs a qualitative methodology, synthesizing insights from a comprehensive review of existing literature, case studies, and global frameworks such as the EGD and the United Nations SDGs. Theoretical contributions from Al-Shammari, Kim, Barauskaite, and others form the foundation for this analysis, providing diverse perspectives on the interconnection between CSR and technological progress.

The findings target multiple audiences, including business leaders, policymakers, academics, and sustainability advocates. By offering actionable recommendations, this article aims to guide enterprises in leveraging CSR as a strategic tool to navigate the complexities of digital transformation. Ultimately, this study contributes to the broader discourse on how CSR can drive ethical innovation, strengthen stakeholder trust, and ensure that technological progress benefits businesses and society.

The results of the study

1. Understanding the foundations of corporate social responsibility

Conceptual framework and core principles of corporate social responsibility

CSR encompasses businesses' social and environmental obligations as part of their operations. It represents a company's commitment to addressing the needs of society and its stakeholders, aiming to enhance societal well-being and ensure environmental sustainability through active participation in social initiatives and adopting sustainable practices (*Tibiletti et al., 2021*). CSR is typically divided into three main dimensions: economic, environmental, and social responsibilities.

Economic responsibility focuses on the need for businesses to operate lawfully and ethically while delivering stable returns to investors. Companies are expected to comply with legal standards, honor contracts with integrity, and ensure fair treatment and equitable rewards for shareholders and employees.

Environmental responsibility highlights the proactive steps businesses must take to mitigate their impact on the planet (*Kemp, 1994*). These include reducing energy consumption, minimizing waste and emissions, and adopting renewable energy sources. These measures aim to conserve natural resources, protect ecosystems, and foster sustainable development for future generations.

Finally, social responsibility emphasizes the importance of addressing social welfare and justice within business operations. Companies are expected to actively participate in community initiatives, support educational and cultural programs, care for vulnerable groups, and contribute positively to societal development. Fulfilling these responsibilities helps businesses gain trust and support from consumers, employees, and investors, enabling them to achieve sustainable economic success while promoting shared social values.

The principles of corporate social responsibility provide a framework to guide businesses in integrating social and environmental considerations into their operations. Transparency and accountability require companies to openly disclose their social and environmental performance, accept public oversight, and take responsibility for their actions (*Padilla-Lozano et al., 2021*). Respect for stakeholders' rights and interests obliges businesses to balance the needs and concerns of all stakeholders, including shareholders, employees, consumers, communities, and the environment, ensuring their rights are protected, and their voices are heard.

Sustainable development is another key principle, encouraging businesses to align economic, social, and environmental goals by making environmentally responsible decisions, optimizing resource use, and minimizing harmful emissions (*Lombardi et al., 2021*). Additionally, companies are urged to engage in social welfare and philanthropic activities, such as supporting education, healthcare, cultural projects, and community development, to give back to society.

Respect for human and labor rights is equally vital, requiring companies to uphold fair working conditions, provide adequate remuneration, and eliminate unethical practices such as forced labor, child labor, and discrimination.

By adhering to these principles, businesses fulfill their ethical obligations and contribute to advancing sustainable and equitable development in society.

The significance of corporate social responsibility

CSR holds immense significance for contemporary businesses. By embracing their social responsibilities, companies can cultivate a strong reputation and positive brand image, fostering trust among consumers and investors. This trust forms a stable foundation for sustainable growth and long-term success. Moreover, CSR initiatives attract and retain top talent, boost employee satisfaction and loyalty, and enhance overall competitiveness.

CSR is also vital for the sustainable development of society and the environment. In the face of escalating environmental challenges and complex social issues, businesses have a crucial role (*Ehrnström-Fuentes et al., 2023; Toussaint et al., 2021*). Companies can mitigate their ecological impact, optimize resource use, and elevate societal welfare through environmental protection measures and promoting sustainable practices. Furthermore, CSR efforts focused on employee well-being, education, healthcare, and cultural development contribute significantly to societal advancement.

In addition to its societal benefits, CSR opens avenues for business innovation and new opportunities. Businesses can uncover untapped markets and create innovative products and services by addressing social challenges and aligning with customer needs. Engaging in CSR also enables companies to build strong relationships with governments, NGOs, and other stakeholders, fostering collaboration and mutual success.

Ultimately, adopting CSR allows businesses to achieve a dual objective: driving economic success while creating social value. By doing so, they contribute to developing a more prosperous, equitable, and sustainable society.

2. Advancing through technological innovation and digital transformation.

Understanding technological innovation and digital transformation

Technological innovation and digital transformation are pivotal forces shaping contemporary enterprises and society. They drive profound changes in traditional industries and create new paradigms of operation and interaction. As science and technology evolve, these advancements enhance productivity and efficiency, fuel innovation, elevate living standards, and unlock fresh business opportunities.

Technological innovation and digital transformation significantly boost productivity and operational efficiency. By integrating advanced technologies such as automation, artificial intelligence, and machine learning, enterprises can optimize production processes, reduce costs, and improve the quality of products and services (*Managi et al., 2021*). For instance, robotics can take over physically demanding, hazardous, or monotonous tasks, allowing human employees to focus on higher-value, strategic activities. Simultaneously, digital transformation enhances organizational agility through streamlined workflows, improved data sharing, and faster decision-

making processes. Tools like cloud computing and ERP systems enable real-time collaboration and allow enterprises to adapt swiftly to changing market dynamics (*Hansson, 2010*).

Technological innovation and digital transformation catalyze continuous innovation, empowering businesses to meet evolving market demands and create breakthrough products and services. Digital platforms enable companies to gather and analyze vast amounts of data, uncovering insights that drive customer-centric innovation. This agility allows organizations to remain competitive in an increasingly dynamic business environment. Moreover, these advancements extend beyond enterprises to enhance societal living standards. Innovations such as smart home technologies, digital payment systems, and online education platforms have revolutionized daily life, offering greater convenience and accessibility. In healthcare, digital technologies, including telemedicine, wearable health devices, and AI-driven diagnostics, have transformed patient care, improving outcomes and expanding access to medical services (*Potocan, 2020*).

Despite their advantages, technological innovation and digital transformation present challenges and risks that businesses must navigate strategically. Data security and privacy protection are among the most pressing concerns, as the digital economy relies heavily on collecting, storing, and processing sensitive information. Enterprises must implement robust cybersecurity measures and establish transparent policies to safeguard customer data and build trust. Additionally, the rapid pace of technological advancement can lead to job displacement as traditional roles are automated. To address this, organizations should prioritize employee upskilling and reskilling, providing training programs that equip workers with the competencies needed to thrive in the digital age.

Thus, technological innovation and digital transformation are transformative drivers of economic growth and societal progress. By embracing these changes while addressing associated challenges responsibly, businesses can achieve greater resilience, innovation, and societal impact, paving the way for a more sustainable and inclusive future.

In conclusion, actively advancing technological innovation and digital transformation enables enterprises to sustain their competitiveness, achieve long-term sustainable development, and contribute significantly to societal progress. Simultaneously, the critical role of CSR must not be overlooked. CSR serves as a cornerstone for the enduring success of businesses, fosters the sustainable development of society and the environment, and opens avenues for new business opportunities and innovative solutions.

3. The strategic role of corporate social responsibility in driving technological innovation

CSR is integral to fostering technological innovation that balances commercial success with societal and environmental sustainability goals. As enterprises navigate innovation challenges, CSR serves as both a guiding framework and a regulatory force, ensuring that technological advancements align with ethical standards and contribute to the greater good. The role of CSR in technological innovation is multi-faceted and can be explored through the list of dimensions.

One of the primary responsibilities of enterprises engaged in technological innovation is guaranteeing the quality and safety of their products and services. This requires a commitment to rigorous testing, robust quality control mechanisms, and proactive risk management to ensure

that innovations do not harm users or society (Cera, 2017). CSR principles encourage businesses to allocate resources toward developing reliable and safe solutions, thus fostering consumer trust and mitigating potential legal or reputational risks.

Technological innovation, such as increased energy consumption or waste generation, often significantly impacts the environment. CSR demands that businesses prioritize sustainable practices in their innovation processes. This includes promoting renewable energy adoption, reducing emissions, minimizing resource waste, and implementing eco-friendly production methods (Dao, 2011). By integrating sustainability into technological advancements, companies can address environmental challenges while creating long-term value for stakeholders and society.

Employees are a critical driving force behind technological innovation, and CSR emphasizes the importance of safeguarding their well-being and rights. Enterprises should provide a safe and inclusive working environment, fair compensation, and opportunities for professional growth (Shiroishi et al., 2018). Offering training programs and career development initiatives boosts employee morale and satisfaction and ensures the workforce is equipped with the skills required to thrive in an evolving technological landscape. Companies that prioritize employee welfare are better positioned to attract and retain top talent, fostering innovation and productivity.

CSR extends beyond a business's internal operations to include active participation in community development. Enterprises can contribute by supporting local education, cultural initiatives, and infrastructure projects and creating job opportunities within the community. Sponsoring community events and collaborating with local stakeholders can enhance the company's reputation and establish stronger ties with the community, ultimately fostering a more supportive environment for innovation.

CSR guides enterprises toward responsible innovation and constrains activities that may have adverse societal or environmental consequences. By aligning their innovation strategies with CSR principles, companies can ensure that their technological advancements contribute positively to the broader ecosystem, earning societal recognition and stakeholder trust.

In summary, CSR is pivotal in shaping technological innovation that benefits businesses and society. By integrating CSR principles into their innovation strategies, enterprises can achieve a harmonious balance between economic objectives and sustainable development, driving progress while upholding ethical and social responsibilities.

4. Technology and corporate social responsibility. Ukrainian case

Developing CSR in Ukraine has gained significant traction over the last decade, spurred by internal transformations and external geopolitical influences. As Ukraine continues its path toward European integration, CSR has become an increasingly vital tool for aligning business practices with international standards, promoting social equity, and addressing environmental challenges. However, the interplay between technological innovation and CSR in Ukraine is particularly notable, as it illustrates the potential for technology-driven solutions to accelerate sustainability and societal progress.

CSR in Ukraine emerged as a formal concept in the early 2000s, largely driven by multinational corporations introducing global standards into the Ukrainian market. Over time,

local businesses began to adopt CSR practices, encouraged by growing consumer awareness and pressure from civil society. The 2014 Association Agreement with the European Union marked a pivotal moment in establishing CSR in Ukraine. This agreement emphasized compliance with EU ESG standards, pushing Ukrainian businesses to adopt more robust CSR policies.

Since then, the CSR landscape in Ukraine has evolved across various dimensions. Companies in export-driven industries such as agriculture, metallurgy, and IT have integrated CSR into their operations to enhance global competitiveness. This progress is also reflected in the rise of public-private partnerships and civil society initiatives to foster sustainable development (*Sytch et al., 2024*). For instance, many Ukrainian companies now support social programs in education, healthcare, and cultural heritage preservation as part of their CSR strategies.

Technological innovation has become a cornerstone for CSR advancement in Ukraine. The country's burgeoning IT sector, recognized globally for its skilled workforce, has led the charge in integrating technology with CSR initiatives. For example, numerous tech companies have launched digital education programs targeting underserved communities, addressing the digital divide, and fostering greater social inclusion. These programs contribute to societal development and align with broader SDGs.

Ukrainian companies have begun implementing green technologies in the manufacturing and energy sectors to reduce their environmental footprints. Initiatives such as adopting energy-efficient production systems, transitioning to renewable energy sources, and investing in waste management technologies demonstrate the integration of CSR principles with technological advancement. These efforts align with Ukraine's commitments under the Paris Agreement and its aspirations to meet the EGD's ambitious climate goals (*Honcharenko et al., 2022*).

Despite these advances, significant challenges hinder the seamless integration of CSR and technology in Ukraine. A primary challenge is the uneven distribution of CSR adoption across industries. While sectors like IT and large export-oriented businesses have made considerable progress, SMEs face resource constraints and limited awareness, which impede the implementation of CSR initiatives.

Moreover, data security and privacy have emerged as critical issues in the digital transformation era. Ukrainian companies must navigate complex regulations, including compliance with the European Union's GDPR, while simultaneously fostering public trust. The lack of robust cybersecurity frameworks and the growing threat of cyberattacks pose additional risks that companies must address to maintain the integrity of their CSR initiatives.

Another significant barrier is the absence of standardized metrics for evaluating the impact of CSR-driven technological innovations. Without comprehensive frameworks to assess environmental, social, and economic outcomes, businesses struggle to quantify their contributions to sustainability goals. This lack of clarity can lead to inconsistent implementation and hinder broader societal benefits.

Ukraine's ongoing digital transformation presents immense opportunities for deepening the integration of CSR and technology. The government's "Digital Ukraine" strategy, which aims to create a more inclusive and innovative digital economy, provides a platform for businesses to align their technological advancements with CSR objectives. For example, digital tools can be

leveraged to improve access to healthcare and education in rural areas, enhance transparency in supply chains, and optimize resource utilization in manufacturing processes.

Additionally, Ukraine's alignment with the EGD offers an opportunity to accelerate the adoption of green technologies. Ukrainian enterprises can advance their environmental performance by leveraging EU funding and expertise while meeting global sustainability standards. Investments in renewable energy, circular economy practices, and sustainable agriculture are particularly promising areas for aligning CSR and technological innovation.

Furthermore, fostering collaboration between academia, industry, and government could amplify the impact of CSR-driven technological solutions. Research institutions and universities in Ukraine can play a critical role in developing innovative technologies that address societal challenges, while businesses can act as enablers by scaling these solutions. Government policies, meanwhile, can provide the regulatory frameworks and incentives necessary to support such initiatives.

The integration of CSR and technology in Ukraine is a dynamic and evolving process, shaped by the country's unique socio-economic context and aspirations for European integration. While significant progress has been made, particularly in the IT and export-oriented sectors, addressing challenges such as uneven adoption, data security, and the lack of standardized impact metrics is essential for achieving holistic progress.

By leveraging its technological potential and aligning with international CSR standards, Ukraine can position itself as a leader in sustainable development. However, this will require a concerted effort from all stakeholders – businesses, government, civil society, and academia – to ensure that CSR and technology work hand in hand to create a more equitable, innovative, and sustainable society. Through such collaboration, Ukraine can enhance its global competitiveness and contribute meaningfully to advancing societal and environmental well-being.

5. Technological innovation and the path to sustainable development

Emerging technological paradigms, such as Industry 4.0, IIoT, and Society 5.0, are fundamentally reshaping the discourse on sustainable development (*Hanson, 2010; BMBF, 2010*). These frameworks emphasize the sustainability of technological innovations, their alignment with societal needs, and long-term environmental stewardship. At the heart of these visions lies the critical challenge of transitioning from the current state of technological development to a future that integrates sustainability into every facet of human progress. This transition necessitates a more transdisciplinary, multifunctional, and inclusive understanding of technological advancement, considering its implications for the future of humankind.

Several objective and subjective factors impede the achievement of sustainability in technological development. A significant limitation is the difficulty in assessing basic and applied research sustainability in fields such as optics, laser technology, or artificial intelligence. These fields are often evaluated based on their scientific merit or economic potential rather than their alignment with sustainability goals (*Bottcher et al., 2023*). While specific technological solutions emerging from these fields may contribute to sustainable outcomes, the underlying research is rarely designed with sustainability in mind.

Furthermore, the unpredictable nature of technological innovation complicates the alignment of new developments with sustainability objectives. The trajectory of fundamental research often does not lend itself to forecasting or directing outcomes toward sustainable goals. For instance, breakthroughs in materials science or quantum computing may yield applications that enhance sustainability, but such outcomes are rarely the explicit focus of the foundational research.

Despite these challenges, a growing body of research and development focuses on creating technologies with high sustainability potential. These include innovations that address pressing environmental and societal issues, such as renewable energy systems, waste management technologies, and circular economy solutions (*Cardinali et al., 2022*). To ensure the effectiveness of such technologies, society must establish the conditions for their adoption and integration. This involves defining the societal, infrastructural, and regulatory frameworks necessary for their implementation and scaling.

An illustrative example is the development of autonomous vehicles, such as Honda's Level 3 self-driving cars, which aim to enhance transportation sustainability. These vehicles necessitate advancements in automotive technologies, the creation of supporting infrastructure (e.g., smart traffic systems), and the establishment of cultural, legal, and social norms to regulate their use. The success of such innovations depends not only on technological progress but also on the readiness of society to embrace these changes. This highlights the interplay between technological innovation, policy development, and societal adaptation.

Currently, the adoption and development of sustainable technologies are largely governed by market dynamics, particularly the interplay of supply and demand. Government policies and incentives sometimes accelerate the transition to sustainable technologies, as seen with subsidies for renewable energy or electric vehicles. However, reliance on market mechanisms alone cannot drive the systemic changes required for sustainable development.

To address this gap, new mechanisms that actively guide technological innovation toward sustainability goals are needed (*Chen et al., 2023*). Businesses, governments, and research institutions must collaborate to create targeted strategies that prioritize sustainability in the development and deployment of new technologies. This could involve designing incentive structures, fostering public-private partnerships, and integrating sustainability criteria into research funding frameworks.

Transitioning to a sustainable technological future requires a holistic approach that integrates environmental, societal, and economic dimensions. It is not enough to develop environmentally friendly technologies; their adoption must be supported by robust infrastructure, progressive policies, and societal readiness (*Padilla-Lozano et al., 2021*). For instance, implementing renewable energy technologies depends on the availability of smart grids, storage solutions, and regulatory frameworks that incentivize their use. Similarly, the success of circular economy initiatives hinges on societal behavior, corporate commitment, and governmental support.

The challenge of ensuring the sustainability of emerging technologies also extends to evaluating their broader impact. Comprehensive sustainability assessment frameworks must be developed to measure the immediate benefits of new technologies and their long-term implications for society and the environment. These frameworks should account for factors such

as resource use, emissions, social equity, and economic viability, enabling a more nuanced understanding of sustainability.

The transition from the current technological state to a future characterized by sustainable technological operations is a critical area of focus for organizations and society. This transition involves numerous interconnected factors, including societal awareness of sustainability, organizational willingness to invest in sustainable technologies, and the development of supportive environments for their adoption and integration (*Kim et al., 2021*). Research emphasizes that society's policies and priorities significantly influence this transition, shaping the context in which organizations operate and adopt sustainable technologies.

One of the most significant drivers of the transition is the development of societal awareness regarding the importance of sustainable development. As awareness grows, so does the demand for sustainable technologies, pushing organizations to align their operations with these expectations. However, the financial commitment of companies to adopt and utilize sustainable technologies is equally crucial (*Potocan et al. 2020; Toussaint et al., 2021*). Organizations must invest not only in the technologies but also in the infrastructure, training, and systems necessary for effective implementation.

Institutional requirements also play a pivotal role. Most countries enforce regulations to ensure the sustainable use of technologies within organizations. In more developed economies, there is an additional emphasis on adopting inherently sustainable technologies, creating a more robust framework for advancing sustainability (*Dao et al., 2011*). However, research suggests that these regulatory measures are not uniform across regions, resulting in varied levels of sustainable technology adoption and implementation. A deeper understanding of the interaction between diverse technological combinations and their sustainability outcomes in different contexts remains underexplored.

The integration of technology within CSR has been an evolving discourse. Over the past decade, researchers have emphasized expanding CSR models to include a technological dimension. This includes understanding the relationship between technology and the core dimensions of CSR – economic, social, and environmental responsibilities. While there is broad consensus on the relevance of technology within CSR, researchers differ on the depth and scope required for its integration.

Technological CSR encompasses several aspects: the sustainability of the technology itself, the sustainability of its implementation, and the sustainability of its outcomes. Each of these facets requires nuanced consideration, influenced by factors such as the technology's specific characteristics, the organization's market position, and technological infrastructure. For example, the sustainability of a technology like renewable energy systems extends beyond its intrinsic characteristics to include its deployment within a specific organization, its impact on operations, and its long-term benefits for society.

One of the key challenges in incorporating technology into CSR is the lack of standardized frameworks for evaluating sustainability. Researchers highlight the need for methodologies that differentiate between new and traditional technologies and assess technologies across a spectrum from completely unsustainable to entirely sustainable (*Chen et al., 2023; Ebrnström-Fuentes et al., 2023*). However, these assessments often occur outside the organization's purview, relying instead on societal criteria and contextual factors. Consequently, organizations may adopt

sustainable technologies within their operational context, even if they do not fully meet broader sustainability standards.

Another unresolved issue pertains to the scope of sustainability assessments. Should organizations focus on the sustainability of the technology itself, its implementation process, or its results? Alternatively, should they adopt a holistic approach that integrates all three? Current research suggests that the decision largely depends on the organization's priorities, technological capabilities, and market conditions. For instance, a company operating in a resource-intensive industry might prioritize technologies that reduce emissions and optimize resource use. At the same time, a technology-focused organization might emphasize innovations that enable broader societal benefits.

Given these complexities, the technological dimension of CSR is often treated as an independent but integral part of CSR frameworks. By developing contextual and methodological solutions, researchers advocate for a more comprehensive inclusion of technology in CSR models. This involves addressing the sustainability of individual technologies, their implementation, and their outcomes while also considering their broader societal and environmental impacts.

For example, an interdisciplinary and multifunctional approach to technology within CSR could examine how new technologies contribute to reducing carbon footprints, improving labor conditions, or enhancing community well-being. At the same time, it would address the systemic changes required to support these outcomes, such as regulatory reforms, public-private partnerships, and capacity-building initiatives.

Discussion

CSR is a pivotal element in digital transformation, shaping how enterprises navigate the complexities of integrating technology into their operations while addressing societal and environmental concerns. CSR ensures that digital transformation is a means to achieve efficiency and innovation and a pathway to ethical and sustainable development. The intersection of CSR and digital transformation can be analyzed through several critical dimensions:

Digital transformation inherently involves extensive data collection, processing, and storage, making data privacy and security a central CSR responsibility. Companies must prioritize safeguarding user data by adhering to stringent privacy regulations and implementing robust cybersecurity measures. Compliance with frameworks like the GDPR is not merely a legal obligation but also an ethical imperative to build stakeholder trust. Beyond compliance, businesses should invest in advanced encryption technologies, secure data infrastructure, and proactive threat detection systems to prevent data breaches and misuse. Transparent communication about data usage policies further reinforces user confidence and demonstrates accountability.

One of the primary objectives of digital transformation should be fostering social inclusion. The digital divide remains a significant challenge globally, with marginalized communities often excluded from the benefits of technological advancements. CSR calls for businesses to design accessible and user-friendly digital solutions that cater to diverse populations, including those with limited digital literacy, disabilities, or restricted access to technology. Initiatives such as providing affordable internet services, developing inclusive interfaces, and collaborating with

governments or NGOs to expand digital access can help bridge this divide. Digital inclusion ensures that the advantages of technology are equitably distributed, contributing to broader social and economic development.

The success of digital transformation depends on the digital competence of employees and stakeholders. CSR-driven organizations have a responsibility to facilitate skill development and knowledge-sharing initiatives. Training programs, workshops, and certifications empower employees to adapt to new technological demands, enhancing their professional growth and ensuring workforce readiness. Such efforts improve employee retention and satisfaction and contribute to the resilience and adaptability of businesses in an ever-evolving technological landscape. Moreover, extending these educational opportunities to local communities or underprivileged groups further demonstrates a commitment to societal progress.

Digital transformation can lead to profound societal changes, such as shifts in employment patterns, new social hierarchies, and the redefinition of community structures. Companies must conduct thorough SIAs to understand the potential consequences of digital initiatives on various stakeholders. These assessments enable businesses to anticipate and mitigate adverse effects, such as job displacement due to automation, and to implement proactive measures like reskilling programs or policy advocacy for equitable labor practices. By considering the broader societal implications of digital transformation, enterprises can align their strategies with sustainable development goals and foster a positive societal impact.

Digital transformation offers unparalleled opportunities for innovation that can address pressing social and environmental challenges. CSR encourages businesses to leverage technological advancements to develop solutions for issues such as climate change, urbanization, and resource scarcity. Examples include creating smart city infrastructure to optimize resource utilization, developing renewable energy technologies, and deploying digital health platforms to enhance healthcare accessibility. By aligning technological innovation with social problem-solving, companies can amplify their societal contributions, enhance their reputation, and differentiate themselves as leaders in sustainable innovation.

CSR is a guiding principle and a regulatory framework in the digital transformation journey. It ensures that technological advancements are pursued with an ethical lens, balancing corporate interests with societal welfare. CSR-driven digital transformation strategies help businesses address critical questions: How does this transformation affect society? Who benefits? Are there unintended negative consequences, and how can they be mitigated? Companies can navigate these challenges by embedding CSR into digital strategies while fostering trust and accountability.

Conclusion

Corporate Social Responsibility plays an indispensable role in ensuring that digital transformation contributes positively to society and the environment. By addressing key issues such as data privacy, digital inclusion, skills development, societal impact, and innovation, CSR provides a holistic framework for ethical and sustainable digital advancements. Enterprises that embrace CSR in their digital transformation initiatives gain societal recognition and stakeholder support and position themselves as leaders in sustainable development. Ultimately, by aligning technology with responsibility, businesses can drive progress that benefits society and the environment, ensuring a more equitable and sustainable future.

The technological dimension of CSR is as significant as its economic, social, and environmental counterparts. Organizations can address complex sustainability challenges by integrating technology into CSR frameworks while fostering innovation and competitiveness. However, achieving this integration requires overcoming several hurdles, including developing standardized evaluation frameworks, aligning organizational priorities with societal goals, and creating supportive policy environments.

As organizations continue to navigate the transition to sustainable technological operations, the role of technology within CSR will become increasingly prominent. By adopting a holistic and interdisciplinary approach, businesses can leverage technological innovation to achieve their CSR objectives, contributing to a more sustainable and equitable societal future. This vision calls for a concerted effort among researchers, policymakers, and organizations to redefine the role of technology within CSR and unlock its full potential for sustainable development.



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