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Summary of the Doctoral Dissertation

THE ROLE OF ENVIRONMENTAL EVALUATION IN RELATIONSHIPS WITH SUPPLIERS ON B2B MARKET

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The environmental evaluation of suppliers is a set of activities aimed at assessing the actions, possibilities and effectiveness of suppliers' activities in reducing various types of negative impact on the environment. These actions include both initial and periodic evaluation of suppliers, as well as an assessment of the impact of cooperation with the supplier on the recipient enterprise and the supply chain as a whole. The environmental evaluation of suppliers is carried out due to the crucial importance of raw materials, intermediate products and components supplied by suppliers for the final product. It also helps to build relationships with suppliers.

The main goal of the dissertation is to determine the role of environmental evaluation of suppliers, carried out by producers of finished goods, in the context of building relationships with them.

This is an important topic due to the growing environmental awareness of enterprises as customers. This applies especially to international corporations that are producers of finished goods. This results in expectations for their suppliers in reducing various types of negative impact on the environment. These expectations are related to, among others with the implementation of the environmental management system based on the guidelines contained in the ISO 14000 series standards. They apply not only to direct suppliers but also to

subcontractor partners. The effectiveness of the implementation and improvement of environmental management systems by suppliers can be the basis for their evaluation.

Besides, reducing negative environmental impact is becoming a priority in the global economy. Consumers and representatives of the public sector and enterprises recognize the need to minimize the destructive impact of economic activities on the environment. Environmental evaluation of suppliers provides the possibility to begin or continue the cooperation with the suppliers who are active in reducing the negative impact on the environment.

It is also a topic relatively rarely addressed by researchers. It has been observed that the Polish language literature lacks comprehensive studies related to both supplier evaluation and building relationships with them.

The processes of building relationships with suppliers were chosen as the studied area because it is within this research area that particular emphasis is placed on improving operational activities in the supply chain. Besides, supplier evaluation is part of building relationships that decides to start, continue or terminate cooperation with them.

This dissertation focuses on producers of finished goods because they place on the market the product used by end-users. The research was conducted on the B2B market. This is because companies perform a voluntary evaluation of suppliers on this market.

The topic of environmental evaluation in relations with suppliers was also chosen because many companies conducting supplier evaluation try to unify used environmental criteria and develop sectoral initiatives related to the environmental evaluation of suppliers. Their goal is to develop a common system of environmental criteria in the initial and periodic assessment of suppliers, e.g. Together for Sustainability (chemical and pharmaceutical industry), Responsible Business Alliance (primarily the electronics industry) or Drive Sustainability (automotive industry). This demonstrates that conducting the environmental evaluation of suppliers can be an important element of continuous improvement of processes in the supply chain.

The following concepts are closely related to the environmental evaluation of supplier:

- initial assessment, which is carried out before cooperation begins, to determine whether a supplier meets certain criteria (including environmental criteria);
- periodic assessment, which is conducted to verify whether cooperation with a supplier should be continued or terminated;
- assessment criteria that are used in both initial and periodic assessment.

Environmental criteria make it possible to assess the environmental impact of suppliers and the entire supply chain, both in terms of assessing environmental activities and its results. Many groups of supplier assessment environmental criteria can be identified, such as: location of the supplier's production plant, legal provisions and standardization documents, use of environmentally friendly technologies and materials in production, elimination of harmful emissions to the environment (gases, noise, radiation), solid waste and sewage, limiting the use of harmful and hazardous substances as well as energy and water consumption.

It has been observed that the concepts of evaluation and assessment (both in general and in management sciences) are used in Polish and foreign literature interchangeably or as synonymous terms. At the same time, they are described by individual researchers in a relatively diverse way. However, in some areas, such as pedagogy, these concepts are treated separately. Because there is a lack of comprehensive studies related to the evaluation of suppliers in Polish-language literature, the author mainly used foreign literature in this area.

Attention should be paid to differences between the supplier assessment and its evaluation. It has been assumed that supplier evaluation is a set of activities aimed at assessing the activities, possibilities and effectiveness of supplier activities, including periodic assessment and assessment of the impact of cooperation with the supplier on the recipient enterprise and the supply chain as a whole. On the other hand, supplier assessment means determining the degree to which it meets the requirements of its recipient before starting cooperation (initial assessment) or at a given moment of its duration (periodic assessment). Hence, the evaluation of suppliers means a set of activities, which include the assessment of suppliers. Therefore, supplier evaluation is a broader term than supplier assessment. However, it should be noted that the issue of precisely defining supplier evaluation and assessment may be a contentious issue.

The concept of supplier evaluation formulated in this way is a combination of process orientation (value of suppliers activities) with goal orientation (results of suppliers activities). For this reason, this dissertation is both exploratory and descriptive as well as applicative, as it indicates potential procedures and approaches to conducting the process of environmental evaluation of suppliers.

The following research theses were formulated:

1. Conducting the environmental evaluation of suppliers is an action aiming to limit the negative impact on the environment.

2. The result of the environmental evaluation of suppliers by producers of finished goods determines the beginning, continuation or termination of cooperation with suppliers.

Each of the aforementioned theses refers to the environmental evaluation of suppliers. It has been assumed that the environmental evaluation of suppliers is a measure to both reduce the negative impact on the environment and to build relationships with suppliers.

The following auxiliary objectives of the dissertation were formulated:

1. Identification of areas for environmental evaluation of suppliers.
2. Determination of drivers for producers of finished goods ready to conduct the environmental evaluation of suppliers.
3. Determination of enablers for producers of finished goods to conduct the environmental evaluation of suppliers.
4. Identification of the benefits of conducting the environmental evaluation of suppliers by producers of finished goods.
5. Identification of barriers for conducting the environmental evaluation of suppliers by producers of finished goods.
6. Proposing recommendations for a system of the environmental evaluation of suppliers carried out by producers of finished goods.

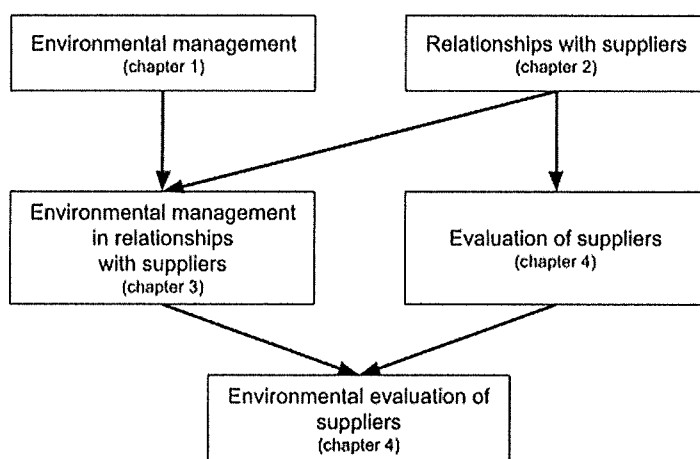
The implementation of the above objectives may allow determining the conditions for conducting the environmental evaluation of suppliers. Referring to the main goal of the dissertation, the following research hypotheses were formulated to determine the relationship between conducting the environmental evaluation of suppliers and building partner relationships with them:

1. There is a relationship between conducting the environmental evaluation of suppliers and conducting activities aimed at building relationships with them.
2. There is a relationship between conducting the environmental evaluation of suppliers and building partner relationships with them.
3. There is a relationship between conducting the environmental evaluation of suppliers and building strategic partnerships with them.

This dissertation consists of four theoretical chapters and two empirical chapters. The research methods used are critical literature analysis and a survey conducted using the technique of Computer Aided Telephone Interview (CATI).

Due to the complexity of the studied issues, the theoretical part was prepared using the concept of a "variable focal length lens", described, among others, by D. Silverman¹. According to this strategy, the scientist conducts research activities in the focal area and related areas. The transition between these study objects is an analogy to changing the focal length of the lens. In this way, the author reviewed the literature in the following areas related to the environmental evaluation of suppliers: environmental management, environmental management systems, supply chain, supply chain management, relationships with suppliers, management of the purchasing process, green supply chain management and the environmental evaluation of suppliers. Both Polish and foreign literature was used. Literature analysis was conducted between September 2014 and August 2019. Links between individual chapters are presented below.

Fig. 1. Visualization of the structure of the theoretical part of the dissertation



Source: own elaboration.

The first chapter presents the genesis, essence and development of environmental management, which is the basis for voluntary actions of enterprises to reduce various types of negative impact on the environment. The concept of sustainable development and systemic approach to environmental management have also been described, including the characteristics of selected environmental management systems.

The dissertation started with this chapter to ensure an introduction to the topic of reducing the negative impact on the environment by enterprises, which is also the goal of the environmental evaluation of suppliers.

¹ Silverman D., *Prowadzenie badań jakościowych*, translated by J. Ostrowska, Wydawnictwo Naukowe PWN, Warszawa 2012, pp. 124-125.

The second chapter is devoted to relationships with suppliers and the related issues, such as: supply chain, supply chain management, building relationships with suppliers and managing the purchasing process. This chapter also proposes a classification of relationships with suppliers based on a review of the literature and existing models of relationships. The purpose of this chapter is to show relationships with suppliers in the context of the supply chain.

The next chapter is an attempt to organize various concepts related to environmental management in the context of relationships with suppliers. This chapter discusses concepts related to both environmental evaluation of suppliers and relationships in the supply chain. These include: green supply chain management, green purchasing, green supplier development, and sustainable supplier development. This chapter aims to show the context of the functioning of the environmental evaluation of suppliers.

The last theoretical chapter characterizes the environmental evaluation of suppliers and related concepts, such as: supplier assessment, supplier evaluation, assessment criteria and areas of supplier evaluation. A distinction was made between supplier evaluation and supplier assessment. A new approach to supplier evaluation was proposed, and a proposal was made to classify the areas of the environmental evaluation of suppliers according to the proposition given by the author. The purpose of this chapter is to show the merits of this dissertation in the form of environmental evaluation of suppliers and to present the suggestions given by the author on how to conduct it.

The first empirical chapter presents the assumptions, methodology and subject of the preliminary study aimed at determining the significance of environmental criteria in the assessment of suppliers in the studied sector. The preliminary study questionnaire was also described and its results discussed. Medium and large enterprises operating in the chemical and pharmaceutical sector were selected as the subject of the study. This choice results from environmental regulations to which this sector is subject to a relatively high degree compared to other areas of activity. Besides, this sector emits a relatively high amount of industrial pollution. Also, there is a global initiative bringing together manufacturers of the chemical and pharmaceutical sector, which aims to standardize the assessment and improvement of environmental and social activities of the sector's suppliers. According to the author, this speaks for the important role of environmental evaluation of suppliers in the selected sector.

The next empirical chapter presents the assumptions and methodology of the main study, which aimed to determine the role of environmental evaluation in relationships with suppliers. The subject of the study used questionnaire and results obtained were also

described. Recommendations for conducting the environmental evaluation of suppliers were also proposed.

The subject of the main study has been extended in relation to the initial study to include producers of plastic products. This change is primarily due to the growing threat posed by plastic waste to the natural environment of Europe and the whole world. Thus, the implementation of effective environmental actions can play a potentially important role in enterprises conducting this type of activity. Besides, plastic manufacturers are often included in the chemical sector, e.g. by Chemical & Engineering News and Together for Sustainability - e.g. Covestro.

In order to summarize, the author will review the research activities and achievements presented in this dissertation.

At the beginning, a review of the literature in the field of environmental management, relations with suppliers in the supply chain and linking relationships with suppliers with environmental management was carried out. This provided the basis for a further literature review related to the environmental evaluation of suppliers. On this basis, preliminary studies were carried out to determine the importance of environmental criteria in the initial and periodic assessment of suppliers.

Based on the results of the literature research and the results of the initial empirical study, the main empirical study was prepared and carried out, which helped to achieve the assumed research goals. Areas of environmental evaluation of suppliers have been identified. Drivers and enablers of conducting the environmental evaluation of suppliers were determined as well. Furthermore, the benefits and barriers to conducting environmental evaluation of suppliers were identified. Finally, recommendations are proposed for the environmental evaluation of suppliers.

The formulated research hypotheses were also subject to statistical verification. On this basis, it was concluded that there were no grounds to accept any of them. However, the results of the conducted research indicate that enterprises use environmental evaluation as a tool supporting the decision to start, continue or terminate cooperation with suppliers.

The added value of this dissertation is primarily the determination of the role of environmental evaluation in relationships with suppliers. In addition, a comprehensive analysis of the literature on the environmental evaluation of suppliers as well as the concepts associated with it was carried out. This allowed to fill the research gap in this area. The preparation of this dissertation also allowed to formulate recommendations for future research related to the area of environmental evaluation of suppliers.

