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Pro-Environmental Organizational Culture in Light of Existing and Own Research

ABSTRACT

Environmental injustice, climate change, environmental ethical dilemmas, social responsibility, environmental marginalization, the emergence of powerful interest groups, radicalism, and anti-capitalist protests have all raised societies' environmental awareness. The convergence of environmental issues has also forced business organizations to reform their environmental activities. As a result, new economic business models emphasizing sustainable use of natural resources and conservation of natural capital are developing. The implementation of the models mentioned above is linked to the need to introduce not only eco-innovation, but also to develop a pro-environmental organizational culture systematically.

This study aims to review the literature on pro-environmental organizational culture in enterprises and to present the results of empirical research focused

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on diagnosing the state of this culture in Polish enterprises. In particular, the analysis focused on the role of awareness, attitudes, competencies, and motivational systems in building an organizational culture that supports environmental responsibility. The hypothesis assumed that the level of pro-environmental organizational culture is related to the enterprise size.

In addition to the literature, the authors' survey research was used to realize the stated goal and verify the hypothesis. The survey was conducted in 2024 on a randomly selected sample of 400 Polish enterprises, which were diverse in terms of geographic location, size, and field of activity. Statistical methods, including basic descriptive statistics and the ANOVA test, were used to identify the deficiencies of the surveyed companies concerning descriptive and pro-environmental organizational culture, and the proposed hypothesis was positively validated. The research results also enabled the formulation of recommendations for strengthening companies' pro-environmental organizational culture.

KEYWORDS: *organizational culture; pro-environmental culture; environmental awareness*

INTRODUCTION

Environmental pollution and climate change are among the greatest challenges of the 21st century (UNEP, 2010). Increasing environmental threats caused by human behavior (Lehman & Geller, 2004) – such as global warming, biodiversity loss, and natural resource degradation – require the systemic and coordinated involvement of all participants in economic life. Increasing social and regulatory pressures are forcing both households (Kronenberg, 2007; Marchand & Walker, 2008) and organizations to change their approach to environmental issues (Kürzinger, 2004; Rosner, 1995). However, the response to these challenges cannot be limited to technological transformation alone – an equally important aspect is a cultural shift within the organizations themselves.

In this context, organizational culture gains importance as a key factor supporting the achievement of sustainable development

goals. Understood as a set of values, norms, and beliefs that influence organizational functioning (Schein, 2010), organizational culture provides a foundation for building commitment to pro-environmental activities. The ecological aspect of this culture manifests itself in promoting environmental responsibility, efficient resource use, support for innovation, and the pursuit of minimizing negative environmental impacts.

Organizations that develop a so-called pro-environmental culture not only implement “green” technologies and practices but also strengthen employees’ identification with the values of sustainable development. This kind of culture, therefore, becomes an internal mechanism for mobilizing sustainable and effective environmental action. Research shows that a well-established pro-environmental culture supports the effective implementation of CSR strategies and the development of competitive advantage (Gürlek & Tuna, 2019).

Despite the increasing interest in sustainable management topics, pro-environmental culture is still relatively underexplored. It becomes particularly important to understand what elements of organizational culture are conducive to the development of environmental attitudes, how they can be effectively shaped, and what organizational factors determine their effectiveness (Piwowar-Sulej, 2020). Pro-environmental culture can be defined as a specific component of organizational culture in which environmental issues are deeply embedded in values, norms, and management practices (Norton et al., 2015).

As indicated by literature analysis (Blok et al., 2015), the foundation of a pro-environmental culture is the attitudes and behaviors of organizational members aimed at seeking and implementing solutions that support environmental protection and reduce the consumption of natural resources. These attitudes are shaped by both internal and external factors, making a pro-environmental culture a complex organizational competence, combining physical and mental competencies based on a sense of responsibility for

the environment. Managers play a crucial role in development by supporting the implementation of new cultural patterns and creating an organizational environment that encourages ecological thinking (Roscoe et al., 2019).

This article aims to assess the pro-environmental organizational culture within enterprises and identify areas for improvement. Special attention is given to the influence of organizational size as a potential factor that differentiates the level of pro-environmental culture advancement.

To achieve the research objectives, a survey was conducted in 2024 among 400 randomly selected enterprises in the Silesian Voivodeship. Data was collected using Computer-Assisted Telephone Interviewing (CATI) with a proprietary questionnaire. This questionnaire focused on four key areas essential for developing a pro-environmental culture: awareness and knowledge of pro-environmental practices, organizational attitudes and beliefs, pro-environmental activities and tools, and the employee motivation and engagement system.

1. LITERATURE REVIEW AND THEORETICAL FOUNDATIONS: ORGANIZATIONAL CULTURE IN THE ERA OF ENVIRONMENTAL CHALLENGES

Organizational culture gained significance in the 1980s, partly as a result of attempts to explain the differences in performance between American and Japanese companies (Ostroff et al., 2013; Schein, 1990). In the subsequent period, attention was drawn to the fact that culture is an important element influencing organizational, group, and individual behaviors (Hartnell et al., 2011), which led to increased interest in this concept.

The term "culture" was first described by Tylor (1971). Culture, understood in a broad ethnographic sense, is a complex whole that includes knowledge, beliefs, art, morals, law, customs, and

all other capabilities and habits acquired by humans as members of society. According to Deal and Kennedy (1982), organizational culture contributes to systemic balance and enhances organizational performance. It serves as a cohesive force, integrating the organizational structure while also reflecting the values, social ideals, and collective beliefs of its members. These beliefs are reflected in the unique language specific to an organization, shaped by its history and operational experiences. Pascale (1990) believes culture, as shared values and beliefs, gives identity to members and generates commitment beyond the self, and strengthens the social system's stability. It is also a sense-making tool that guides and shapes behavior while supporting the company's strategy. According to Norton et al. (2015) organizational culture can be viewed as a set of elements and processes that create and reveal unconscious or implicit assumptions, guiding the organization's actions. For Davis (1984) culture refers to a pattern of shared beliefs and values that gives meaning to members of an institution and defines the rules of behavior within the organization.

The widespread interest in culture has led to many alternative definitions. Nevertheless, E. H. Schein (2010) identified several common features in his comprehensive and widely accepted definition of culture: "A pattern of shared basic assumptions learned by a group as it solved its problems of external adaptation and internal integration, which has worked well enough to be considered valid and, therefore, to be taught to new members as the correct way to perceive, think, and feel concerning those problems" (p. 17).

Schein (2010) argues that crises create opportunities for the beliefs and values of influential individuals (i.e., leaders) to be noticed by a broader audience, as organizational members turn to leaders for guidance. Organizational members verify the internalized values and beliefs of leaders either empirically, by assessing their impact on outcomes, or socially, through shared experiences. Over time, such verification can transform these beliefs and values

into general assumptions, ultimately forming the organizational culture.

Individual pro-environmental attitudes and behaviors, through (shared) assumptions and expectations, shape pro-environmental organizational cultures following the dynamic culture model. These cultures are diverse, as they are driven by different factors depending on the organizational context in which they emerge (Hatch, 1993). Therefore, it is important to understand what differentiates an organization's attitude toward sustainability and what forms a pro-environmental organizational culture can take.

It is worth referring to the Competing Values Framework concept (CVF; Quinn and Rohrbaugh, 1983), which focuses on the organization's orientation along three dimensions:

- internal versus external focus,
- flexibility versus control,
- means versus ends orientation: processes and final outcomes.

According to the CVF, various preferences for pro-environmental organizational culture may emerge.

Flexible organizations with an internal focus (i.e., Human Relations Model) should demonstrate a preference for interventions aimed at developing employees' competencies and knowledge, benefiting their well-being (Linnenluecke & Griffiths, 2010). Focusing on employee development and their pro-environmental ideas and values.

Organizations with a flexible approach but with a more external focus (i.e., Open Systems Model) that are more responsive to the external environment and use their flexibility to foster innovation and create competitive advantages based on sustainability (Linnenluecke & Griffiths, 2010). A model that combines external focus with flexibility promotes innovation and adaptability.

In contrast to flexible organizations, these organizations show a preference for stability and control, rely on formalized structures, and in such organizations, sustainability is viewed through the lens of efficiency (Linnenluecke & Griffiths, 2010). For

organizations with an internal focus (i.e., Internal Process Model), the emphasis is on internal orientation and control, highlighting the importance of stability and formal procedures. The Rational Goal Model, oriented toward external goals and control, focuses on productivity and efficiency. Motivations for engaging in sustainable development are directly linked to financial performance, and sustainability is perceived as a means to maximize profits (Linnenluecke & Griffiths, 2010).

Additionally, Cameron and Quinn (2011) expanded this model by identifying four types of organizational culture corresponding to the above models: Clan Culture, Adhocracy Culture, Market Culture, and Hierarchy Culture.

While organizational culture describes the deep, often unconscious values, beliefs, and assumptions that shape an organization's identity, organizational climate refers to more tangible and directly experienced aspects of the work environment, such as policies, procedures, and practices. In other words, climate represents the "surface" of culture – it shows how an organization's culture is reflected in daily operations and how employees perceive it. Organizational climate is a bridge between culture and employee behaviour, guiding what is expected and rewarded in a given workplace (Norton et al., 2015). It is therefore a practical tool in the change management process, including in the sustainable development area. Organizational social norms – both prescriptive norms (expected and approved behavior, reflected in organizational policies and practices) and descriptive norms (typical coworkers' behavior) – influence employees' pro-environmental behavior (Cialdini et al., 1990; Norton et al., 2014). Research has shown that the perception of injunctive norms mediates the relationship between sustainability policies and mandatory pro-environmental behaviors, while descriptive norms influence voluntary pro-environmental actions (Norton et al., 2014). Moreover, messages containing social norms have been found to be more effective in promoting ecological behaviors than

non-normative messages (Goldstein et al., 2008). These findings are consistent with previous research on organizational climate in other areas, such as workplace safety (Zohar, 2000). The integrated model of culture and organizational climate shows that climate (understood as the perception of artifacts) mediates the impact of culture on employee behavior, integrating organizational values with the current operational context (Hatch, 1993; Schein, 1990).

The integrated model of organizational culture and climate indicates that institutional pressures (regulatory, normative and socio-cultural) shape leaders' pro-environmental attitudes, leading to the creation of a culture and climate conducive to sustainable development (Linnenluecke et al., 2009; Norton et al., 2012; Robertson & Barling, 2013). Culture is manifested through artifacts, such as environmental policies and operational practices, that create the organizational climate, which in turn influences employee behaviors (Casler et al., 2010). This climate fosters the formation of pro-environmental behavioral norms, and the actions of individuals can acquire symbolic meaning over time, reinforcing a sustainability-oriented organizational identity (Norton et al., 2014; Kane, 2011).

Pro-environmental behaviors (task-related, proactive, citizenship, and harmful) are influenced by both pro-environmental culture and organizational climate (Bissing-Olson et al., 2013; Norton et al., 2014; Paillé & Boiral, 2013). There is a tendency to focus mainly on voluntary pro-environmental behaviors as a form of citizenship behavior, but up to one-third of all pro-environmental behaviors in the workplace are imposed by the organization (Ones & Dilchert, 2012).

The results of ongoing research indicate that both culture and organizational climate are factors that influence organizational and group performance and individual behavior both generally (Hartnell et al., 2011; Schneider et al., 2013), and in the environmental sustainability context (Norton et al., 2014; Russell & McIntosh, 2011). Walls and Hoffman (2012) demonstrated

how board members shape a pro-environmental organizational culture. The research results of Linnenluecke et al. (2009) and Linnenluecke and Griffiths (2010) indicate that the ideological foundations of organizational culture influence how companies perceive environmental sustainability.

Factors influencing organizational culture (Schein, 1991):

- the business environment in which the organization operates helps define its culture (Drennan, 1992);
- leadership (Kotter & Heskett, 1992);
- management practices and the formal socialization process, that is, how the company is managed (Kotter, 1990);
- informal socialization process, how an individual behaves within the context of the group (Schein, 1991).

Leadership plays the greatest role in shaping organizational culture, primarily through the credibility of its message, which influences employee engagement and reinforces the role of employees as co-responsible for creating a green organizational culture (Roscoe et al., 2019).

Organizations' concern for environmental sustainability is one of the main cultural research drivers. To understand and quantitatively determine the relationship between industrial development and environmental degradation, many researchers have developed various theoretical frameworks and models, including studies on organizational culture (OC) and pro-environmental culture (PC). The current literature on organizational culture (OC) and sustainability relies largely on case studies rather than empirical data. This study aims to fill the existing gap by adopting a quantitative approach based on the Resource-Based View (RBV) theory framework. One area of weakness in the literature is the limited research linking organizational culture to pro-environmental culture. Furthermore, these studies focus more on the macro level, whereas a better understanding of pro-environmental culture requires research at the micro level, as they primarily concentrate on internal factors within the company,

utilizing the norms and values of the organization and its employees related to ecological practices. It is important for companies to consider internal factors at the micro level that ensure better environmental performance. Existing research confirms that, based on resource and competence theory (RBV), OC helps organize resources in achieving companies' green management goals. Pro-environmental actions taken by managers are becoming increasingly important due to the increase in competitiveness, the need for companies to differentiate themselves, the potential business benefits, and to stimulate development, considering the resources of the natural environment and their rational use.

Collaborative efforts are needed to address environmental challenges and adapt to a changing world. Factors comprising pro-environmental culture shape beliefs about how nature works and how individuals interact with the natural environment. Consequently, they can affect the way individuals perceive environmental problems and take action to solve them.

2. RESEARCH METHODOLOGY

Organizational culture can be seen as a vital resource for a company, closely tied to the way people think and act within it. In the context of ongoing environmental degradation and climate change, the aforementioned way of thinking and acting must have an ecological context.

Therefore, it is assumed that the foundation of an enterprise's pro-environmental organizational culture consists of such people's attitudes and behaviors in organizations that result in the continuous discovery of new environmental opportunities and knowledge, as well as the introduction of changes to reduce the natural capital consumption.

Attitudes and behaviors change under the influence of internal and external factors. Therefore, considering the pro-environmental

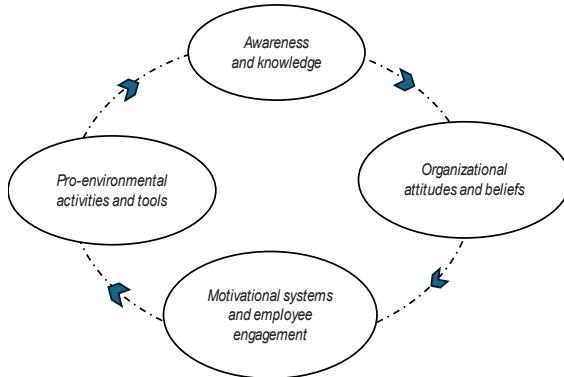
innovation culture as a complex competence of the subject (person, company), an integral element of which, in addition to physical competence, is also mental competence. They are related not only to the pursuit of development but also to responsibility for the environment. This responsibility must be ingrained in the mindset of each organizational member to translate into responsibility for the entire entity. This is a particular responsibility for managers, who must, on the one hand, prepare people for a new organizational culture, and on the other, create conditions that strengthen the key attributes of environmentally oriented thinking.

The main research objective is to diagnose the pro-environmental culture of enterprises and identify the deficits occurring in this area. Considering the larger enterprises' capital capabilities and their decidedly greater responsibilities in the context of environmental protection and action reporting, it is assumed that the size of the enterprise has an impact on the level of the enterprise's pro-environmental organizational culture.

To achieve this goal and verify the hypothesis, proprietary survey results, conducted in 2024 on a random sample of 400 companies in the Silesian Voivodeship, are used. The data were collected using the CATI system based on a questionnaire in which respondents expressed their opinions on the company's pro-environmental culture.

Literature studies have shown that the starting point for developing a pro-environmental culture is organization members' awareness and knowledge. They translate into team behavior, influencing their attitudes and organizational behavior, which, supported by the motivational system, determine the commitment of employees and, consequently, the willingness to take pro-environmental actions, to seek and implement supporting tools. As a result, the questionnaire construction was based on the four elements shown in Figure 1, which are most commonly associated with the development of a pro-environmental organizational culture in enterprises.

Figure 1. Key elements of a pro-environmental organizational culture.



Note. Own elaboration.

Each of these elements was described using deliberately selected statements. As a result, the enterprise's pro-environmental culture was described by 18 statements relating to awareness and knowledge of pro-environmental culture (A), organizational attitudes and beliefs (B), motivational systems and employee engagement (C), pro-environmental activities and tools (D) (Table 1).

Table 1. Statements describing the company's pro-environmental organizational culture.

	Characteristics	Evaluation area
1	The company understands the concept of a pro-environmental culture	A1
2	The company has a general knowledge of environmental culture	A2
3	The company believes that the pro-environmental attitude/idea of environmental protection is right	B1
4	The company believes environmental behavior/attitude is enforced by the environment	B2

5	The organization's culture is currently fully aligned with respect for the environment	B3
6	The company's reputation is closely linked to pro-environmental actions — this is how customer trust and a positive image are built	B4
7	The company knows the methods and ways to effectively shape pro-environmental attitudes within the organization	A3
8	The company knows the effects of the actions it takes in caring for environmental protection	A4
9	The company considers the need for additional efforts to build an environmentally friendly culture	C1
10	Pro-environmental behaviors are rewarded in the company	C2
11	The internal motivational system should be focused on fostering pro-environmental attitudes among employees	C3
12	The external motivational system is based on additional benefits, such as material or financial rewards, for measurable pro-environmental behaviors	C4
13	The company knows and understands the applicable regulations concerning pro-environmental behaviors	A5
14	The company is aware of the need for new environmental measures required by regulations	A6
15	If necessary, the company uses tools to enforce environmental behavior in the company	D1
16	The company invests in equipment that facilitates the conservation of environmental resources	D2
17	The company invests in training and informational campaigns for employees regarding the development of a pro-environmental culture	D3
18	The company has an organizational unit responsible for managing pro-environmental activities	D4

Note. A = awareness and knowledge of pro-environmental culture, B = organizational attitudes and beliefs, C = motivational systems and employee engagement, D = pro-environmental activities and tools.

A 5-point Likert scale was used to assess the validity of the statements. The scale's reliability, which amounted to 0.88, was tested using Cronbach's alpha.

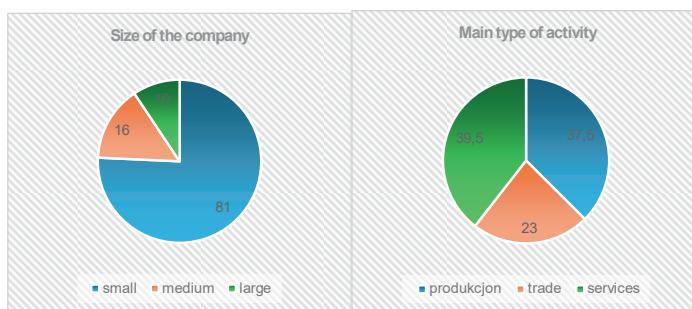
In addition to basic descriptive statistics (mean, median, standard deviation), the research results were subjected to statistical analysis. To test the consistency of evaluations between companies that differed in size, an ANOVA test was used. The tests were conducted based on a significance level of $\alpha = 0.05$.

3. STUDY

3.1 Sample characteristics

The survey was conducted in 2024 on a sample of 400 enterprises from the Silesian Voivodeship. The study population was diversified both in terms of company size and the nature of its business activities (Figure 2).

Figure 2. Sample characteristics.



To ensure spatial representation, the surveyed enterprises represented the eight most industrialized cities in the Silesian Voivodeship with county rights. In each city, 50 companies were selected for the study.

The representatives from each company were selected to reflect the average employee structure. As a result, most respondents were line employees (55%), 29% were managers or team leaders, and the remaining 16% were company owners.

3.2 Results

As theoretical considerations have shown, a company's pro-environmental culture is linked to the adopted business model, as well as to the knowledge and awareness of its people, which influence their attitudes and behaviors, and ultimately the decisions they make.

The summary research results presented in Table 2 indicate that respondents representing companies generally agreed with the statement that the idea of environmental protection is right (4.42) (Table 2).

Table 2. Summary research results.

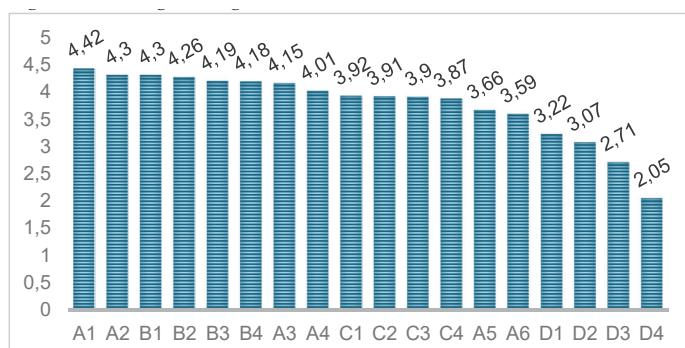
	<i>M</i>	<i>Me</i>	<i>Mo</i>	<i>N_{Mo}</i>	Min.	Max.	<i>SD</i>	<i>V_z</i>
The company understands the concept of a pro-environmental culture	4.19	4	5	189	1	5	0.94	22%
The company has a general knowledge of environmental culture	4.15	4	5	166	1	5	0.91	22%
The company believes that the pro-environmental attitude/idea of environmental protection is right	4.42	5	5	235	1	5	0.82	19%
The company believes environmental behavior/attitude is enforced by the environment	3.07	3	3	134	1	5	1.25	41%
The organization's culture is currently fully aligned with respect for the environment	4.18	4	5	168	1	5	0.88	21%

	<i>M</i>	<i>Me</i>	<i>Mo</i>	<i>N_{Mo}</i>	Min.	Max.	<i>SD</i>	<i>V_z</i>
The company's reputation is closely linked to pro-environmental actions — this is how customer trust and a positive image are built	3.59	4	4	118	1	5	1.20	33%
The company knows the methods and ways to effectively shape pro-environmental attitudes within the organization	4.01	4	4	167	1	5	0.92	23%
The company knows the effects of the actions it takes in caring for environmental protection	4.30	4	5	189	1	5	0.78	18%
The company considers the need for additional efforts to build an environmentally friendly culture	3.91	4	4	165	1	5	0.97	25%
Pro-environmental behaviors are rewarded in the company	3.22	3	3	123	1	5	1.28	40%
The internal motivational system should be focused on fostering pro-environmental attitudes among employees	3.66	4	4	134	1	5	1.12	31%
The external motivational system is based on additional benefits, such as material or financial rewards, for measurable pro-environmental behaviors	2.71	3	3	123	1	5	1.22	45%
The company knows and understands the applicable regulations concerning pro-environmental behaviors	4.26	4	5	174	1	5	0.79	19%
The company is aware of the need for new environmental measures required by regulations	4.30	4	5	183	1	5	0.78	18%

	<i>M</i>	<i>Me</i>	<i>Mo</i>	<i>N_{Mo}</i>	Min.	Max.	<i>SD</i>	<i>V_z</i>
If necessary, the company uses tools to enforce environmental behavior in the company	3.87	4	4	149	1	5	1.10	28%
The company invests in equipment that facilitates the conservation of environmental resources	3.92	4	5	148	1	5	1.10	28%
The company invests in training and informational campaigns for employees regarding the development of a pro-environmental culture	3.90	3	3	101	1	5	1.35	46%
The company has an organizational unit responsible for managing pro-environmental activities	2.05	1	1	219	1	5	1.36	66%

The statements characterizing awareness and knowledge about the company's proecological culture, familiarity with methods and ways of shaping it, as well as the necessity to undertake new proecological actions were also rated highly. The means presented in Figure 3, arranged by the level of agreement, reveal a decline in

Figure 3. Average ratings of statements



ratings for statements regarding current investment expenditures and the need to take actions to foster a pro-ecological culture. This includes the necessity of developing motivational systems.

This may indicate, on the one hand, the companies' limited financial resources, which prevent or hinder companies from incurring additional expenses. On the other hand, it may suggest a lack of conviction regarding the legitimacy of undertaking certain actions. It should be recalled that more than 50% of the surveyed companies are small businesses, which may not perceive the need to establish additional units responsible for pro-environmental activities. Their financial resources are also smaller than in larger companies, which may negatively affect the willingness to introduce motivational systems involving additional expenditure or training in this area. It is worth noting that the standard deviation regarding the validity of statements related to investment in training and the existence of a dedicated organizational unit was the highest (1.35 and 1.36, respectively). High standard deviations were also recorded for statements related to rewarding pro-environmental behaviors within the company (1.28). A similar standard deviation (1.25) was observed for the statement indicating, that the company believes pro-environmental actions result from external pressures. This also explains the low rating for the validity of the statement linking reputation, image, and customer trust to environmental activities and the relatively high standard deviation for rating this statement (1.30).

Significantly lower standard deviations were recorded for those variables that refer to subjectively assessed knowledge in the area of shaping pro-environmental attitudes and the related regulations.

It therefore becomes a legitimate question whether the size of the company represented by the respondent significantly differentiates the evaluation of individual statements. The results of the Kruskal-Wallis ANOVA test presented in Table 3 indicate the existence of a relationship between respondents' ratings and the

size of the represented enterprise. Statistically significant differences were found for as many as 13 of the 18 statements (Table 3).

Table 3. Company size and agreement with statement ratings – results of the Kruskal–Wallis ANOVA test¹ and Mann–Whitney *U* test²

	Small medium ¹	Small large ¹	Medium large ¹	Small medium large ²	
	<i>p</i> -value				
	1	2	3	4	5
The company understands the concept of a pro-environmental culture	0.000	0.020	0.559	0.000	
The company has a general knowledge of environmental culture	0.000	0.200	0.674	0.000	
The company believes that the pro-environmental attitude/idea of environmental protection is right	0.154	0.233	0.548	0.122	
The company believes environmental behavior/attitude is enforced by the environment (because that's what the competition does)	0.181	0.508	0.864	0.323	
The organization's culture is currently fully aligned with respect for the environment	0.007	0.013	0.204	0.001	
The company's reputation is closely linked to pro-environmental actions – this is how customer trust and a positive image are built	0.008	0.082	0.554	0.007	
The company knows the methods and ways to effectively shape pro-environmental attitudes within the organization	0.002	0.008	0.242	0.000	
The company knows the effects of the actions it takes in caring for environmental protection	0.012	0.031	0.338	0.002	

1	2	3	4	5
The company considers the need for additional efforts to build an environmentally friendly culture	0.007	0.422	0.827	0.014
Pro-environmental behaviors are rewarded in the company	0.037	0.902	0.569	0.102
The internal motivational system should be focused on fostering pro-environmental attitudes among employees	0.016	0.497	0.827	0.038
The external motivational system is based on additional benefits, such as material or financial rewards, for measurable pro-environmental behaviors	0.422	0.095	0.227	0.179
The company knows and understands the applicable regulations concerning pro-environmental behaviors	0.017	0.062	0.459	0.005
The company is aware of the need for new environmental measures required by regulations	0.024	0.532	0.833	0.040
If necessary, the company uses tools to enforce environmental behavior in the company	0.186	0.105	0.322	0.104
The company invests in equipment that facilitates the conservation of environmental resources	0.013	0.038	0.379	0.004
The company invests in training and informational campaigns for employees regarding the development of a pro-environmental culture	0.003	0.041	0.559	0.018
The company has an organizational unit responsible for managing pro-environmental activities	0.000	0.013	0.445	0.000

As a result, a common feature of companies is that they realize the need to protect the environment, use systems to motivate such actions, and, if necessary, implement tools to enforce the desired behavior. At the same time, they indicate that the external environment influences the shaping of a pro-environmental culture. Referring to the variables that indicate the existence of statistical differences, certain patterns can be observed. For the majority of variables (A1, A3, A4, A5, B3, B6, D2, D3, D4), it was found that the larger the company (enterprise), the higher the agreement with the presented statements. The lowest agreement level was found among small companies, and the highest among large companies. Only in the case of variable A2 was the same agreement level found in medium and large companies, but significantly less in small companies. In contrast, for statements C1, C3, and A6, the least agreement was observed among small enterprises, while medium-sized enterprises showed the highest agreement level.

To summarize the research findings, it is worth emphasizing that the highest level of agreement with the evaluated statements was recorded in the area of awareness and knowledge. Organizational attitudes and beliefs were rated slightly lower, with an average score of 3.82. The lowest ratings were given to the area characterizing the actions taken and tools used, with an average score of 3.19 (Table 4).

As expected, company size differentiated the evaluation of all areas surveyed (Table 4b). It is important to note that the respondent's position did not differentiate the assessments, while the type of activity only distinguished the area of pro-environmental activities and tools.

Table 4. Analysis of respondents' ratings by area:
a) Basic descriptive statistics of the analyzed areas

	<i>M</i>	<i>Me</i>	<i>Mo</i>	Min.	Max.	<i>SD</i>	<i>V_z</i>
Awareness and knowledge of pro-environmental culture	4.2	4.2	5	1.2	5	0.7	15.6
Organizational attitudes and beliefs	3.8	3.8	4	1.5	5	0.6	15.6
Pro-environmental activities and tools	3.2	3.0	3	1.0	5	0.9	27.2
Motivational systems and employee engagement	3.4	3.5	3	1.0	5	0.8	25.0

b) ANOVA Kruskal–Wallis test results

	Company size	Activity type	Respondent's position
Awareness and knowledge of pro-environmental culture	0.000***	0.272	0.444
Organizational attitudes and beliefs	0.023*	0.996	0.533
Pro-environmental activities and tools	0.000***	0.026*	0.377
Motivational systems and employee engagement	0.027*	0.660	0.509

CONCLUSIONS AND RECOMMENDATIONS

The presented literature review reveals the evolution in the understanding of organizational culture, from a general concept integrating values and norms, to an increasingly specialized category such as pro-environmental culture. Schein's theory, according to which organizational culture is a system of deeply rooted assumptions that governs the perception and activities of

organizational members, remains a key reference point for this development (Schein, 2010).

Transitioning from traditional views of organizational culture to approaches considering sustainability highlights the increasing significance of environmental issues in management practices. In this context, the integration of the Competing Values Framework (CVF) becomes significant, as it enables the differentiation of culture types based on their strategic orientations and preferences (Quinn & Rohrbaugh, 1983).

According to the presented research results, pro-environmental organizational culture takes different forms depending on the dominant values and organizational structure. Specifically, organizations with an innovation and flexibility orientation are more likely to implement innovative environmental practices, while hierarchical structures may take environmental action mainly for efficiency reasons.

An important element, often underestimated, is the distinction between organizational culture and organizational climate. As rightly noted, organizational climate functions as the operationalization of culture – it is what is visible and experienced in daily operations. From the perspective of change management, climate becomes a tool that enables the translation of cultural values into concrete pro-environmental behaviors.

The application of resource and competence theory highlights that organizational culture can be a source of competitive advantage, provided that it supports the use of resources in a sustainable manner.

Therefore, there is a need for in-depth research at the micro level, analyzing how everyday practices, norms, and beliefs shape a pro-environmental culture “from the inside” – and not just through external policies and declarations (Pierścieniak et al., 2023). Such an approach is essential to better understand the mechanisms behind the implementation of green values in

organizational practices and to identify the factors that support their long-term sustainability.

Empirical studies have shown that in each of the identified areas characterizing the pro-environmental organizational culture of the examined companies, there are existing deficits. Nevertheless, these deficits are smallest in the area related to awareness and knowledge of pro-environmental culture. As a result, according to the respondents' opinions, companies demonstrate an understanding of pro-environmental culture and possess fundamental knowledge in this area (Table 2). This has a positive impact on organizational attitudes and beliefs. As a result, the acceptance of adopting a pro-environmental attitude and creating a culture that remains respectful of the environment was confirmed.

However, it should be emphasized that despite the relatively high ratings of the statements describing the indicated areas, the existence of gaps was observed. This includes, in particular, the knowledge of methods to strengthen pro-environmental attitudes and the belief that a company's reputation, customer trust, or positive image remains linked to pro-environmental activities.

However, particularly high deficits concern the two following areas (Table 4a). In the area of motivational systems and employee engagement, these deficits relate to rewarding pro-environmental behaviors and the importance of building an internal motivational system aimed at fostering ecological attitudes (Table 2). Gaps in the external incentive system to encourage such attitudes are also apparent. The area of activities and tools was rated the weakest, which means that not all companies are investing in training and solutions to save environmental resources; they do not see the need to enforce the desired behavior, while developing formalized structures to support pro-environmental attitudes and behavior.

However, the research showed that the level of the mentioned deficits remains related to the company's size. As a result, large and medium-sized companies demonstrate a more developed pro-environmental culture (Table 3). This is confirmed both by

the level of knowledge within these entities as well as by the attitudes and beliefs of the organizations, their motivational systems, activities undertaken, and tools used.

Therefore, with the increase in the company's size, it becomes established that promoting and taking activities to protect the environment and its resources, and implementing CSR practices is not a choice, but becomes a necessity. A review of the websites of larger companies confirms that a company's pro-environmental culture – showing how it engages in environmental protection – is evident not only in its organizational culture but also in several key areas. These areas include the company's goals, strategy, actions in logistics and production, relationships with the environment, and adherence to environmental laws and standards. This shapes the company's reputation, which over time influences the market perception of its resources and impacts the enterprise's image and reputation (Szwajca, 2016; Caputa, 2020; Frączkiewicz et al., 2024). In small companies, this conviction is not firmly established, indicating a knowledge gap and the need to undertake actions aimed at reducing it. In this context, it should be noted that there is still room for eco-investments in the surveyed companies. However, not all entities consider the need to undertake such activities. The majority do not see the need to launch an organizational unit responsible for conducting environmental activities (Table 2).

Undoubtedly, modern business models emphasize the sustainable use of natural resources and the conservation of natural capital (Turner & Pearce, 1990). As a result, they focus on improving ecological efficiency, reducing the negative environmental impact of business activities, and promoting sustainable development. This leaves the need to prepare and implement various eco-innovations, which for companies "represent a starting point in the transition to an innovation-supported green economy" (Porter & van der Linde, 1995, p. 245). De Jesus et al. (2018) indicates, however, that technological eco-innovation, which is considered

an essential tool to drive the “transformational” and “systemic” transition to a circular economy (CE), is gaining particular importance in the context of the EU’s transition strategy being implemented (also Kiefer et al., 2021, or Scarpellini et al., 2020). However, the implementation of such innovations is associated with relatively high investment costs. Meanwhile, research by Darmandieu et. al., 2022, and Leyva-de la Hiz et. al., 2019, indicates that only companies with more experience in eco-innovation consistently improve their profits through cost savings and efficiency gains. However, several studies do not conclusively resolve the link between eco-innovation and the economic performance of companies. As a result, research findings can be cited that indicate a positive relationship between eco-innovations and company performance (Caravella & Crespi, 2022; Leoncini et al., 2019; Triguero et al., 2017), a neutral relationship (Doran & Ryan, 2016; Horbach & Rammer, 2019) and even a negative relationship (Cainelli et al., 2011; Madaleno et al., 2020). It is worth emphasizing, however, that Cainelli et al. (2011) demonstrate in their research that green markets must be mature to recoup profits. Because the adoption of circular economy eco-innovations can have different effects in the short and long term.

Temporary benefit postponement and its inconclusive studies, indicating the economic benefits of its implementation, may translate negatively into the willingness to undertake eco-innovation. Such reluctance is further fueled by information, especially widespread in virtual spaces, that denies the link between human activities and negative climate change or questions the necessity of taking action to protect the environment and climate. Similar effects are also caused by actions taken by the largest economies, including the U.S., such as withdrawing from the Paris Agreement or returning to fossil fuels. As a result, maintaining a business model based on the sustainable development concept and CSR requires systematic efforts that, by developing the awareness and knowledge resources of individuals and organizations regarding

ecology, will lead to mental shifts. These shifts will result not only in attitudes but also in behaviors responsible for the use of natural resources both in the workplace and beyond.

In conclusion, pro-environmental culture, as a set of values, attitudes, and behaviors that promote care for the natural environment and the pursuit of its protection, is aimed at creating a society that consciously and actively cares for the balance of ecosystems and sustainable development. Its development depends on complex interactions between education, values, politics, technology, economics, media and social culture. As a result, both businesses and government institutions, including through financial support, must emphasize developing a pro-environmental culture. This responsibility also lies with consumers, who, being the source of companies' capital, can protect the environment through their conscious purchasing and consumption, while simultaneously compelling suppliers to produce and deliver goods in ways that reduce the use of natural capital. This all justifies the assertion that developing a pro-environmental organizational culture within companies is not possible in isolation from their environment. This creates the need to constantly affect the sensitivity of every society member, which is becoming the task of every market participant and every community member. Therefore, collaboration at various levels and continuous educational efforts are crucial for shaping lasting pro-environmental attitudes in society, which will also support and strengthen individual actions by companies aimed at developing a pro-environmental organizational culture. This also sets a future research direction that integrates internal and external actions supporting the development of an innovation-driven culture within enterprises.

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