

How Sharing Pro-Environmental Knowledge Creates Business Management Processes

Małgorzata Łęgowik-Małołepsza

Technical University of Częstochowa, Poland

m.legowik-malolepsza@pcz.pl

Abstract: The study poses a research question: how does sharing pro-environmental knowledge create business management processes? Although pro-environmental knowledge is important for the success of modern enterprises, the literature on the subject does not provide insight into the dynamic processes taking place in the market environment of enterprises, not to mention how pro-environmental knowledge increases the attractiveness of enterprises' offers and allows them to react quickly to changes. Against this background, this study, conducted on a sample of 1,024 enterprises, analyzes the effects of introducing pro-environmental knowledge in the context of creating business management processes. Moreover, this study develops a holistic framework to explain the interactions between pro-environmental knowledge and tailored to the needs and expectations of all employees (Bissing-Olson, Iyer, Fielding, Zacher, 2013). Observations and the proposed framework shed new light on the understanding and acceptance of the creative role of pro-environmental knowledge in company management by company employees.

Keywords: Sharing knowledge, Pro-environmental, Business management processes

1. Introduction

The subject-matter related to pro-environmental activities is important not only due to the need to protect natural resources and minimize the negative impact on the natural environment, but also simply becomes fashionable among enterprises. In this paper "pro-environmental" knowledge is understood as ecological awareness regarding limited natural resources, environmental pollution or an increase in the level of consumer waste, which causes not only changes in consumer behaviour, but also the way of doing business by enterprises that see the need to implement pro-environmental activities (Norton, Zacher, Ashkanasy, 2015).

Possessing pro-environmental knowledge and its skillful application provides the opportunity to increase the attractiveness of offers of enterprises and allows for responding quickly to changes in the environment (Otolá, 2009). However, to make this possible, it is necessary to implement an effective way of sharing pro-environmental knowledge in enterprises so that pro-environmental activities are understandable and acceptable to the company's employees. Sharing pro-environmental knowledge is also inextricably linked to adjusting pro-environmental activities to the needs and expectations of all employees.

2. Pro-Environmental Knowledge as a set of Information

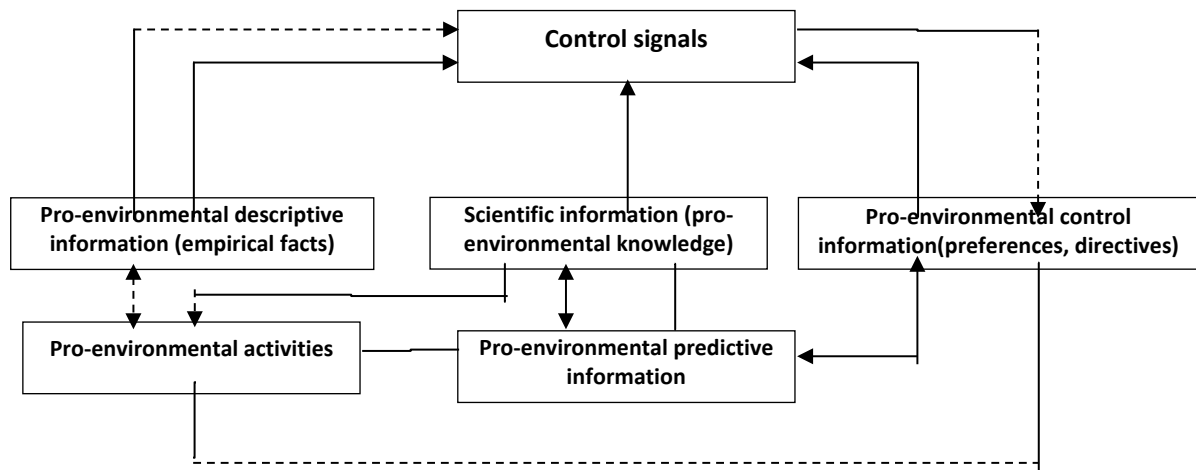
Due to the role that pro-environmental knowledge plays in the area of business management processes, taking into account the time factor it refers to, the following types of pro-environmental information in an enterprise building knowledge can be listed (Pichert, Katsikopoulos, 2008):

- pro-environmental descriptive information - presenting the real world in the present time, showing its pro-environmental aspects concerning life and work, taking into account the pro-environmental relations between participants of economic processes, pro-environmental methods and techniques applied, technical and economic connections and various pro-environmental phenomena occurring in the real world,
- pro-environmental predictive information – which relates to predicting future pro-environmental phenomena and events, the scope of which is unlimited, it may refer to the spheres of social, economic, and technological life. As part of pro-environmental predictive information, one can distinguish scientific information, pro-environmental knowledge, which is the result of scientific research. It concerns the formulation of innovation related to, e.g., new pro-environmental technologies, production, or management processes and mainly refers to future pro-environmental applications. In the economic system, there is information called control information, through which it is possible to influence the pro-environmental behavior of people and the nature of decisions made by them. Control information consists of:
- pro-environmental information on preferences – this type of information is aimed at pro-environmental tastes of users and is intended to encourage specific behavior. This information concerns the identification of pro-environmental goals and functions as well as the assessment of

value, indicates the advantages and disadvantages of the solution, it is intended to encourage or discourage,

- pro-environmental directive information - which concerns control through various types of pro-environmental orders, prohibitions, instructions, guidelines, signposts, standards, rules, guidelines. In addition, it is to persuade people to make certain pro-environmental decisions.

The relationships between the four types of pro-environmental information listed above in the perspective of business management processes are presented in Figure 1, the interpretation of which shows the links in the course of development between various types of pro-environmental information (solid lines) and the relationships in the course of controlling development (dashed lines). The diagram also shows control signals, i.e., pieces of pro-environmental information "from the real-world system and the institutional environment, which connect them together and determine the degree of compliance of actions taken under the influence of control information with the existing situation."



Source: Own study based on: Wiatrak, 1997.

Figure 1: Types of Pro-Environmental Information and Connections Between Them

In regard to the presented division of pro-environmental information in economic processes, taking into account the time factor, the role of pro-environmental information in solving decision-making problems and making decisions should be emphasized. In the field of enterprise management, the place of pro-environmental information "primarily consists in the reduction in pro-environmental uncertainty, assessment of risk of planned strategic activities and the possibility of the company's development". Pro-environmental information plays an important role in building the company's knowledge, and thus the competitive advantage of the company, i.e., in maintaining the company in the market, which can be classified under the following categories (Huang, 2016):

- pro-environmental information as the basis for decisions - regardless of the position taken, a sufficiently detailed information base is necessary for the process of effective decision-making,
- pro-environmental information of strategic importance - pro-environmental information applies to all areas of the company's activity at the same time, it cannot be excluded from any department, therefore it has a global reach within a given company and affects all its management functions,
- pro-environmental information as "added value" - the added value of the product or service increases in proportion to the increase in available pro-environmental information on the stages of creating this product or service,
- pro-environmental information as a commodity - information has become the object of exchange, which takes place in purchase and sale transactions. Various types of business intelligence agencies and consulting companies deal with the sale of information.
- pro-environmental information as the fourth factor of production - information, in addition to labor, land and capital, affects the size of the company's income and costs,
- pro-environmental information as a factor affecting the functioning of society - today it is impossible to imagine life without access to such a huge source of information as the Internet, the impact of which on the functioning of society is indefinable,
- pro-environmental information as meeting the needs and possibilities of management - having a specific resource of information, the management staff have insight into the internal and external

situation of the enterprise, quickly notice emerging needs that can be satisfied by using the possibilities of management.

To sum up, the presented types of pro-environmental information create knowledge in the company. Its identification, dissemination and skillful use allow for gaining a competitive advantage and survive in dynamic market conditions. Streamlining knowledge sharing processes in enterprises shapes the possibilities of creating management processes in these enterprises.

3. Determinants of Knowledge Sharing

When attempting to define the determinants of knowledge sharing, it is worth paying attention to the approach to information management, referred to as the concept of *information orientation* (IO) developed by D.A. Marchand (Marchand, 2000), which deals with the information behavior of employees, the technology applied and knowledge management. As a result of the conducted research, D.A. Marchand indicated the existence of competences affecting the effective use of knowledge and its sharing. Fifteen competencies have been divided into three areas of information management relating to:

- Human behavior - the first group includes 6 out of 15 employee competencies that should be instilled in the behavior of managers. They affect the values they present in relation to the use of knowledge and the following are distinguished here: proactivity, sharing, transparency, control, formalization, integrity.
- Knowledge sharing practices - the next five competences for the effective use of knowledge refer to the use of the company's potential to make the best use of information in the entire enterprise management process. The following competencies are distinguished in this group: knowledge identification, knowledge processing, knowledge maintenance, knowledge organization, knowledge cumulation.
- Information technology practices - the last 4 competencies concern the proper use of the available information infrastructure in the areas of: management, innovation, business processes and operations (Pavalache-Ilie, Cazan, 2018).

The idea of the method is to show the relationship between the way of knowledge management, behavior of employees towards information and the technology used and the impact on the overall performance of the company (Davenport, Marchand, 2000). This efficiency can be measured by an increase in market share, level of innovativeness or increasing the company's reputation. The information-oriented approach to knowledge sharing integrates all levels of management and applies to all levels of activity (operational, tactical, and strategic). 15 competencies by D.A. Marchand affecting the effective application and sharing of knowledge are presented in Figure 1.

To sum up, the presented continuum of knowledge sharing conditions presenting 15 competencies by D.A. Marchand affecting the effective use of knowledge and sharing it, is a set of determinants of knowledge sharing, which, when implemented in the business activity of the entity, increase its chances of survival in the dynamic market environment of enterprises.

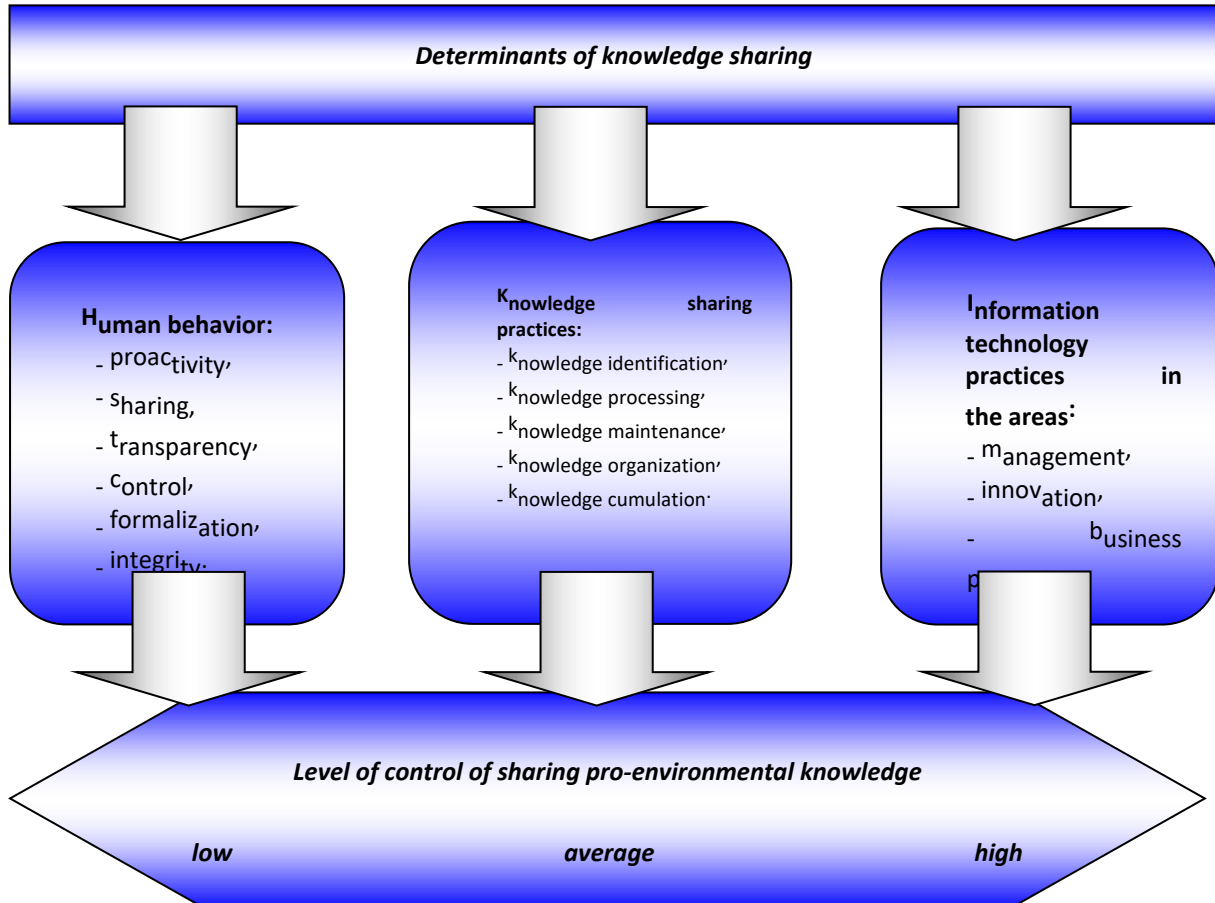
4. Objectives of Sharing Pro-Environmental Knowledge and Enterprise Management

The objectives of sharing pro-environmental knowledge in the enterprise can be considered in relation to three levels: enterprise resources, enterprise functions, management problems.

At the level of enterprise resources, sharing pro-environmental knowledge should support processes related to the management of company resources, i.e., human resources, from recruitment, through motivation, to dismissal. Another resource is financial management, including, among others, supporting cash flows. Then, sharing pro-environmental knowledge is to support processes related to the management of fixed and current assets, their acquisition and use, and involvement in the production process. Finally, sharing pro-environmental knowledge is aimed at supporting and streamlining information flows and, consequently, supplying the company and its employees with knowledge. Therefore, the sharing of pro-environmental knowledge is to support the sharing of knowledge and information throughout the value creation chain of the enterprise, by providing pro-environmental knowledge in the appropriate quantity and quality.

From the point of view of the company's function, sharing pro-environmental knowledge refers to the functional areas that exist in the company, it is aimed at supporting processes related to, among others, the area of supply

management, it is to improve the flow of pro-environmental information about suppliers, deliveries, deadlines for their implementation, etc. Another functional area is production management, where the proper sharing of pro-environmental knowledge is to facilitate the planning and control of the production process. Providing pro-environmental knowledge in the right quantity and quality is also necessary for the functioning of other areas, such as distribution and marketing management. In order to achieve the company's goals, it is necessary to share current pro-environmental knowledge in the field of market research, research into tastes and preferences of current and potential buyers, promotion and advertising.



Source: Own study based on: Stoner, Freeman and Gilbert 2001; Griffin, 2000.

Figure 2: Continuum of Knowledge Sharing Conditions

Management issues are a platform where the sharing of pro-environmental knowledge is to serve the ongoing monitoring of performance management. It is to provide pro-environmental knowledge for the calculation of performance indicators, and in the case of obtaining inappropriate parameters of these indicators, to indicate the areas causing these distortions. Analogically to performance management, pro-environmental knowledge management is intended to serve quality management (Dayan, Heisig, Matos, 2017). It is to monitor the level of quality in all possible areas on an ongoing basis and to justify the reasons for deficiencies in this quality if such cases occur.

To sum up, the discussed objectives of sharing pro-environmental knowledge in the company were related to the resources and functions of the company and management problems, but this is not a closed range of application areas of pro-environmental knowledge, but only an outline for further considerations.

5. Pro-Environmental Knowledge in Enterprise Management

When assuming that "information is treated as one of the essential factors due to which the enterprise can shorten the response time to changes in the environment" (Stefanowicz, 2004), special attention should be paid to the flow of pro-environmental information in the implementation of enterprise management processes. The dynamic aspect of managing pro-environmental information flow processes is associated with (...) planning, organizing, and controlling the actual implementation of sequences of activities

The model of the pro-environmental information flow in economic processes in enterprise management is presented in Figure 3. In this model, resources in the form of capital, pro-environmental information and personnel are at the input to economic processes characteristic of enterprises. The processing of pro-environmental knowledge should take place at every stage of the product manufacturing process, i.e., at the stage of research and development, production, and distribution, including marketing activities. At the same time, the processing of pro-environmental knowledge should be implemented in terms of each management function, i.e., as part of planning, organizing, motivating and controlling (Casaló, Escario, 2018). In such a model process of pro-environmental knowledge processing, at the output, there is the ability of control the flow and operation of the pro-environmental information system.

6. The Research Methods

The research was conducted based on critical analysis of literature. Critical literature analysis is a research method that presents existing theoretical and empirical approaches and shows how to prepare research works aimed at expanding existing knowledge or developing a specific research field. Critical analysis of literature should therefore be treated as a synthetic, objective, and reliable summary of a specific theoretical area. In the second part of the study, pro-environmental attitudes in the surveyed enterprises were verified. In this part, the respondents' answers to 4 statements in the field of pro-environmental activities of enterprises were analyzed, which at the same time defined the answer to the research question posed in this study.

7. Verification of Pro-Environmental Attitudes in the Surveyed Enterprises - Research Procedure

The research procedure focuses on the analysis of 4 statements regarding the pro-environmental activities of enterprises, which were asked for using a questionnaire. The analyzed statements are presented below:

1. pro-environmental policy is flexible enough to respond quickly to any change,
2. pro-environmental policy introduced in the company increases the attractiveness of the product/service offer,
3. pro-environmental policy introduced in the company is understandable and acceptable to employees,
4. pro-environmental policy introduced in the company is tailored to the needs and expectations of all employees.

The research was carried out on a sample of 1024 randomly selected enterprises. Verification of pro-environmental attitudes in the surveyed enterprises allows for assessing how sharing pro-environmental knowledge creates business management processes.

Table 1: Verification of Statement No. 1

			Total
pro-environmental policy introduced in our company is flexible enough to respond quickly to any changes	I completely disagree	Number	146
		%	14.3%
	I disagree	Number	160
		%	15.6%
	I neither disagree nor agree	Number	326
		%	31.8%
	I agree	Number	288
		%	28.1%
	I completely agree	Number	104
		%	10.2%
Total		Number	1024
		%	100.0%

Source: Own study.

When relating to the first analyzed statement, 32% of the respondents have no opinion on whether the pro-environmental policy introduced in their company is flexible enough to allow for responding quickly to any change. This means that the sharing of pro-environmental knowledge is not flexible in these enterprises. Moreover, as much as 30% of the respondents unequivocally state that the pro-environmental policy, and thus sharing pro-environmental knowledge, is not flexible in their company. Thus, only 38% of the respondents believe that the pro-environmental policy introduced in their company is flexible enough to allow for responding quickly to any change.

To sum up, the results of the survey show that the pro-environmental policy implemented in enterprises represented by 62% of the respondents is ineffective, inflexible and requires the more effective sharing of pro-environmental knowledge. Therefore, according to 632 respondents, sharing pro-environmental knowledge has a negative impact on the creation of management processes since, in their opinion, sharing pro-environmental knowledge does not allow for responding quickly to any change.

Table 2: Verification of Statement No. 2

			Total
The pro-environmental policy introduced in our company increases the attractiveness of the product/service offer (they are more modern, fashionable...).	I completely disagree	Number	104
		%	10.2%
	I disagree	Number	122
		%	11.9%
	I neither disagree nor agree	Number	266
		%	26.0%
	I agree	Number	307
		%	30.0%
	I completely agree	Number	225
		%	22.0%
Total		Number	1024
		%	100.0%

Source: Own study.

When analyzing the responses of those surveyed to the second statement, it is noticeable that 26% of the respondents cannot adopt a position on whether the pro-environmental policy implemented in their company increases the attractiveness of their product/service offer (they are more modern or trendy), which is a similar result as in the case of the first statement. This implies that every fourth respondent recognizes the problem regarding sharing pro-environmental knowledge. On the other hand, only 22% of the respondents believe that the pro-environmental policy implemented in their company does not increase the attractiveness of their product/service offer, which can be interpreted in such a way that sharing pro-environmental knowledge in these companies is ineffective since it does not increase the attractiveness of their product/service offer. On the other hand, as much as 52% of the respondents declared that the pro-environmental policy implemented in their company increases the attractiveness of their product/service offer.

To sum up, it should be noted that over half of the respondents recognize positive effects of sharing pro-environmental knowledge in the form of increased attractiveness of their product/service offer. Therefore, according to 532 respondents, sharing pro-environmental knowledge has a positive impact on the creation of management processes as, in their opinion, sharing pro-environmental knowledge increases the attractiveness of the product/service offer.

Table 3: Verification of Statement No. 3

			Total
The pro-environmental policy introduced in our company is understandable and acceptable to the employees of the company	I completely disagree	Number	104
		%	10.2%
	I disagree	Number	83
		%	8.1%
	I neither disagree nor agree	Number	305
		%	29.8%
	I agree	Number	389
		%	38.0%
	I completely agree	Number	143
		%	14.0%
Total		Number	1024
		%	100.0%

Source: Own study.

The next analyzed statement was difficult to verify for 30% of the respondents, i.e., 305 respondents could not answer whether the pro-environmental policy introduced in their company is understandable and acceptable to the company's employees, which leads to the conclusion that the knowledge of pro-environmental activities undertaken in these 30% of the companies is not properly disseminated, communicated, and accepted by employees. At the same time, 18% of the respondents unequivocally answered that the pro-environmental policy introduced in their company is incomprehensible and unacceptable to the company's employees, which indicates a problem with sharing pro-environmental knowledge in these companies. On the other hand, 52% of the respondents decided that the pro-environmental policy introduced in their company is understandable and acceptable to the company's employees.

In conclusion, slightly more than half of the respondents believe that sharing pro-environmental knowledge brings a positive effect in the form of understanding and acceptance by employees of the actions taken and the pro-environmental policy implemented in the company. Thus, according to 532 respondents, sharing pro-environmental knowledge has a positive impact on the creation of management processes because, in their opinion, sharing pro-environmental knowledge makes the pro-environmental policy understandable and acceptable to the company's employees.

The last of the analyzed statements was difficult to answer by almost 28% of the respondents, who were unable to determine whether the pro-environmental policy introduced in their company is tailored to the needs and expectations of all employees. This means that the respondents do not have enough knowledge about the pro-environmental activities of enterprises. At the same time, it should be noted that over 20% of the respondents believe that the pro-environmental policy introduced in their company is not tailored to the needs and expectations of all employees. This is information about the lack of effective sharing of pro-environmental knowledge in those enterprises where it is necessary to implement corrective actions. In turn, 52% of the respondents claim that the pro-environmental policy introduced in their company is tailored to the needs and expectations of all employees.

To sum up, slightly more than half of the respondents believe that sharing pro-environmental knowledge brings a positive effect in the form of adjusting the pro-environmental policy in their company to the needs and expectations of all employees. Therefore, according to 533 respondents, sharing pro-environmental knowledge has a positive impact on the creation of management processes since, in their opinion, sharing pro-environmental knowledge makes the pro-environmental policy tailored to the needs and expectations of all employees.

Table 4: Verification of Statement No. 4

			Total
The pro-environmental policy introduced in our company is tailored to the needs and expectations of all employees	I completely disagree	Number	104
		%	10.2%
	I disagree	Number	104
		%	10.2%
	I neither disagree nor agree	Number	283
		%	27.6%
	I agree	Number	350
		%	34.2%
	I completely agree	Number	183
		%	17.9%
Total		Number	1024
		%	100.0%

Source: Own study.

8. Discussion

In relation to the analyzed 4 statements concerning pro-environmental policy, and thus pro-environmental knowledge, a large percentage of indecisive respondents draws attention, which ranged from 26% to 32% in individual questions. The answer "neither disagree nor agree" was chosen by 266 to 326 respondents, which means that they do not have pro-environmental knowledge, which creates enterprise management processes in such a way that the areas for improvement are indicated. In addition, considering the total number of respondents who disagreed with the above statements, it turns out that there were from 187 to 306 of them. These results not only show the problem with sharing pro-environmental knowledge, but also give consideration to whether the applied pro-environmental activities and the applicable pro-environmental policy are effective. To sum up, it should be emphasized that the information obtained based on the 4 above-mentioned statements provides many conclusions, the verification of which implies the need to implement appropriate pro-environmental knowledge management processes in enterprises, so as to increase the number of responses accepting the statements analyzed in this study in the future. For this purpose, it is recommended to implement D.A. Marchand's 15 competencies, influencing the effective application and sharing of knowledge, referred to in this study.

9. Conclusions

The conducted analysis concerning 4 statements showed the gaps in the area of sharing pro-environmental knowledge in enterprises. It turns out that although pro-environmental activities are widely known and applied, it still often happens that:

- pro-environmental policy is not flexible enough to respond quickly to any change (30%),
- pro-environmental policy introduced in the company does not increase the attractiveness of the product/service offer (22%),
- pro-environmental policy introduced in the company is incomprehensible and unacceptable to the company's employees (18%),
- pro-environmental policy introduced in the company does not match the needs and expectations of all employees (22%).

The indicated gaps in terms of sharing pro-environmental knowledge in enterprises create business management processes that emphasize pro-environmental activities. It is recommended to particularly emphasize the flexibility of undertaken pro-environmental activities, which can be achieved by greater focus on new, up-to-date solutions. In addition, it is noted that pro-environmental activities should have a positive impact on the attractiveness of the product/service offer. In turn, the sharing of pro-environmental knowledge should

be so consistently and effectively organized that pro-environmental activities are understandable and acceptable and tailored to the needs and expectations of all employees.

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