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CSR 4.0 FROM THE DIGITAL ECONOMY AND ECOSYSTEM PERSPECTIVE: A PILOT STUDY

Corporate Social Responsibility (CSR) relies on stakeholder theory and refers to the organisation's obligation to meet the expectations of its stakeholders for socially and environmentally sustainable business conduct. Basically, CSR defined as 'accountability for the impacts of business decisions and operations on society and the environment' [1]. From its philanthropic origins, CSR has developed into more systematic and strategic efforts by companies, bringing with it the need to better understand the nature and complexity of interactions with stakeholders [2]. Given that a company is to be regarded as one of the economic actors in the regional ecosystem, CSR efforts of companies are vital to the well-being of the ecosystem as a whole.

The digital economy has rapidly evolved in the wake of the digital transformation. Digital economy refers to economic activities that connect people, machines, data, processes, organisations, and ecosystems using digital technologies. Such paradigm of hyperconnectivity [3] is forcing the economy to move from conventional concepts to a more holistic and complex understanding of information, data, interactions, and connected services. Hu (2023) argues that the digital economy significantly promotes CSR by mitigating information asymmetry and offering stakeholders new opportunities to monitor CSR performance [4]. Use of digital technologies and connected services offers further opportunities for CSR in terms of information networks and data sharing, enabling the enterprise's information system to be disclosed to stakeholders [5]. In this way, the digital economy and Industry 4.0 gave rise to the modern CSR concept, known as CSR 4.0, which entails a new dimension of interaction [6] and new priorities such as focus on innovation, co-creation, and ecosystem perspective.

The core priorities of CSR 4.0 form the basis for this pilot study. The focus is on the connection between the company, stakeholders, and ecosystem, as well as on the barriers to the CSR implementation. This small-scale pilot study focuses on SMEs from the manufacturing sector, which a priori do not belong to the philanthropic ventures. At first, typical barriers were identified on the basis of the literature. A survey was then conducted to scope the research area, research methods, and to reveal possible barriers in relation to CSR.

The literature on the CSR context is very extensive. Some sources distinguish between the CSR efforts of large multinational companies (MNCs), which integrate CSR into their day-to-day business, and SMEs, which may lack a strategic vision and tend to take more ad hoc CSR actions [7]. The integration of CSR means that the most critical CSR aspects are incorporated into corporate strategies, culture, business processes, decision-making and communication techniques. The following main barriers to CSR are identified from the literature:

- Lack of resources, including finances, human, knowledge and experience [8], is particularly critical for SMEs in the manufacturing sector, who are often limited in their resources.
- Insufficient expertise among CSR practitioners [9] for the introduction and execution of CSR, which primarily requires motivation and specialised knowledge at the top management level [9]. This is critical for SMEs, whose strategic planning is often shaped by a single decision-maker (e.g. the business owner).
- Lack of measurement systems necessary to quantify the CSR performance [8]. It is critical for the whole manufacturing sector, but especially for small and micro business, that may lack the expertise to build and monitor benchmarking and key performance indicators (KPIs).
- Lack of understanding of CSR benefits, which can pose a challenge for managers and decision-makers to take concrete management measures to implement CSR [8].

- Low willingness to pay for CSR, which is reflected in the fact that customers are not willing to compromise when it comes to paying a “premium” for CSR [8]. It is essential for the B2C sector if its consumers are not willing to opt for socially and environmentally sustainable but high-priced products and services. B2B customers may also be unwilling to pay higher prices for the product or service (e.g. for transport) given the increased price competition; yet this category may be willing to punish CSR lack [8] or to afford it in the case of a clear CSR benefit.

- High legal standards, particularly in the areas of the environment and safety, that are constantly raised by new or amended regulations, thus forcing industry to address such standards [8] and making the manufacturing sector sophisticated. In Table 1, all typical barriers to CSR are grouped from different points of view (business, ecosystem and manufacturing sector).

Table 1. List of barriers to implementation of CSR

Barrier ID	Description	Perspective
B1	Lack of knowledge and expertise on CSR deployment	Company
B2	Limited resources for CSR implementation	Company
B3	Inability to decide on the CSR benefit	Company
B4	Lack of top management commitment	Company
B5	Lack of organisational reward for employees for CSR	Company
B6	Complexity of the CSR deployment	Company
B7	Low willingness of stakeholders to contribute to CSR activities	Ecosystem
B8	Weak commitment from suppliers and distributors	Ecosystem
B9	Low involvement of external interest groups and customers	Ecosystem
B10	Scepticism towards CSR as a driving force for social change	Ecosystem
B11	Insufficient strategic planning for CSR deployment	Sector
B12	Low customer readiness to pay for CSR	Sector
B13	Lack of a significant advantage for companies deployed CSR	Sector
B14	Lack of benchmarking standards for CSR performance	Sector

In this amusing study, a logical sequence of questions was used to determine whether these barriers can be applied to Ukrainian manufacturing SMEs. Potential respondents were contacted via the network of the Agency for European Innovation (Lviv, Ukraine), i.e. the research was limited to the scope of one regional ecosystem. 10 companies were contacted, of which 6 responded (Table 2). To visualise the results, the Origin 2024b Alluvial diagram (Figure 1) was used to depict the linkages between the barriers and questions used to elicit them. The survey was conducted in Ukrainian and English, the data are presented in the English version.

Findings of the pilot study can be summarised as follows. From the company's perspective, the main barriers are a lack of capacity to adopt and implement CSR; companies might opt for CSR if the financial and human resources were available. Nevertheless, this aspect may be affected by a bias due to the majority of micro-enterprises (with fewer than 10 employees), i.e. this aspect should be thoroughly considered in further studies involving different organisation sizes. The decision-making practice of the companies surveyed lags behind the CSR aspects, yet the companies can recognise the benefits and priority of CSR implementation. From an ecosystem perspective, it is positive that the surveyed companies have established a dialogue with their customers. However, none of the respondents take social and environmental aspects into account when selecting suppliers; they also do not work with companies (including large enterprises) that may have already integrated CSR. Overall, companies are lagging behind in terms of networking and contacts with other ecosystem actors, such as policymakers and universities, i.e. their participation in the ecosystem is rather weak. From the sector's perspective, the main barriers are the effort and cost of planning and implementing CSR, and the fear that CSR will lead to higher costs for services (e.g. logistics) (Respondents 2 and 4), which can be critical for certain market segments.

Table 2. Profile of respondents

Respondent ID	Role	Sector	Organisation size (No of employees)
Respondent 1	Middle level management	Chemical production	<10
Respondent 2	Top-level management	HealthCare (incl. service)	<10
Respondent 3	Top-level management	Chemical production	10 - 49
Respondent 4	Middle level management	Agricultural production	<10
Respondent 5	Top-level management	Trading and distribution	10 - 49
Respondent 6	Top-level management	Machinery	50 - 249



Figure 1. Scope of research on barriers to CSR

Discussion: The survey made two key assumptions from the perspective of an ecosystem and the digital economy to explore the motives of companies for CSR:

Assumption 1. A technological and market driven impetus is the highest motivation for implementing CSR: This was highlighted in two responses (Respondents 5 and 6) as a driver for CSR. Technological development is of central importance for the digital economy, where digital transformation and data-driven markets lay the foundation for an effective connected economy. However, in terms of the potential of the digital economy, such as monitoring of CSR performance, obviously CSR 4.0 aspects are limited to the connected actors within a value network or individual ecosystem. This aspect requires thorough further investigation.

Assumption 2. Regulatory boost is the largest motivator for the implementation of CSR: None of the respondents see strict regulation as a driving force and motivator for CSR. Instead, a combination of 'soft' policy measures in the form of supportive recommendations for SMEs and the manufacturing industry, coupled with targeted investments, can raise awareness and encourage the formation of a collective attitude towards CSR. Support and services provided by clusters as

ecosystem orchestrators have the potential to drive social and digital transformation by facilitating collective learning effects among ecosystem actors.

As such, this conference paper provides a basis for future studies in large-scale samples on CSR and the ecosystem from a digital economy perspective.

References

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