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CSR IN THE CONSTRUCTION INDUSTRY: A CRITICAL REVIEW OF CONCEPTUAL AND METHODOLOGICAL FRAMEWORKS

The construction industry plays a vital role in the socio-economic development of any society. At the same time, the industry produces adverse social and environmental effects, which makes the adoption of corporate social responsibility (CSR) by construction companies especially relevant. For CSR management and research purposes, the abstract concept of CSR should be described in a structured and specific way, using certain conceptual and methodological frameworks. The goal of this article is to provide a critical review of the CSR frameworks used in academic literature on CSR in the construction industry and in CSR-related standards. We discuss CSR in terms of the industry-specific material topics proposed in the SASB standards. In particular, we show the importance of life cycle analysis for the construction industry, taking into account the nature of its products. We also show that the CSR of construction companies extends to the environmental impact not only of their own production activities but also of their construction products (buildings, infrastructure objects). We demonstrate that the LEED rating and certification system provides a comprehensive framework for such an important aspect of CSR as green building. In the academic and business literature, broad dimensions of CSR are often defined using the corporate sustainability and ESG concepts, and then narrower, specific topics are identified within each for those dimensions. We summarize such specific topics along economic, social, environmental, and governance dimensions. An alternative approach to defining the dimensions of CSR is through identifying the interests of stakeholders. The most common groups of stakeholders of construction companies referred to in the literature are shareholders, employees, customers, local communities, suppliers and partners, government, competitors, environment. CSR in the construction industry is shaped by external factors, which we categorize into mandatory rules, social pressures, the CSR infrastructure, market pressures, and technological factors. We introduce the CSR infrastructure as a separate external factor because of its scope and role in promoting CSR and removing barriers to its adoption. We stress the role of technological innovations and green building practices in the CSR implementation in the construction industry. The internal factors that stimulate or impede the adoption CSR by a construction company include the company's values, vision, culture, strategies and the leadership. We emphasize the importance for the construction industry to use a holistic approach to CSR, considering the impacts within the entire value chain.

Keywords: corporate social responsibility (CSR); construction industry; CSR frameworks; stakeholder interests; corporate sustainability; materiality analysis; lifecycle analysis; environmental and social impact; green building; LEED certification; holistic approach

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**КОРПОРАТИВНА СОЦІАЛЬНА ВІДПОВІДАЛЬНІСТЬ У БУДІВЕЛЬНІЙ ГАЛУЗІ:
КРИТИЧНИЙ ОГЛЯД КОНЦЕПТУАЛЬНИХ І МЕТОДОЛОГІЧНИХ ПІДХОДІВ**

Будівельна галузь відіграє важливу роль у соціально-економічному розвитку будь-якого суспільства. У той же час галузь створює негативні соціальні та екологічні наслідки, що робить впровадження корпоративної соціальної відповідальності (КСВ) будівельними компаніями особливо актуальним. Для цілей управління КСВ та дослідницьких цілей необхідно конкретизувати і структурувати абстрактне поняття КСВ, використовуючи певні концептуально-методологічні підходи. Мета цієї статті – надати критичний огляд концептуально-методологічних підходів до КСВ, які використовуються в академічній літературі з КСВ у будівельній галузі та міжнародних стандартах, пов'язаних з КСВ. Ми обговорюємо КСВ з точки зору галузевих суттєвих (матеріальних) тем, запропонованих у стандартах SASB. Зокрема, ми доводимо важливість аналізу життєвого циклу для будівельної галузі з урахуванням характеру її продукції (будівлі, споруди). Ми також показуємо, що КСВ будівельних компаній поширюється на вплив на навколишнє середовище не лише їхньої власної виробничої діяльності, але й їхньої будівельної продукції. Ми демонструємо, що система оцінювання та сертифікації LEED забезпечує комплексний методологічний підхід для такого важливого аспекту КСВ, як зелене будівництво. У науковій літературі широкі виміри КСВ часто визначаються з використанням концепцій корпоративної стійкості та ESG, а потім у кожному з цих вимірів визначаються більш вузькі, конкретні теми. Ми наводимо перелік таких тем для економічного, соціального, екологічного та управлінського вимірів КСВ. Альтернативним підходом до вибору вимірів КСВ є визначення їх на основі інтересів різних груп стейкхолдерів. Найтипівшими групами стейкхолдерів будівельних компаній, які аналізуються в літературі, є акціонери, працівники, клієнти, місцеві громади, постачальники та партнери, уряд, конкуренти, навколишнє середовище. КСВ у будівельній галузі формується зовнішніми чинниками, які ми поділяємо на обов'язкові правила, соціальний тиск, інфраструктуру КСВ, ринковий тиск та технологічні чинники. Ми розглядаємо інфраструктуру КСВ як окремий зовнішній чинник через її масштаби та роль у просуванні КСВ та усуненні бар'єрів для її впровадження. Ми обґрунтовуємо роль технологічних інновацій та практик зеленого будівництва у впровадженні КСВ у будівельній галузі. Внутрішні чинники, які стимулюють або перешкоджають впровадженню КСВ будівельною компанією, включають цінності компанії, бачення, культуру, стратегії та лідерство. Ми також обґрунтовуємо важливість для будівельної галузі використання холистичного підходу до КСВ, враховуючи вплив у всьому ланцюжку створення вартості.

Ключові слова: корпоративна соціальна відповідальність (КСВ); будівельна галузь; підходи до КСВ; інтереси стейкхолдерів; корпоративна стійкість; аналіз суттєвості; аналіз життєвого циклу; зелене будівництво; сертифікація LEED; холистичний підхід

Introduction. Corporate social responsibility (CSR) has long become an indispensable attribute of business organizations, at least those of them that aspire to stay competitive and sustainable in the long run. Despite the fact that the concept of CSR has been widely discussed in business and academic literature for seven decades, the scope and dimensions of CSR i) are still the matter of debate; ii) evolve over time as new concerns arise in the process of socio-economic development and technological advancement; iii) are industry specific, and thus require a differentiated approach rather than a universal one. In addition, the perception of CSR depends on societal values that vary across times and countries, although currently, numerous international organizations and initiatives strive

to bring uniformity to the understanding of what CSR is through creating standards and frameworks. Conceptual frameworks of CSR in academic literature also help make this abstract concept more specific and structured.

Construction industry belongs to major industries in any society and has a large impact on economic and social development. On the other hand, the industry has a large potential to create multiple environmental and social problems, and is among the most hazardous industries in terms of occupational safety. That is why the problem of CSR is of high relevance for the industry. For a successful implementation of CSR, construction companies should use a holistic approach, which assumes multi-dimensionality of CSR, due to the need to take into account

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the interests of multiple stakeholders and cross-industry relations within the value chains.

Review of the recent literature and formulation of the research problem. The CSR of construction companies has been studied in a large number of research works using various methods and data sources: the content analysis of academic literature [1], surveys of construction companies [2-6], analysis of the CSR disclosures of construction companies [2, 7], case studies of selected companies [8]. Taking into account the nature and specific characteristics of the construction industry, the authors developed frameworks for describing the CSR of construction companies [1-5, 9]; identified CSR drivers, benefits of and barriers to the CSR adoption [4, 9]; built predictive mathematical models for CSR behavior [10]; studied the CSR strategies of construction companies [4, 6]; explored narrower topics related to responsible behavior of companies in the construction industry, such as green building [11, 12] and CSR certifications [13]. Despite the relatively large number of publications on the CSR of construction companies, the conceptual and methodological framework of CSR in the construction industry remains fragmentary and needs further refinement based on systems thinking and a holistic approach. In addition to its complexity, such conceptual framework is ever-evolving, because the scope of CSR and expectations of stakeholders change over time due to the large number of factors, including technological developments, accumulating social and environmental problems, changes in societal values.

The goal of the article is to provide a critical review of the conceptual and methodological frameworks that are used for defining and implementing CSR in the construction industry. Such frameworks help identify and systemize the dimensions of CSR taking into account the characteristics of the construction industry and its value chain. We also discuss and systemize the factors that shape socially responsible behavior of construction companies. Our review is based on academic publications and international standards related to CSR and sustainability.

The main results. The construction industry plays a significant role in socio-economic development for a number of reasons. First, it creates the built environment in which people live and work, providing housing, facilities, and infrastructure, and setting conditions for economic and social activities. Second, the construction industry makes a significant contribution to GDP, generating income and paying taxes. In 2022, the construction industry in most European countries contributed between four and seven percent to their GDPs [14], which corresponded to 5,5% of gross value added for the European Union [15]. In the United States, the construction industry contributed 4 % to the GDP in 2022 [16]. In Ukraine, the share of the construction industry in GDP is lower than in other countries. It amounted to 3,2 % in 2021 (then decreased in the wartime conditions to 1,5 % in 2022) according to [17] and to 2,76 % according to [18], but it translates into more than 258 bln UAH in monetary terms [19]. Third, it is a labor-intensive industry, and thus it plays an important role in alleviating the unemployment problem in a society. In 2023, more than 13,6 mln people were employed in the construction industry in the European Union [20] and over

8 mln people in the United States [21]. The number of people working in the construction industry in Ukraine in 2021 exceeded 1,12 mln [19]. Fourth, the construction industry heavily depends on the production of construction materials and closely linked to transportation and financial sectors. Thus, the construction industry can boost the development of the related industries. Johnson [22] points out that the construction industry serves as a leading economic indicator and helps market analysts forecast trends in future economic activity.

At the same time, the construction industry has a large potential not only for solving socio-economic problems, but also for creating adverse social and environmental effects. According to Huang et al [2], the reputation of the construction industry in terms of ethics is poor, and tainted with such problems as occupational health and safety hazards, environmental pollution, and corruption. In the same vein, Xia et al [1] point out the adverse impact of the industry on the natural environment and ecosystems due to greenhouse gas (GHG) emissions, air pollution, and waste generation, and emphasize the susceptibility of the industry to workplace accidents and occupational injuries. Thus, CSR adoption and implementation remain major challenges for the industry. Below we will explore what the CSR of construction companies should include and discuss some methodological issues.

In the process of the evolution of the concept of CSR, a large number of related concepts appeared, such as stakeholder management, corporate sustainability, ESG (Environmental, Social, Governance), just to mention a few. While CSR is mostly about general principles of responsible behavior, which include taking into account the interests of society when making business decisions, minimizing negative externalities, and improving society well-being, the three above mentioned related concepts help more clearly outline what companies should do. The stakeholder approach helps make the concept of “society” less abstract through identifying specific groups of stakeholders and their interests. The concept of corporate sustainability requires that a company find a balance between economic, social, and environmental dimensions. The ESG concept emphasizes performances of a company along three dimensions, other than the economic one, and the need for quantifying the company’s impact and performances within those dimensions. Notwithstanding that these three concepts are not equivalent to CSR, if we take a rigorous methodological stance, they are closely related to it, do not contradict it, sometimes used interchangeably (especially, CSR and stakeholder management), and help make the concept of CSR richer and more specific. Many writers on CSR in the construction industry do not draw dividing lines between these concepts and CSR, and we will follow the suit, because it helps structure the discussion of CSR in the construction industry.

Let us start the review of the conceptual and methodological frameworks for CSR with materiality analysis, which is commonly used in stakeholder management and helps prioritize among numerous CSR dimensions, given the limited resources that companies can divert to cater to the needs of different groups of their stakeholders.

To define the scope of CSR and to set priorities when developing CSR strategies, it is important to select material topics, which are industry dependent. There are different concepts of materiality, but for the purposes of our research, we use the concept of double materiality and define material issues as those that are important both for the company's business (financial materiality) and for its stakeholders (impact materiality). Strictly speaking, double materiality is more related to the concept of corporate sustainability than CSR, because it explicitly takes into account the economic interests of a company, not only the social and environmental impact the company makes. However, as was mentioned above, despite the non-identity of the terms, there is no contradiction between the two. Furthermore, according to some widely applied models of CSR, such as Carroll's pyramid [23], CSR includes economic responsibility. Besides, in our opinion, nowadays the concept of CSR increasingly converges with the concept of sustainability, becoming more holistic. We believe that it is incorrect to reduce CSR to philanthropy, volunteering, support of good causes, i.e. anything that comes at a cost to a company and at best improves its reputation. It is very important not only to stay responsible, but also to actively search for technologically and economically sound solutions for responsible actions. Thus, double materiality is an important criterion for identifying the most important dimensions and topics of CSR. Several CSR-related international standards provide either ready sets of material topics for the construction industry (e.g. Global Reporting Initiative (GRI), Sustainability Accounting Standards Board) or recommendations for identifying such topics through a dialog with stakeholders (AA1000 Stakeholder Engagement Standard).

Let us consider, as an example, the material topics for the construction industry as suggested by the Sustainability Accounting Standards Board (SASB) framework [24]. Although the purpose of the standards is to provide guidance for disclosing sustainability related information for different industries, their recommendations can be used for conceptualizing CSR in a corresponding industry by identifying its most important dimensions and topics. As these topics are material for both a company and its stakeholders, the lack of attention to these topics may lead to financial underperformance of the company in a long- or short-term perspective due to the low attractiveness of the company for potential investors, financial penalties imposed by the government, lack of trust on the part of potential clients and employees and for other reasons.

The SASB methodology divides material issues into five categories – “environment”, “social capital”, “human capital”, “business model and innovation”, “leadership and governance”. Each of these categories includes a number of topics, and for each topic several metrics or questions for qualitative discussion are suggested.

As our goal here is to discuss conceptual frameworks for CSR rather than specific indicators or metrics quantifying the impact, we will limit our discussion to the topics that are deemed to be material for the construction industry, thus specifying the priorities for CSR.

The SASB standards suggest that within the “environment” category of topics, construction companies

should assess and deal with “ecological impacts”. Construction projects can create risks for local ecosystems and biodiversity through the consumption of local natural resources, excavation activities, water discharges, air pollution, the use of hazardous chemicals, and generation of construction waste.

Within the “social capital” category, the material topic identified by the SASB standards is “structural integrity and safety”. Throughout all stages of project development and execution (engineering, designing, architectural, construction and maintenance services), companies are responsible for ensuring safety and integrity of both their working process and the final product. An inadequate quality of the design or construction works may lead to physical harm to people and loss of the economic value of the property for its owners.

As the construction industry is labor intensive and traditionally has high fatality and injury rates as compared to other industries, “workforce health and safety” is one of the main material issues within the “human capital” dimension. Due to the very nature of construction work, employees are exposed to heavy machinery, hazardous chemicals, electrocution, and fall accidents. For seasonal or temporary workers the situation is even more dangerous because they often lack experience and training.

The material topic suggested by the SASB standards in the category “leadership and governance” is “business ethics”. The construction industry, in which companies compete for the national and local government construction contracts, especially large infrastructure contracts, faces higher risks of corruption, bribery, unethical bidding practices, and unfair competition. In the case of residential housing, construction companies often attract investments from future owners, who are not reliably protected from violations of the contracts and may face devastating personal financial losses if the company intentionally or unintentionally fails to live up to the contract terms. Thus, integrity and business ethics are of utmost importance, and companies should organize employee training, create mechanisms of internal controls and effective governance structures to reduce risks associated with unethical behavior.

The remaining material topic “lifecycle impacts of buildings and infrastructure” relates to the “business model and innovation” category. This topic is quintessential for the construction industry and deserves special attention because the assessment of the lifecycle impacts should go well beyond the operational activities of construction companies. This is connected with the nature of products of the construction industry – residential and non-residential buildings and infrastructure objects. During their lifecycle, these products consume large amounts energy and significantly contribute to GHG emissions (or CO₂ emissions, as GHG emissions are expressed in terms of CO₂ equivalent) and climate change. As the energy efficiency of buildings and emissions produced by building operations, for example, heating or cooling, heavily depend on the construction companies. By construction companies we mean both developers and contractors, i.e. those companies that develop projects and those that do construction works, respectively. Thus, construction companies are responsible for the impact of the buildings

on the environment and climate change. Besides, the construction industry uses large amounts of natural resources and processed materials, whose production is also associated with energy consumption and CO₂ emissions. International statistics often uses combined data on the building sector and construction industry, thus showing them as parts of the same value chain.

According to the 2022 Global Status Report for Buildings and Construction [25], worldwide, the buildings sector consumes around 30 percent of global energy in the form of electricity and different forms of fuels for heating, cooling, lighting, cooking, and equipment, and accounts for about 27 percent of global operational CO₂ emissions. The production of construction materials such as concrete, steel and aluminum contributed additional 4 percent and 6 percent of global energy use and global emissions, respectively, in 2021. The glass and bricks production added another 2 to 4 percent of global emissions. Altogether, it amounts to the whopping 37 percent of global energy use and process-related CO₂ emissions. At the same time, to attain the Paris Agreement targets (to hold the increase in the global average temperature to well below 2°C above pre-industrial levels), the global buildings and construction sector should become net zero-carbon by 2050. However, as follows from [25], “the efforts to address buildings sector energy performance and CO₂ emissions have not kept pace with the Paris Agreement targets”. Thus, decarbonization remains the major challenge for the construction industry and one of the most important material issues for CSR.

Certainly, such global concerns as the climate change cannot be left to CSR alone, they are supported by numerous international initiatives, agreements, national legislative acts and regulatory policies. As an example, we can refer the EU legislative framework that includes the Energy Performance of Buildings Directive EU/2010/31 and the Energy Efficiency Directive EU/2023/1791 and intend to enhance the energy performance of buildings [26]. In particular, it promotes the transition to nearly zero energy buildings (NZEB), i.e. high energy performance buildings. The next step is the introduction of zero emission buildings (ZEB) that have a low energy demand than can be fully covered by energy from renewable sources [27]. Government policies are important drivers of the adoption of CSR by construction companies.

Thus, it is clear that construction companies should be concerned not only with the direct energy and resource use and contribution to CO₂ emissions as a result of their operations. They should use more holistic and integrative approach, considering the entire value chain, starting from the production of construction materials, then creating energy efficient buildings and then thinking about the end of the building life cycle and demolition waste management, in particular through recycling.

There are two frameworks, which can be used in such integrative thinking about the contribution of the construction industry to the climate change. One of them is based on the concept of “embodied carbon” [28] and the other is based on the concept of “scope emissions” of the Greenhouse Gas Protocol [29].

The concept of embodied carbon refers to all greenhouse gas emissions that occur during the entire lifecycle of a building, but do not include emissions arising from the

operation of the building (e.g. heating). Embodied carbon is associated with the extraction of minerals, manufacturing of processed materials, transportation of materials to the construction site, construction works, refurbishment, demolition, transportation to end of life facilities, recycling or disposal [28].

Another approach to the lifecycle analysis is thinking in terms of the scope emissions. The Greenhouse Gas Protocol [29] distinguishes emissions of three categories. Scope 1 includes direct emissions from the sources owned or controlled by the company. Scope 2 includes indirect GHG emissions generated by the production of the purchased energy. Scope 3 emissions are difficult not only to measure but also to identify. They are the consequence of the company’s operation, but arise from sources not owned or controlled by the company. They can be produced at different stages of the value chain, from the production of goods and services used by the company in its operations to the use of sold products by consumers.

Analysis in terms of embodied carbon or emission scopes is important for designing energy efficient projects and buildings, making informed and responsible materials procurement choices, choosing transportation options, considering possibilities of recycling and other aspects. Thinking about the product lifecycle impact also stimulates cross-sector cooperation and coordination, attracts responsible investors and sustainability-minded clients.

From material topics specified by the SASB standards let us turn to another, narrower framework, which covers just one but broad and integrative topic of CSR in the construction industry. As has been pointed out, CSR of construction companies is largely related to the development and implementation of environmentally sustainable building projects or green buildings. The criteria of green building are clearly spelled out by LEED (Leadership in Energy and Environmental Design), which is the most widely used green building rating and certification system [30]. Other well-known sustainable built environment systems are the UK-based BREEAM and Energy Star in the United States.

LEED provides a framework for the construction of energy efficient, cost-saving, environmentally friendly and healthy for occupants buildings [30]. Importantly, LEED is not just a technical standard for construction projects. It is based on the holistic approach to the impacts produced by the construction industry, looks at the big picture and addresses the three dimensions of sustainability – economic, social, and environmental. All three dimensions are closely interrelated, which opens possibilities for synergistic effects.

The economic dimension is addressed through the reduced (more efficient) consumption of energy, water and other resources, i.e. lower operational costs, which is economically beneficial for the occupiers of buildings. On the other hand, the growing demand for more sustainable buildings stimulated by the changing societal values and concerns, as well as by the government policies, means that green building is becoming financially beneficial for the construction companies too. LEED certified buildings have a higher sale and resale value, which makes them attractive real estate investments, especially for those companies that incorporate ESG into their investment strategies. In general, green office buildings have higher rents and higher

occupancy rates, in particular during post-recession and post-pandemic periods [31].

The environmental dimension of the LEED framework is associated with the reduced use of resources, utilization of renewable energy, reduction in CO₂ emissions, including those arising from transportation, preservation of biodiversity and land resources, waste reduction and promotion of regenerative material cycles. According to [30], about 4 billion vehicle miles traveled have been avoided by people living or working in LEED certified buildings, due to efficient locations of buildings and the possibility to use public transportation options.

The social dimension places the focus on the well-being of building occupants, by prioritizing safer materials and reducing the exposure of inhabitants to toxins, improving air quality, creating healthier and more satisfying in-door conditions, promoting non-smoking policies and physical activity, enhancing the quality of life of local communities.

The weights of different benefits in the LEED rating system are the following: 35% are related to climate change, 20% have a direct bearing on human health, 15% are related to the preservation of water resources, 10% impact biodiversity, 10% are associated with sustainable and regenerative material cycles, and 5% affect community and natural resources [30].

Thus, the green building rating and certification framework clearly specifies important aspects of CSR in the construction industry. Another proof of the holistic nature of the LEED certification system is in the fact that it addresses most of the 17 United Nations Sustainable Development Goals (SDGs), which in turn serve as guiding lights for socially responsible companies in any industry. Meeting the LEED requirements can contribute to attaining the SDGs by increasing energy efficiency, utilizing clean energy, minimizing GHG emissions and air pollutants, saving water, preserving land resources and biodiversity, creating jobs, enhancing human health and well-being, contributing to the sustainable development of local communities, creating resilient infrastructure, promoting responsible consumption and production.

LEED offers not just a conceptual framework, but rather a detailed and specific blueprint for socially responsible construction business practices.

Once again, we would like to stress that the characteristics of the construction products cannot be regarded as relevant only for customers. They are directly related to the environmental responsibility of construction companies, which should be based on lifecycle analysis.

Having discussed the frameworks for CSR in the construction industry offered by international standards, next, let us turn for additional insights to the conceptual and methodological frameworks proposed and used in academic research. These frameworks help structure the CSR concept in the construction industry by defining the dimensions of CSR with different degree of granularity – from broad categories to narrow issues, identifying organizational stakeholders, and determining external and internal factors that shape CSR practices.

One approach to structuring CSR is through identifying broad dimensions or areas of concern first. Xia et al [1] consider three dimensions of CSR, which are in line with the concept of sustainability, i.e. economic, social and

environmental. Xie et al [7] categorize CSR practices into five dimensions – corporate governance, environmental management, employee health and safety, economic responsibility, and community engagement. Such approach is a combination of corporate sustainability and ESG concepts, but the authors additionally divide the social component into internal (employees) and external (local communities) subdimensions.

The authors of [3, 5, 10] use a stakeholder approach and identify the dimensions of CSR based on the interests of different groups of stakeholders. In [10] in particular, the authors define CSR as an umbrella term that “emphasizes the balance of stakeholders’ conflicting interests to fulfill their diverse expectations and needs”. In all three above mentioned works, the authors identify the following groups of stakeholders for construction companies: shareholders, local communities, employees, customers, suppliers and partners, government, environment, and in [3, 5], they add another group/dimension – competition. Darko et al [11] identified, based on the literature review, as many as 20 groups of stakeholders for green building alone, but mainly through isolating different professionals in the construction industry, such as architects, developers, consultants, engineers, designers, etc. Such approach is justified and relevant for green building, but probably is too granular for analyzing CSR in general. The authors of [11] also include universities among stakeholders, and we believe it is a relevant group for the construction companies because of the role educational institutions play in training in cutting-edge technologies and disseminating ideas related to responsible behavior and sustainable development.

Apart from the stakeholders-related dimensions of CSR, the authors of [3, 5] include another dimension, which they call “CSR institutional arrangement”, but essentially it is CSR governance. However, this aspect of CSR is overarching and determines how the rest of the dimensions, i.e. stakeholders’ interests, are managed.

Each of the identified broad dimensions, whether based on corporate sustainability concept (economic-social-environmental), the ESG concept (environmental-social-governance) or on the interests of different groups of stakeholders, is then filled with special topics. In Table 1, we show the most relevant topics for four dimensions, which represent a combination of the corporate sustainability and ESG concepts (economic-social-environmental-governance).

In some cases, it is difficult to draw the line between the environmental, social, and governance dimensions because they are closely interconnected.

A comprehensive conceptual and methodological framework should include the factors that affect CSR practices and either impede or stimulate the adoption of CSR in the industry. These factors constitute the context in which CSR is implemented, and help better understand drivers and motivations behind CSR practices.

The authors of [3, 5, 9, 10] divide the factors that affect the CSR adoption in the construction industry into external and internal ones. Drawing inspiration from institutional theory [32], the authors of [3, 5, 9, 10], identify three groups of external factors (coercive, normative, and mimetic) accounting for organizational isomorphism in the CSR sphere in the construction industry.

Table – CSR dimensions in the construction industry (compiled by authors based on [2-7, 10])

Dimension	Topics
Economic	Protection of investors and shareholders' interests Reduction of production costs by implementing energy-efficient and resource-saving technologies and materials Operation and maintenance cost reduction for the users of construction products Contribution to local and national economic development
Social	Employee health and occupational safety Supporting employee work-life balance Fair remuneration and social security for employees Employee training and development Fair and equitable job opportunities Freedom of collective bargaining and association Local employment Volunteering, public welfare activities Supporting local community causes Community consultation and service Quality and safety of construction products Guiding and encouraging customers to pursue green products and services
Environmental	Energy conservation GHG emission reduction within the entire value chain Use of renewable energy Use of materials from sustainable sources (green materials) Energy efficiency of construction products Green design Resource conservation Biodiversity protection Vegetation and soil preservation or restoration Construction noise prevention Water and air pollution prevention Construction waste treatment (recycling or disposal) Pre-construction evaluation of the environmental impact of construction works and construction products
Governance	Ethical norms and moral values, code of conduct Implementation of CSR management system in the organization CSR training for employees Decision making based on the lifecycle analysis and impacts in the value chain Integration of CSR criteria into the selection process for suppliers, subcontractors and service providers Assessment of social and environmental performance Disclosing accurate information about financial and non-financial performance Transparency as to the construction deadlines, costs of works, project characteristics Stakeholder engagement and communication Anticorruption Fair business practices Participation in industrial research and development; contribution to technological progress

Organizational isomorphism is referred to as the similarity in the structures, processes, behaviors of organizations in a certain industry or field. The CSR adoption as a mainstream practice, uniformity of CSR governance structures and forms of CSR can be a manifestation of organizational isomorphism. Organizational isomorphism can stem from competitive (market-related) and institutional factors. Coercive, normative, and mimetic factors relate to the institutional group of factors [32].

Coercive institutional factors represent mandatory requirements, such as legislation and government regulation. For example, the European Union (EU) Directive on Non-Financial Reporting (2014/95/EU) requires that public-interest companies with more than 500 employees include non-financial information in their annual reports, in which they should address such issues as environmental protection, social responsibility, respect for

human rights and treatment of employees, diversity on company boards, anti-corruption and bribery. For the construction sector, industry-specific regulations are of special importance, such as the EU construction products regulation and others.

Normative factors, according to DiMaggio and Powell [32], are related first of all to a certain profession. They may include patterns of organizational behavior, mechanisms, methods, norms, even criteria for selecting personnel for certain positions. They are not obligatory; they are transmitted through education, training institutions, professional networks, associations, etc. We can also include social norms into this group of factors, because compliance with them, though not mandatory, helps organizations win acceptance and social legitimacy. Zhang et al [3] identify public pressure, media pressure, national social culture and global trends, and pressures from local communities as normative factors.

Finally, mimetic factors are related to the imitation of what other organizations in the industry do, usually more successful organizations, which can be considered as models. Organizations may copy each other's sustainable practices whether it comes to certain initiatives, CSR disclosures, CSR governance structures and processes related to the CSR implementation. Actually, the interpretation of mimetic factors in [3] differs from that in [32]. DiMaggio and Powell [32] consider only institutional factors of organizational isomorphism, and treat mimetic factors as a sheer response to uncertainty, when imitation becomes a viable solution with little effort. However, Zhang et al [3] endow mimetic factors with a new meaning – market-related one (profitability, human resource benefits, brand and reputation, investment attraction, technological factors and so on).

We propose somewhat different categorization of factors. First, we prefer to separate market pressures and institutional factors that affect the adoption of CSR.

Among institutional factors, we distinguish i) mandatory rules, ii) social norms and pressures, and iii) the CSR infrastructure. By mandatory rules, we mean government regulation and legislative requirements. Social norms and pressures include societal values, public opinion, the industry professional codes, global trends, pressures from activist groups, NGOs and the like.

We define CSR infrastructure as the collection of international and local organizations and initiatives whose mission is to promote CSR and sustainable development, provide practical guidance for implementing CSR and certify the performances of organizations in the CSR sphere. Such infrastructure includes, in particular, CSR-related standards; CSR-related ratings and certifications; fair trade organizations, consulting organizations that offer help in developing and implementing CSR strategies, measuring CSR impact, training personnel in the CSR sphere and so on. Even stock exchange sustainability indexes that help investors make responsible investment decisions can be considered as part of such infrastructure (e.g. the Dow Jones Sustainability Indices, the FTSE4Good Index Series). The CSR infrastructure is important not only in terms of promoting CSR practices, but also in terms of providing help in overcoming barriers to CSR adoption.

The CSR infrastructure plays a vital role in transmitting and disseminating CSR-related ideas. It also provides practical frameworks and recommendations for the CSR implementation in general (ISO 26000), for responsible human resource management (SA 8000), for building occupational health and safety management systems (ISO 45001), for CSR disclosure (GRI, SASB), for implementing environmental management system (ISO 14000), for stakeholder engagement (AA 1000SES), for sustainable procurement practices (ISO 20400) and many other aspects. There are also industry specific green building standards, very important for the construction industry, such as LEED and BREEAM, mentioned above. They address concerns of different groups of stakeholders simultaneously – end users, real estate owners, clients, investors, natural environment, local communities.

Technically, the CSR infrastructure can be treated either as mandatory rules or as social norms and pressures.

For example, if an organization becomes a participant of the United Nations Global Compact, it is mandatory for it to comply with the principles of this organization and submit the communication on progress [33], as long as it remains a participant of this organization. The CSR infrastructure is also connected with social norms because it promotes important social values, ideas of sustainable development and others. However, we believe that isolating the CSR infrastructure as an institutional factor is not redundant. The CSR infrastructure has grown into a complex institutional matrix, playing a very important role in shaping the behavior of companies in the CSR sphere and providing practical support for the CSR adoption and implementation. We believe that it deserves to be regarded as a separate institutional factor.

Apart from the three institutional factors, we would like to isolate market-related factors, which represent different types of market pressures (financial market pressure, labor market pressure, energy and resource markets pressure, customer demands, competitive pressures, supply chain pressures). Investors in financial markets view socially responsible construction companies as less risky and more sustainable in the long run, that is why they are particularly interested in the ESG reports or other forms of CSR disclosures. For socially responsible employers, it is easier, *ceteris paribus*, to attract highly qualified and skilled workforce. This is especially relevant for the construction industry with its susceptibility to workplace accidents and one of the highest rates of fatalities among industries. Price of energy and other resources may stimulate companies to look for alternatives, e.g. substituting fossil fuels by renewable energy sources. Sustainability-minded consumers prefer responsible producers, thus encouraging sustainable production, or green building in the case of the construction industry. By competitive pressures, we mean the presence (and the number) of competitors and their reputation in the CSR sphere, because investors, potential employees and customers will have alternatives to choose from. The supply chain pressures are connected with the availability of socially responsible suppliers and subcontractors, the availability of circular supply chains that make it possible to recycle the construction waste, the bargaining power of supply chain members and their readiness to adopt CSR practices.

The third group of factors are technological ones. They can also be connected with market pressures, but we prefer to isolate them into a separate group. The development of new materials, new construction technologies and innovations, new sources of energy, recycling technologies may open new opportunities for responsible behavior and creating shared value, when both a company and society benefit. Thus, new technological solutions may make a socially and environmentally responsible behavior economically beneficial too, which is a powerful driver for the CSR adoption and implementation.

There is a question: which factors are more influential drivers of the implementation of CSR practices in the industry. Darko et al [11] arranged 64 green building drivers in descending order based on the frequency of mentioning them in the academic literature, which can be considered as an imperfect proxy for their importance. The first position in this list was government regulation and

policies, followed by the rising cost of energy, the reduced whole lifecycle cost, and environmental protection. Remarkably, one of the top position in the list was occupied by green building rating systems. The possibility to measure and certify a positive impact of companies and their products creates incentives for responsible practices. According to our classification of external factors, such rating systems are part of the CSR infrastructure, which supports our proposition about the importance of such infrastructure for the CSR adoption. Certainly, green building is just one aspect of CSR in the construction industry, but foundational and holistic one, as it spans all three dimensions – economic-social-environmental.

Apart from external factors, internal factors related to a particular company also play important role in adopting CSR practices. The conceptual framework in [3] includes such internal factors as resources and capabilities of a company, the company's strategic goals, organizational culture and perceived importance of CSR. In our opinion, strategic goals and organizational culture are functions of the perceived importance of CSR, rather than independent factors. A similar but not identical set of internal organizational factors is considered by Afzal and Lim [34] and includes business strategies, organizational culture, supply chain capabilities, technological capabilities, employees skills and attitudes. They found that business strategies, organizational culture, and technological capabilities have a significant positive impact on the environmental performance of construction companies, while social performance is positively affected by business strategies and organizational culture.

So far, we have talked about the construction industry without differentiating companies according to their specialization. Huang et al [2] provide additional insights pointing out the difference between the contractors and the real estate developers in their focus on certain CSR dimensions. A real estate developer is responsible for finding the land, acquiring it, and planning the development. They design projects and create plans for constructions. A contractor is responsible for the construction process. According to the authors of [2], the contractors are more concerned with their environmental impact, CO₂ emissions and effect on biodiversity at the construction sites. The real estate developers on the other hand, pay more attention to energy-saving designs and the pre-construction evaluations of environmental impact. Thus, depending on the type of company in the construction industry, the CSR focus can shift from one dimension to another.

Conclusions. The construction industry plays a significant role in socio-economic development due to its size, close integration with other industries and its capacity to bring about the change. At the same time, the construction industry has the potential to produce adverse social and environmental effects. The implementation of CSR in the construction industry requires a structured approach because of the multiple and interconnected impacts the industry makes on society. The lack of a structured framework for CSR can discourage its adoption.

The scope and dimensions of CSR in the construction industry can be defined based on the corporate sustainability dimensions (economic-environmental-

social) and/or ESG (environmental-social-governance) concept. The corporate sustainability and ESG concepts are not equivalent to CSR, but do not contradict it either, and can be used to bring a structure to the CSR concept.

The more specific dimensions and topics of CSR can be defined through identifying the interests of the most important groups of stakeholders and materiality analysis. The major stakeholders of construction companies are shareholders, employees, customers, local communities, suppliers, business partners, government, competitors, and environment. Educational institutions can also be viewed as relevant stakeholders of the construction industry.

The CSR practices in the construction industry are shaped by a number of external factors, which we categorize into mandatory rules, social pressures, the CSR infrastructure, market pressures, and technological factors. We isolate the CSR infrastructure as a special institutional factor that plays a vital role in promoting CSR-related ideas and practices, helps in overcoming barriers to the CSR adoption and provides practical frameworks and guidance for the CSR implementation.

There are also internal factors that facilitate or impede the CSR adoption by construction companies. They include a company's culture, vision, values, strategies, leadership as well as its resources and capabilities.

Summarizing different frameworks, we would like to emphasize the importance for the construction industry to use a holistic approach to CSR, considering the impacts in the entire value chain and doing lifecycle analysis. CSR should be closely related to technological innovations, because only through adopting green building practices, construction companies can attain the goal of net-zero transition. New technological solutions often lead to the alignment of social and environmental goals with economic ones, which is the most powerful driver of the adoption of CSR practices.

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