Article

The Relationships among Social, Environmental, Economic CSR Practices and Digitalization in Polish Energy Companies

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Abstract: This paper explores relationships among CSR practices in the social, economic and environmental dimensions and digitization in the Polish energy companies. The study used the CATI method, and the data obtained from 110 companies was analyzed using a set of methods starting with correlation analysis, through regression analysis, including backward stepwise regression. Obtained results led to the formulation of SEM (Structural Equation Modelling) model that has been tested. Results confirm the influence of social CSR practices on practices in economics and environmental CSR dimensions and on the level of digitalization. Research also suggests that there is essentially no significant impact of the size of the enterprise on the level of digitalization, as well as on any of the analyzed types of CSR practices.

Keywords: CSR; social practices; economic practices; environmental practices; digitalization; energy sector companies

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1. Introduction

Corporate Social Responsibility (CSR) is one of the highly discussed concepts in management science [1–3], which is justified by the fact that organizations are under the pressure of various interest groups who expect the organization to be socially responsible [4]. The results of research conducted in the area of CSR suggest that implementing CSR assumptions, appreciating the importance of responsibility for the community and the environment [5,6] provide the possibility of sustainable development of enterprises in various sectors [7–11].

Although the operational risk related to energy production, the size of enterprises in the sector, as well as the level of impact on the economy and the environment are factors prompting the inclusion of CSR assumptions in the activities of energy companies [12–17], the current state of research on the determinants of CSR implementation should be assessed as unsatisfactory. However, the research on the involvement of energy sector companies in CSR activities emphasizes the role and significance of exogenous and endogenous factors and describes CSR practices [13,18–26], but ignores the relationship between practices in CSR dimensions and the impact of these practices on digitalization. The adoption of these methods shows the complexity of CSR in the literature [27] and the holistic implementation of CSR [28,29], allowing the formulation of the research problem of the study to investigate how the relationship between individual CSR practices reinforces (or weakens) each other.

It is also interesting to know if there is a connection between individual practices and digitalization that will play a critical role in the development of energy sector enterprises. Although digital technologies have been used for decades to improve energy systems [30],

and several studies have shown the close association of digital transformation with organizational efficiency, to date, very few researchers have explored links between the level of digitalization and CSR, as well as the relationships between these concepts.

Therefore, the aim of the article is to identify relationships among practices of particular dimensions of CSR, as well as to analyze the relationship between CSR practices and digitalization. The key contribution of the study is to highlight the role of social practices as key practices in energy sector companies, affecting both economic and environmental practices and digitalization.

The paper is structured as follows: in Section 2, we present the theoretical background, focusing on the concept of CSR and defining economic, environmental and social CSR practices. We also relate to the concept of digitalization, phases in the process of implementing digital transformation strategy in the energy sector enterprises and describe relations among CSR and digitalization. In Section 3, we discuss the empirical research conducted, showing the method of obtaining data and characterizing the research sample, the adopted variables, and the SEM models used. Sections 4 and 5 contains the results and the discussion of the results. The paper finishes with conclusions, research limitations and further research directions in Section 6.

2. Theoretical Background

2.1. CSR Concept

Considering the variety of methodologies adopted in studies on CSR [31], this paper adopts the optics of three categories of CSR practices: social, environmental, and economical. This approach can be observed in other current research on CSR [32–35].

2.1.1. Social Practices

The interest in implementing the CSR concept in enterprises due to benefits from developing the social aspect is growing every year [36,37]. The considerations of theoreticians and the experience of practitioners have convinced internal stakeholders to work more willingly and with greater engagement in companies where the development of competencies, motivation, work safety and work-family balance in these workplaces [38,39]. In addition, external stakeholders are more willing to cooperate with enterprises that work for the benefit of the local community and care for its well-being [40,41]. In their considerations, Husted and Salazar [42] argue that these actions should not be altruistic. In order to obtain tangible benefits for the company, management staff should act strategically. Strategic social investors gain good reputation and more qualified personnel. This creates added value and translates into higher profitability of the business. In other studies, Husted et al. [43,44] prove that investing in social practices and creating social strategies in enterprises can contribute to increased value and competitive advantage. In turn, Bacinello et al. [45] suggest that any measures that promote employee well-being and motivation contribute to higher business results.

Social CSR practices refer to the impact that enterprises have on the social prosperity of the entire country and individual stakeholders. These are practices that go beyond the necessity to comply with the law to promote the social well-being [46]. Being socially responsible means being responsible for the social effects that companies have on people directly and indirectly [13]. Activities undertaken by enterprises as part of social practices can contribute to the achievement of sustainable development goals in the long run [11,21]. Globally, social issues are very worrying for developing countries [47], but care for them is also necessary for highly developed countries. The existence of enterprises depends to a large extent on the prosperity and well-being of the community in which they operate. Being aware of this, more and more organizations are actively involved in solving social problems and implementing solutions aimed at increasing social welfare [13,48,49].

Literature studies conducted for the purposes of this study indicate the diversity of social practices implied in the research. Based on a review of the latest literature [13,38–41,50–56], the most commonly used social practices are:

- (1) assessment of the impact of activities undertaken by the enterprise on the local society,
- (2) cooperation on social and charity projects,
- (3) promotion of the development of the local community, protection of heritage,
- (4) ensuring work-family balance of employees,
- (5) ensuring a high level of work safety,
- (6) care for the development of the employees' high competencies and care for the proper motivation of employees
- (7) conducting open cooperation with stakeholders.

2.1.2. Environmental Practices

Pointing to the re-evaluation of the approach to environmental issues [57], an increase in the stringency of environmental protection regulations and a change in stakeholders' expectations regarding responsible behavior for the environment [58], the researchers note that enterprises use Corporate Social Responsibility strategies to mitigate the social and environmental effects of their own operations [59].

Mijatovic et al. [60] suggest that environmental practices aim to minimize environmental damage and promote environmental sustainability efforts across corporate boundaries. Similarly, environmental practices are defined by Gadenne et al. [57] assuming that these activities are undertaken by enterprises in order to reduce the impact of their activities on the environment. Uhlaner et al. [61] points out that environmental practices refer to activities that preserve and protect natural resources. Hoogendoorn et al. [62] suggest that environmental practices encompass those activities undertaken by companies that are not classified as entrepreneurial in the sense of capturing and exploiting market opportunities, which allows them to assume that environmental practices apply to any purposeful, environmentally friendly activity undertaken by a company.

Pointing to the rationale for implementing environmental practices, Tate et al. [63] suggest that companies implement voluntary environmental practices for two reasons: firstly, because they can build a competitive advantage through better access to and management of natural resources, and secondly, to maintain a positive reputation among stakeholders. Gadenne et al. [57] also relate to the impact of external and internal stakeholders on implementing environmental management practices. On the other hand, Babiak and Trendafilova [64] pay attention to the strategic motives of the environmental focus on CSR. Morales-Raya et al. [58] claim that companies implement environmental practices to meet the environmental expectations of users, achieve legality, and create and maintain environmentally friendly images. Hoogendoorn et al. [62] show that strict environmental regulations encourage companies to take activity to protect the environment, but only with ecological products and services.

Referring to the benefits from using social practices, Ahmed et al. prove that companies with higher levels of corporate social and environmental practices have a lower cost of equity capital [65]. The results of the research by Seles et al. suggest that environmental practices that are linked to corporate strategies and are characterized by dynamic capabilities, can improve business performance even during economic crisis [66]. The impact of environmental practices on improving business results is also shown by Graham and Potter [67], although the results of Chen and Ho [68] suggest that pro-environmental practices do not always increase sales, as it depends on the attitude of customers. Mijatovic et al. [60] suggest linking environmental practices with competitive advantage and reputation benefits.

The literature on the subject shows that environmental CSR practices include [61–63,66,69]:

- (1) assessing the environmental impact of activities,
- (2) introducing energy and water-saving activities,
- (3) developing renewable energy sources,
- (4) choosing environmentally friendly suppliers,
- (5) encouraging clients to care for the natural environment,

- (6) implementing waste and pollution control systems,
- (7) striving to reduce the environmental impact of energy production/transmission,
- (8) creating activities that care for the natural environment.

2.1.3. Economic Practices

Although the research of Garay and Font suggests that the premises of implementing CSR in most enterprises are altruistic reasons [69], the literature often points to potential benefits related to shaping a competitive advantage and achieving higher economic results [70]. Moreover, the original assumptions of CSR allow us to consider the economic dimension as the basic one because, without economic results, it would not be possible to implement the practices in the other dimensions [71]. McCain et al. [72] suggest that CSR is aimed at strengthening the fairness and honesty of business practices, promoting product safety, protecting employees' welfare, and increasing a company's environmental performance.

Zhao et al. [73] show that the economic dimension of CSR relates to the extent to which firms fulfil their duties and obligations related to economic activity in order to sustain economic growth. Economic growth is the fundamental responsibility of any business organization, not only to shareholders but also to all employees. Therefore, while economic CSR practices are internally oriented, it benefits society. Practices implemented in the economic dimension refer to society's expectations that the enterprise will be profitable in the long term and will ensure stable employment, and that efficient and effective activity in the operational sphere will translate into the possibility of offering high-quality goods and services [70,74]. Mahmood and Bashir view economic practices similarly, pointing out that they refer to the fair distribution of scarce resources to produce goods and services [75]. Zhao et al. suggest that the practices undertaken in economic CSR create benefits for firms, but not directly for society [73]. Costa and Menichini, emphasizing that the economic dimension relates to the impact on stakeholders, suggest that it takes into account the indirect economic effects of the organization's activities [33]. While discussing CSR, Singh and Mittal point out that economic practices refer to organizational practices that are designed to prevent any kind of legal abuse and ensure compliance with the law [76]. Wut et al. [77] suggest that economic CSR practices encompass employment policies and provide direct and indirect employment. Torugs et al. assume that the economic dimension of proactive CSR regard with means by which companies try to prevent problems that may arise in their interactions with customers, suppliers and stakeholders in the market; it underlines the importance of a long-term management perspective related to the need to ensure sufficient cash flow for ensuring liquidity while ensuring sustained above-average return for shareholders [34].

Conducted analysis of research in the area of CSR economic practices [34,69,70,78–81] allowed to propose the following set of variables analyzed in the further course of the procedure:

- (1) offering a competitive level of remuneration,
- (2) treating customers and suppliers fairly,
- (3) shaping good relations with responsible suppliers,
- (4) providing high-quality products,
- (5) carrying out cost-effective operations,
- (6) investing in new technologies,
- (7) providing a high level of reliability of energy supplies,
- (8) managing financial risk.

2.2. The Rationale for CSR Concept in Energy Sector Companies

The issue of being socially responsible is discussed within the research on the energy sector [14–17] as one of those sectors that have substantial economic, environmental, and social impacts [82–84]. Several categories of the rationale for considering CSR commitment in energy sector companies may be mentioned—first of all, those which emerge from global trends on climate change [13], as well national politics on the social and economic

influence of organizations. However, following CSR standards set by such organizations, such as, for instance, the United Nations, Organisation for Economic Cooperation and Development (OECD), etc., is a voluntary approach [20]. Within this group of considerations, one may note the substantial role of the historical context of a country. For instance, Garstecki et al. [85] point out that participating in politics of a multinational unions' organization (e.g., the European Union) enables to take advantage of financial sources, various CSR practices, as well as developing the awareness of the importance of CSR.

The second rationale considers formal standards related to meeting legal regulations of operating in a broad sense on the market (thus above mentioned social, environmental and economic influence of energy sector companies). In some cases, depending on a regulatory system, an organization is obliged to report its social and environmental impact [44]. This issue is also perceived as a motivator for enhancing a CSR pro-activity attitude of an energy company [24]; however, some research results suggest [23,24] that the regulatory system could clarify CSR practices.

The third rationale references the fact that CSR practices are focused on relationships with stakeholders [83]. In particular, Benyaminova et al. [26] and Karaman et al. [25] highlight the issue of shaping accurate CSR strategies, aiming at assuring stakeholders that a company performs an appropriate involvement in CSR activities. However, considering stakeholders' goals, Mory et al. [86], and Syrjälä and Takala [87] pay substantial attention to an internal group of stakeholders—employees.

The fourth rationale addresses societal aspects, with a view to the increasing societal expectations of what a company should be responsible for [13], therefore not considering the CSR aspects only from the point of view of particular stakeholders' goals, but the whole society as well [17]. However, de Vries et al. [88] argue that in some cases, CSR activities may be perceived as a way to achieve financial goals instead of real care of the natural environment or the society.

It is observed [26] that aiming at meeting stakeholders' expectations, the involvement in CSR activities can be exogenous in nature. A question arises, how much the CSR practices are rooted in a business philosophy—are they only a result of the conscious and real need to be responsible from the point of view of society? Considering an endogenous perspective, it is suggested [89–91] that a positive relationship exists between CSR and profitability. However, this relation may differ depending on adopted measures of 'performance' [92]. Nevertheless, according to McWilliams and Siegel [4] the effect of CSR practices on a company's financial performance is neutral.

Latapí et al. [18], based on a systematic review, feature a slightly different approach to the rationale for using the CSR concept in the energy sector companies. They suggest three determinants: internal drivers (related to such categories as business strategy, corporate culture, cost savings and profitability, environmental commitments and climate change mitigation and adaptation and risk prevention and management); external (including competitiveness, legislative and regulatory frameworks, social commitments and engagement, and stakeholder engagement and satisfaction); and connecting drivers (such as branding and reputation, reporting and disclosure, and social license to operate).

Referring briefly to the three dimensions of CSR (social, environmental and economic), one may note that the analysis of CSR reports of the energy sector carried out in 2007 by ECOTEC Research and Consulting Ltd. shows that the social dimension is most often neglected by enterprises in the energy industry. This state of affairs may be due to the fact that companies from the energy sector have a long history of reporting the economic and environmental effects of their activities. Moreover, social issues remain of secondary importance in the face of the ongoing debate on the climate threat [93], which is getting more intense every year [19]. The negligence in the social sphere of CSR in the energy sector companies is also indicated by studies conducted in the Baltic countries [20]. Among the main difficulties of CSR in the social dimension, the researchers mention insufficient cooperation with stakeholders, insufficient care for the competencies and motivation of employees, insufficiently functioning NGOs, the high price of energy

compared to the low average income of the population, indebtedness of energy recipients, low public awareness of the activities of enterprises in the sector energy. The lack of information and awareness in society was considered the major barrier to the development of CSR in the energy sector. There is a lack of studies analyzing the broader scope and essence of social practices. However, taking into account the conclusions of the above-mentioned studies [20], it seems reasonable for companies from the energy industry to assume the responsibility of imparting reliable knowledge, disseminating information on the transformation of the energy sector, and encouraging their clients to save energy and give advice on reducing greenhouse gases. In addition to addressing the CSR barrier, which is the lack of communication and integration between stakeholders [21], it is advisable to use new ICT and social media in the energy industry, which are considered the most effective tools for establishing and nurturing relationships with stakeholders on the basis of meaningful dialogue [22].

In turn, the study by Lee [91] suggests a positive impact of environmental responsibility on the financial performance of a company. This insight appears relevant with a view to the fact that the energy sector companies are classified as environmentally sensitive entities [25,94,95] as well as ‘high impact’ entities, from the environmental perspective [96]. Stjepcevic and Siksnylyte [13] highlight that the production and transmission of energy contribute in various manners to changes in the natural environment. The environmental responsibility is related not only to measuring the environmental impact and reducing pollution and emissions or minimizing use of fossil fuels, but also to raising awareness, reducing the environmental impacts of energy production and transfers, as well as promoting renewable sources development [13]. The environmental practices are those which can be linked directly to the topic of activities performed by energy sector companies. Lu et al. [96] paid attention to the fact that ‘the main UN sustainable development goals linked to sustainable energy development targets (energy efficiency improvements, usage of renewable energy sources, and GHG emission reduction) and CSR principles set by Global Compact are based on environmental sustainability’.

The issue of economic practices in relation to the energy sector can be considered from various perspectives. As Stjepcevic and Siksnylyte [13] point out, economic practices have been neglected, identifying them with the company’s operations or financial results. While in the case of companies from the energy sector, particular attention should be paid to the assessment of the market demand in terms of economic development in which an energy company operates (or plans to operate). As Ionescu et al. [97] suggest, the energy sector from the global perspective contributes to a country’s development (as well as to the development of other sectors within a given economy). Moreover, energy sector companies should also aim at meeting the goals of various stakeholders, including employees, customers, investors, financial institutions, and members of the management board.

2.3. Digitalization of the Energy Sector

The observed increase in the level of digitalization in enterprises from various sectors is a result of the progress in the processes of data analysis and connectivity, especially to the falling costs of data storage, a rapid process in advanced analytics (machine learning), or greater connectivity of people and devices as well as faster and cheaper data transmission [30,98,99].

Digital technologies have been used to improve energy systems for decades. It should be emphasized that it was the energy sector that was the first recipient of large information technology systems [30]. Already in the 1970s, energy companies used information technologies to increase the efficiency of grid management and operation. Today, energy markets are monitored and controlled in real-time, covering vast geographic areas inhabited by a significant number of customers. The pace of the digitalization process in the energy sector is growing—in recent years, there has been a significant increase in investment in digital technologies undertaken by energy companies [30].

Digitalization of the energy sector is an important global trend with tangible benefits, such as access to a more efficient and reliable energy system. Digitalization is considered being a crucial tool and, at the same time, a prerequisite for ensuring the security of energy supply and flexibility, as well as the cost-effectiveness of solutions that will be used in the future [100]. It is a continuous process that involves all countries of the world. For this reason, this subject is more and more often undertaken by numerous researchers [101–109].

Digitalization of the energy companies focuses primarily on increasing the security and stability of the energy system. The main benefits of this process include the reduction of operating and maintenance costs, increased efficiency and stability, and the extension of life cycles of critical assets [110]. Digitalization and associated higher quality of data provide a more reliable basis for making investment decisions and enable the automation of a number of decision-making processes. Besides, it enables better satisfaction of customers' needs by integrating renewable energy sources and ensuring coordination between dispersed energy resources [100]. A more detailed analysis allows to identify three organizational aspects influenced by digital transformation: increase in customer experience and changing their life cycle (external aspect), changing business goals, leadership and organizational structure of the company (internal aspect), which ultimately translates into changes in its business model [111]. Some of the positive effects of digitalization on the electricity value chain are [112]:

1. in the production area: (a) optimization of the supply and management of fuel and spare parts, (b) preventive maintenance based on future market conditions;
2. in the area of trade: (a) improving the decision-making process through the use of big-data technology and risk-management models, (b);
3. in the area of energy transmission and distribution: (a) real-time remote monitoring to increase efficiency, (b) use of augmented reality tools to repair equipment in the field;
4. in the sales area: (a) creating new products and services corresponding to the real needs of customers, (b) the use of business platforms connecting significant numbers of customers and suppliers.

According to Dang and Vartiainen [113], three basic phases can be distinguished in the process of implementing digital transformation strategy in the energy sector enterprises: bootstrapping phase, acceleration phase and sustain phase. As part of bootstrapping phase, the management team organizes the business conditions necessary to carry out the digital transformation and prepares employees for the implementation of this change. Employees are aware of the need to digitize the company's operations. In the acceleration phase, the company uses modern information and communication technologies. In order to improve the production process, automation is introduced, and cooperation with new partners and research centers is established. The last phase of the implementation of the digital transformation strategy, which represents the highest level of digitalization—the sustain phase—is characterized by the fact that the company's employees use and create new technological solutions. Digitalization took place not only at the organizational level but also at the individual level. It has become the foundation of the company's organizational culture.

The Smart Industry report prepared by Siemens and the Ministry of Entrepreneurship and Technology as well as the Digital Economy and Society Index of the European Commission shows that the Polish energy sector, despite the growing interest in the Industry 4.0 concept, still remains at the initial level of digitalization. Attention is drawn to the need to accelerate this process in order to increase the use of the commercial opportunities of digital technologies [114].

At present, the supply in the energy sector in Poland is characterized by a high degree of centralization. This is due to the fact that electricity is generated in large power plants and sent through transmission and distribution networks to passive end recipients [115]. It should be noted, however, that a significant part of the demand for electricity is inelastic in the short term due to the lack of change in energy consumption caused by price changes. It seems that the implementation of the assumptions of the Industry 4.0 concept, and in

particular the acceleration of the digitalization process, may positively change the situation of the energy sector [116].

Summing up, it can be said that the Polish energy sector is at the initial stage of the digitalization process, and the level of robotization is one of the lowest in Europe. However, it should be emphasized that lowering the costs of digital technologies can definitely accelerate this process. The establishment of the Polish Industrial Platform 4.0, which is to be a kind of integrator of digital transformation, may also have a positive impact on this process.

2.4. CSR Practices and Digitalization

Forcadell et al. [117] indicate the growing importance of corporate sustainability and digitalization for companies, society, and decision-makers around the world, suggesting that by combining corporate sustainability and digitalization, mutually reinforces each other, giving better results than in isolation. In addition, Del Río Castro et al. provide evidence that the interplay of digitalization and sustainable development offers the potential to shape a greener economy and society, enabling the achievement of the SDGs [118]. Seele and Lock draw attention to the complex nature of the links between digitalization and sustainable development, pointing out that sustainable development adapts to the new opportunities and threats of the digital age, and that digitalization is a driving force that changes sustainable development [119]. Assuming the impact of CSR on digitalization, Latapí Agudelo et al. [120] emphasize the importance of including digitalization tools in CSR. Van der Velden and Maja also suggest that, thanks to sustainable development, digitalization, and its design can strengthen the organization's ability to respond to environmental phenomena [121].

Belyaeva and Lopatkova conclude that digitalization provides the necessary tools to ensure the development and integration of economic, social, and environmental aspects [122]. Brenner and Hartl also indicate the influence of digitalization on the perception of ecological and economic sustainability [32]. Seele and Lock suggest that digitalization can help increase environmental, social, and economic sustainability [119]. A similar observation is formulated by Bhutani and Paliwal, pointing out that digitalization can revolutionize socio-economic performance, creating a symbiotic relationship with inclusive growth and sustainable development [123]. Esposito and Ricci conclude that digitalization influences the approach to CSR disclosure [124]. The results of the Niehoff and Beier research also suggest that digitalization may positively affect the environmental dimension of sustainable development [125]. Pointing to the tensions between sustainable development and digitalization, Arnold and Fischer [126] note that digital transformation requires a precise and fair foundation of value and added value in terms of sustainable development.

3. Methods and Research Sample

The Sample Selection and Description of the Research Tool

Firstly, in order to propose the variables of the survey, we conducted an in-depth literature review, which allowed us to propose a list of 23 variables that we assigned to three predefined basic CSR areas (described above). As Table 1 shows, ultimately, the following components of each type of CSR were supplied.

The above-mentioned practices were the basis for the development of a part of the research tool in the area of CSR.

Besides the measurement of activities in the area of CSR, it was necessary to determine the level of digitalization. Thus, the respondents were also asked to assess this level by pointing at one of the proposed phases in the process of implementing digital transformation strategy. The three-stage division of this process proposed by Dang and Vartiainen [113] (bootstrapping phase, acceleration phase and sustain phase) has been supplemented with an additional phase relating to the situation in which the management team is considering implementing a digital transformation strategy in the long term, but currently, this is not a strategic goal of the company.

Table 1. Dimensions and CSR practices.

Dimensions CSR	CSR Practices
Economic practices	<ul style="list-style-type: none"> • offering a competitive level of remuneration, • treating customers and suppliers fairly, • shaping good relations with responsible suppliers, • providing high-quality products, • carrying out cost-effective operations, • investing in new technologies, • providing a high level of reliability of energy supplies, • managing financial risk.
Environmental practices	<ul style="list-style-type: none"> • assessing the environmental impact of activities, • introducing energy and water-saving activities, • developing renewable energy sources, • choosing environmentally friendly suppliers, • encouraging clients to care for the natural environment, • implementing waste and pollution control systems, • striving to reduce the environmental impact of energy production/transmission, • creating activities that care for the natural environment.
Social practices	<ul style="list-style-type: none"> • evaluation of the impact of undertaken activities on the local society, • cooperation on social and charity projects, • promotion of the development of the local community and heritage protection, • ensuring employees work and family life balance, • ensuring work safety, • employees' competency development and motivation of employees, • open interaction with stakeholders.

Source: Own work.

Through a professional research company (DRB Polonia) direct interviews were conducted on the group of 110 managers working in different companies of the energy sector. A structured questionnaire was used to collect primary data.

There were a few factors that had an impact on performed survey. First of all, it resulted from the assumed research goal, which required quantitative research, indicating the links among the CSR activities, its basic areas, and digitalization level. Secondly, in order to check the communicativeness of the questionnaire (included in Appendix A), a pilot study among 30 respondents was carried out. The results of the pilot survey did not affect the modification of the list of areas or activities in the CSR field, but only some aspects of question formulation (understandable for the respondents) and allowed to propose scales we used—perception measures on a seven-stage Likert scale from 1 (strongly disagreeing) to 7 (strongly agreeing), which allowed for greater diversification of the respondents' answers.

In the next step, using the computer-assisted web interview (CAWI) method, we asked respondents to make an assessment of the CSR activities of their organizations. In the research proceedings, assuming the company as an analytical unit, the single respondent project was used. Table 2 presents the characteristics of the surveyed enterprises.

Table 2. Characteristics of the surveyed enterprises (n = 110).

Organization's Age	
0–5 years	4.55%
6–10 years	24.55%
11–25 years	45.45%
more than 30 years	25.45%
Number of Employees	
10–49	50.00%
50–249	24.55%
250 and more	25.45%

Source: own study.

4. Research Results

In order to determine the relationship among particular categories of CSR and to determine their impact on the level of digitalization, synthetic indicators for individual types of CSR activities were created, based on the arithmetic mean of individual components within the category. For each of the indicators, the test reliability coefficient values were calculated.

The alpha values of the indicators used for the purpose of the conducted analyses are presented in Table 3.

Table 3. Values of the Alfa Cronbach test reliability coefficient for individual indicators.

Indicator	Alpha Value
CSR economic practices	0.899
CSR environmental practices	0.937
CSR social practices	0.875

Source: own study.

Presented values of an Alpha Cronbach test show the high-reliability internal consistency of a composite score.

In the next step of the proceedings, we have used a correlation and multiple regression analysis to determine (first) relation between each variable, and (secondly) the impact of each type of CSR on the level of digitalization. Correlation analysis (see Table 4), indicates the existence of high interdependence between indicators related to each type of CSR. This analysis also indicates the existence of interdependence between types of CSR activities and digitalization levels. This interdependence is highest in case of social practices (0.32) and lowest (but still statistically significant) in case of environmental practices.

Table 4. Correlation analysis results.

Variable	Digitalization	CSR Environmental Practices	CSR Social Practices	CSR Economic Practices
Digitalization	1.000	0.256 **	0.319**	0.307 **
CSR environmental practices	0.256 **	1.000	0.629 **	0.573 **
CSR social practices	0.319 **	0.629 **	1.000	0.739 **
CSR economics practices	0.307 **	0.573 **	0.739 **	1.000

** p value <0.05000. Source: own study.

In contrast, multiple regression analysis showed no statistically significant relationship between the different types of CSR activities and the level of digitalization (see Table 5).

Table 5. Regression of the dependent variable-digitalization in relation to types of CSR.

	$R^2 = 0.116$		
	β	t-Statistic	p
CSR environmental practices	0.066	0.049	0.581
CSR social practices	0.173	0.154	0.239
CSR economic practices	0.141	0.135	0.310

Source: Own study.

As a result of this analysis (Table 6), one of the three CSR variables remained—social practices that influenced the level of digitalization.

Table 6. Result of backward stepwise regression of the dependent variable-digitalization in relation to types of CSR.

	$R^2 = 0.102$		
	β	t-Statistic	p
CSR social practices	0.319	3.504	0.001

Source: Own study.

The statistically significant impact of social practices on the level of digitalization, with the simultaneous interdependence between individual types of CSR, allowed for the formulation of a path model proposal aimed at explaining these relationships.

Bearing in mind that organizational maturity depends on the size of the organization [127], we took into account an additional variable in the model, which is the number of employees.

The proposed model (see Figure 1) assumed the influence of CSR social practices on digitalization and economic and environmental practices as well, and additionally influenced the size of the organization on each of the variables.

Figure 1. Results of SEM analysis: * $p < 0.05$, ** $p < 0.01$.

The model shown in Figure 1. was obtained, for which p -value was 0.082, SRMR was 0.037, while GFI, AGFI, NFI, NNFI, CFI, were respectively: 0.975, 0.875, 0.959, 0.920, 0.976.

The results of the SEM analysis, presented in Figure 1 showed that the implementation of CSR social practices has an impact on both the implementation of economic (0.74) and environmental (0.637) CSR practices, what is more, the existence of an impact of social practices on the level of digitalization (0.316) was again demonstrated. Simultaneously, no statistically significant impact of the size of the organization on the level of digitization as well as economic and environmental practices was demonstrated. On the other hand, a slight negative influence of the size of the organization on environmental practices was shown.

5. Discussion

Although the environmental dimension is considered a pillar of CSR [128], the results of our study suggest a key role in social practices in influencing economic and environmental practices. This observation is consistent with the results of Bihari and Pradhan, suggesting that the social responsibility of organizations should be acknowledged [129]. Interestingly, the study did not identify the impact of economic practices on environmental practices and economic and environmental practices on social practices.

The results of our study are in line with the results of Currás-Pérez et al., who suggest that companies can influence social value only through social CSR initiatives because the social value is not influenced by the environmental and economic dimensions of CSR [70]. Similarly, the studies by Sila and Cek [130], and Šontaitė-Petkevičienė [131] indicate the impact of social practices on economic practices, suggesting that leaders should define ethical principles used as a basis for the development of economically sustainable business models. Currás-Pérez et al. explain the lack of impact of economic practices on the society by referring to the perception of economic initiatives as activities focused on profit compared to the better accepted and valued initiatives based on the social dimension of CSR [70]. Pan et al. show positive links between the social dimension of CSR and the environmental aspects of CSR, arguing that developing and engaging in social CSR practices undoubtedly increases the attractiveness of firms for talented employees. On the other hand, having such employees facilitates the implementation of environmental projects, e.g., eco-innovations. Pan et al. [132] maintain that firms with a more developed social dimension of CSR have employees with greater environmental awareness, which has an impact on environmental capabilities. Becker and Smith claim that taking care of the employees' motivation and engagement, inscribed in the social dimension of CSR, translates into the innovations needed for social responsibility—specifically regarding the environment [133].

The results of the study suggest the existence of an influence of social practices on digitalization, but do not confirm the influence of economic and environmental practices on digitalization. The results show that the focus on the needs of internal stakeholders, which translates into the formation of appropriate CSR competencies influencing the selection of digitalization tools [120], seems to have an impact on the level of digitalization. The results also suggest that it is important to have an open interaction with stakeholders, translating into sustainable development, thanks to which digitalization can strengthen the organization's ability to respond to phenomena in the environment [121].

The research does not make up a basis for inferring the impact of digitalization on any type of CSR practices, which, in the context of CSR research and digitalization [32,119,122–126] seems puzzling and undoubtedly requires in-depth analysis in future research.

Although the research results of D'Amato and Falivena indicate that CSR initiatives may be ineffective in smaller and younger companies due to a lack of financial resources, experience, or reputation [134], in our research, we did not observe any relationships between size and any of the examined dimensions of CSR. The relationship between size and digitalization has also been unconfirmed. In addition, BarNir et al. suggest that company size is correlated with the availability and flexibility of resources and the

susceptibility to competition in the industry, which in turn influences the digitalization of companies [135], and Salvi et al. [136] suggest that the size of the company influences the need to adopt digital solutions, but these relationships have not been confirmed in our research.

6. Conclusions

This article examines the relationships among CSR practices in the social, economic, and environmental dimensions and the digitalization in the energy sector enterprises. Empirical research confirms the influence of social practices on other CSR practices and on the level of digitalization and suggests that there is essentially no significant impact of the size of the enterprise on the level of digitalization, as well as on any of the analyzed types of CSR practices.

The results of this study have several potentially important implications. Firstly, they suggest that social practices are key practices in energy sector companies, affecting both economic and environmental practices, as well as digitalization. This observation allows us to conclude that managers of enterprises in the energy sector should pay particular attention to activities in this area. The emphasis should be put on cooperation with both external and internal stakeholders. Therefore, managers of energy sector companies should feel about raising public awareness of the activities undertaken in this sector by providing reliable information. Moreover, they should take care of the development of employees' competencies, their motivation to work, ensuring a high level of safety and a work-life balance. It is also justified to undertake activities for the local community, cooperate in social and charity projects and promote the development of the local community. Secondly, the lack of correlation between CSR practices and the size of enterprises that we have observed means that it is necessary to build managerial competencies in the area of interactions with internal and external stakeholders, regardless of the size. The negative link between the environmental CSR practices and the number of employees, which we observed in this study, may mean that large enterprises only declare activities for the benefit of the natural environment, but the declarations do not translate into reality. In fact, such firms just try to create an image of a pro-ecological enterprise, which is far from the assumptions of CSR.

This study has several limitations that can be considered as opportunities for future research. Firstly, the study is referred to an observation at a point in time and might not have captured and comprehensively explained the causal relationships. Future studies should be based on longitudinal data to carefully analyse the conclusions on the compounds that were tested in this study and should use the larger sample size to validate the reported empirical results. Secondly, the survey collected data using a self-report questionnaire which gave a cross-sectional picture but could omit important details. Therefore, in future studies, we recommend to conduct a more in-depth case study analysis. Thirdly, in the survey, we used a single respondent project, which allowed us to obtain data quickly, but could influence the subjectivity of the responses. Future research should use mixed methods and mixed data sources. Fourthly, the study does not discuss the results of energy sector companies in the area of CSR practices in comparison to companies from other sectors in Poland, neither companies from other jurisdictions, which may be interesting directions for further research.

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Appendix A. Research Questionnaire

1. Please select one of the following statements related to the level of digitization in your company:

- ☐ The management team is considering implementing a digital transformation strategy in the long term, but currently this is not a strategic goal of the company.
- ☐ The management team organizes the business conditions which are essential for carrying out digital transformation and prepares employees to implement this change. Employees are aware of the need to digitize the company's operations.
- ☐ The company uses modern ICT, processes are being automated, and there is cooperation with partners and research centres in order to improve the product manufacturing process.
- ☐ The company's employees use and create new technological solutions. Digitization occurs not only at the organizational level, but also at the individual level. It has become the foundation of the enterprise's organizational culture.

2. Corporate social responsibility (CSR).

Please rate the degree to which you agree or disagree with each of the following statements
Scale: 1—strongly disagree, 7—strongly agree

(1) In the activities undertaken in our company:

Environmental practices

We assess the environmental impact of our activities

We introduce energy and water saving activities

We develop renewable energy sources

We choose environmentally friendly suppliers

We encourage our clients to care for the natural environment

We implement waste and pollution control systems

We strive to reduce the environmental impact of energy production/transmission

We create activities that care for the natural environment

Social practices

We assess the impact of the activities undertaken on the local society

We cooperate on social and charity projects

We promote the development of the local community and heritage protection

We strive to ensure the work and family life balance of employees

We provide a high level of work safety

We care about the high competencies and proper motivation of employees

We interact openly with stakeholders

Economic practices
We offer a competitive level of remuneration
We treat customers and suppliers fairly
We shape good relations with responsible suppliers
We provide high quality products
We carry out cost-effective operations
We invest in new technologies
We provide a high level of reliability of energy supplies
We manage financial risk
(2) Formal CSR practices in our company are implemented under the influence of:
Relationship with the strategy
Relationship with organizational culture
Striving to reduce costs and ensure profitability
Environmental commitments and efforts to protect the climate
Protect yourself against potential risks
Image issues and reputation enhancement
Reporting important issues
Social requirements
Increase in competitiveness
Legal Requirements
Stakeholders' expectations
Trends in management
(3) In our company, CSR practices have an impact on the actual change in the functioning of the company and are not symbolic in nature:
In the social dimension
In the economic dimension
In the environmental dimension
(4) CSR practices are particularly important for the long-term success of our company
In the social dimension
In the economic dimension
In the environmental dimension

3. Demographic profiles of respondents to the questionnaire and the profile of the studied organisations

1. Please indicate the age of your company:
 - ☐ Less than 2 years
 - ☐ 2–5 years
 - ☐ 6–10 years
 - ☐ 11–25 years
 - ☐ More than 25 years
2. Please indicate the number of employees in your company:
 - ☐ 10–49
 - ☐ 50–249
 - ☐ More than 250

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