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SUPPLY CHAIN MANAGEMENT IN ACCORDANCE WITH THE PRINCIPLES OF SUSTAINABLE DEVELOPMENT AND CORPORATE SOCIAL RESPONSIBILITY

DOCTORAL THESIS PRECIS

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CONTENT

1 INTRODUCTION

The issue of management of individual companies in accordance with the principles of sustainable development and corporate social responsibility is currently very topical. This proves the existence of many scientific studies and articles, as well as the fact that companies apply these principles as part of its marketing, communications and other activities in relation to the various stakeholders.

Given that companies operate in a complex, ever-changing and evolving business environment that includes customers, employees, owners, suppliers, government, the local community, etc., it is necessary to adequately communicate and share with each of these stakeholders information on the implementation of the principles of sustainable development and corporate social responsibility in the strategic and daily activities of individual companies.

In the field of logistics, the professionals consistently taken the view that it is necessary to apply, especially during the third millennium, a systemic and holistic approach. It is no longer enough to focus in isolation only on individual companies, but it is necessary to focus comprehensively on the entire supply chain, so the topic of this doctoral thesis is „*Supply chain management in accordance with the principles of sustainable development and corporate social responsibility*". The goal of companies is to set up a management system within the supply chain that will enable the achievement of set economic, environmental and social goals and the required performance throughout the supply chain. It is also very important to emphasize the priorities of individual stakeholders, which should be taken into account when implementing decisions at strategic, tactical and operational levels. One of the fundamental and indispensable stakeholders in any supply chain are customers, who on the one hand influence the economic results not only of individual companies but also of the supply chain as a whole, but also respond to the content and communication of supply chain activities in the field of sustainable development and corporate social responsibility.

As part of the doctoral thesis, a literature review of scientific resources will be processed in the field of supply chain management in accordance with the principles of sustainable development and corporate social responsibility. Subsequently, the aim of the doctoral thesis will be determined and based on the literature review, scientific methods for the processing of the doctoral thesis will be defined. Furthermore, the own solution will be proposed and its results will be evaluated and discussed.

The terms organization, enterprise and company, used in this doctoral thesis, denote a commercial company in the sense of Act No. 90/2012 Coll., Act on Commercial Companies and Cooperatives (Business Corporations Act), as amended.

2   CURRENT STATE OF THE ART

In the second chapter, the basic concepts are theoretically defined and an overview of current knowledge in the field of the topic of the doctoral thesis is given.

2.1   Definition of basic concepts in the topic of the doctoral thesis

Gros, Barančík and Čujan (2016) emphasize that the basic concepts, such as the logistic chain, integrated logistic chain, logistic system, supply chain system and supply chain, are ambiguously defined by many authors. Based on this fact, the individual basic concepts were theoretically defined within Chapter 2.

Gros and Grosová (2012) define the **supply chain** as a sequence of activities in integrated logistic chains, including activities that are associated with the implementation of reverse flows, the performance of which is necessary to meet the requirements of the final customer, in the required quantity, time, quality and location. The term **supply chain management** is defined by Pernica (2005) as the management of comprehensive processes in integrated logistic chains in order to achieve cost-effective added value for final customers.

According to Carter and Jennings (2002), **corporate social responsibility** (hereinafter CSR) is linked to the impact of the company's activities on various stakeholders, focusing on, for example, respect for human rights, environmental protection and philanthropy. The concept of CSR is based on the economic, social and environmental pillars (Elkington, 1997). According to the author, these three pillars are in accordance with the three characteristics of the so-called *triple-bottom-line*, which are the economic area, the social area and the environmental area.

Murphy and Poist (2002) stated that **supply chain management in accordance with the principles of CSR** is becoming increasingly important. Simpson and Power (2005) found that the successful implementation of CSR in the company and the entire supply chain can improve the economic results of the company and the entire supply chain. According to Last (2016), the achievement of the CSR concept is usually related to the past period, but activities in the area of sustainability are mainly focused on the future.

Sustainable development is very closely related to the concept of CSR. However, the term **sustainable development** is often misused instead of the term **sustainability** by some authors. Brundtland (1987) defines **sustainable development** as *„development that meets the needs of the present without compromising the ability of future generations to meet their own needs"*. According to Burford et al. (2013) and the OSN (2014) the concept of sustainable development consists of three pillars: the economic, environmental and social pillar. Sustainability is described by Sartori, Latronico and Campos (2014) as a process and mechanism for achieving the intended sustainable development.

Taticchi, Tonelli and Pasqualino (2013) state that a **sustainable supply chain** (hereinafter SSC) is a key element of sustainable development. Supply chain members must take economic, environmental and social aspects into account while maintaining their competitiveness.

Carter and Rogers (2008) describe **sustainable supply chain management** (hereinafter SSCM) as a strategic and transparent integration and effort to achieve systemic coordination of key company processes to improve environmental, economic and social performance in the long term and with respect to the entire supply chain.

The strategy for the implementation of SSCM procedures has its foundations not only in the area of triple responsibility (economic, environmental and social), but also includes employees and other stakeholders, where the goal is a comprehensive and continuous improvement of processes (Schaltegger and Wagner, 2017).

Strategies focused on SSCM have received particular attention in the last few years. Some authors strictly focus on the strategies for SSCM, other authors deal with the focus of the strategy within the SSCM and others define the individual approaches that can be applied within the strategy or define the procedures that need to be realized in the implementation of the strategy.

2.2 Critical evaluation of existing knowledge in the field of doctoral thesis

The concepts of CSR, sustainability and sustainable development are very closely related. Some authors mistakenly confuse these terms. Sustainability activities are primarily focused on the future, in order to ensure future prosperity, conservation of resources and the functioning of the organization in a way that will lead to its long-term existence; at the same time, they are more complex and broader in scope, unlike the CSR concept; both concepts are based on the *triple-bottom-line* principle.

Based on the connection of the terms sustainability and supply chain, it is possible to define the **sustainable supply chain** (SSC), which is one of the key elements of sustainable development. **Sustainable supply chain management** (SSCM) and related strategies are a very current scientific topic. Based on the literature review, several **strategies for SSCM** have been identified (Table 1).

Table 1 Overview of identified strategies and approaches for SSCM

Authors	Strategies / approaches	Characteristics
Seuring and Müller (2008)	• supplier management with respect to risks and performance • supply chain management for sustainable products	Strategy for SSCM
Harms, Hansen and Schaltegger (2013)	• risk-oriented • opportunities-oriented	Focus of the strategy
Paulraj, Chen and Blome (2015)	• sustainable product design • sustainably set processes • cooperation on the side of supply sustainability • cooperation on the side of demand sustainability	Strategy for SSCM
Esfahbodi, Zhang and Watson (2016)	• sustainable procurement • sustainable production • sustainable distribution • reverse logistics	Strategy for SSCM
Ahmad et al. (2016)	• supplier management • production management • product stewardship • logistic management	Strategy for SSCM
Das (2018)	• environmental management • social inclusion • operating procedures • supply chain integration	Focus of the strategy
Miemczyk and Luzzini (2018)	• implementation of environmental procedures • implementation of social practices • implementation of risk assessment procedures	Focus of the strategy
Luthra and Mangla (2018)	• understanding the impacts of sustainability • management involvement • setting a vision and sustainability goals • supporting supply chain members in adopting SSCM procedures • changes in supply chain behaviour • cooperation and partnership with other chains • communicating about company expectations, standards, and practices with suppliers • the use of clean technologies and modern approaches to information management • complete and comprehensive product management	Approaches to the implementation of the strategy for SSCM
Zimon, Tyan and Sroufe (2019)	• reactive • cooperative • dynamic	Approaches to the realization of the strategy for SSCM
Florescu et al. (2019)	• selection of suppliers • products • logistic management	Strategy for SSCM

Source: author based on Seuring and Müller (2008); Harms, Hansen and Schaltegger (2013); Paulraj, Chen and Blome (2015); Esfahbodi, Zhang and Watson (2016); Ahmad et al. (2016); Das (2018); Miemczyk and Luzzini (2018); Luthra and Mangla (2018); Zimon, Tyan and Sroufe (2019); Florescu et al. (2019)

As part of the doctoral thesis, all identified strategies for SSCM were compared and synthesized, and the following strategies for SSCM were defined: supplier selection strategy, product strategy, and logistic management strategy. At the same time, the literature review showed that no comprehensive general methodology for selecting a strategy for SSCM has yet been formulated.

3 AIMS OF THE DOCTORAL THESIS

The aim of the doctoral thesis can be defined on the basis of a processed literature review of scientific resources. The aim of the doctoral thesis is to **propose a methodology for selecting a strategy for sustainable supply chain management.**

According to Bureš (2007) and Jayaratna (1994), **methodology** is defined as an explicit way of thinking that reflects selected views of reality and is based on a set of philosophical paradigms. The authors further add that the methodology must include specific steps to be taken, describing how they are to be performed and justifying their order. The **strategy** according to Mallya (2007) and Jakubíková (2008) determines the basic direction and presents the means and methods leading to the fulfillment of the set goals.

Sustainable supply chain management is defined by Carter and Rogers (2008) as a strategic and transparent integration and effort to achieve systemic coordination of key company processes to improve environmental, economic and social performance in the long term and with respect to the entire supply chain. The main aim of the doctoral thesis consists of the following partial aims:

- identify, using literature review, possible strategies for sustainable supply chain management,
- define the recommended steps to be realized in the selection of a strategy using appropriate scientific methods,
- apply the proposed methodology in the form of a case study in the supply chain of the selected industry,
- discuss the acquired knowledge in the context of current knowledge.

4 PROCESSING METHODS

The scientific methods theoretically defined in this chapter are used in the processing of the doctoral thesis.

4.1 General theoretical explanatory methods

In terms of general theoretical explanatory methods, the methods of analysis and synthesis, deduction and induction, concretization and abstraction, analogy and comparison, exploration and explanation and the method of literature review are used.

4.2 Empirical explanatory methods

In terms of empirical explanatory methods, the methods of snowball sampling, expert panel, simple order, determination of expert's competence, analytic network process (hereinafter ANP), fuzzy logic, analytic network process using fuzzy logic (hereinafter FANP), survey (interviewing) and case study method are used to achieve the aim of the doctoral thesis.

4.3 Use of processing methods

Most scientific general theoretical explanatory methods are used throughout the entire doctoral thesis processing. The method of literature review serves both to obtain the current state of knowledge in the field of the topic of the doctoral thesis and is also used to identify possible strategies for SSCM. The expert panel method is used to obtain input data to the FANP method, while some experts may be selected by the snowball sampling. The FANP method is used to select the strategy for SSCM. A complete overview of the use of processing methods is given in the table 2.

Table 2 Overview of the use of processing methods

Processing method	Use of processing method
Method of analysis and synthesis	As part of the processing of the entire doctoral thesis
Method of deduction and induction	As part of the processing of the entire doctoral thesis
Method of concretization and abstraction	As part of the processing of the entire doctoral thesis
Method of analogy and comparison	As part of the processing of the entire doctoral thesis
Method of exploration and explanation	As part of the processing of the entire doctoral thesis
Method of literature review	Chapter 2 and sub-section 5.1.3
Method of snowball sampling	Sub-section 5.1.2
Method of expert panel	Sub-section 5.1.2
Method of simple order	Sub-section 5.1.2
Method of determination of expert's competence	Sub-section 5.1.2
ANP method	Sub-section 5.1.3
Fuzzy logic	Sub-section 5.1.4
FANP method	Sub-sections 5.1.5 – 5.1.6
Survey (interviewing) method	Sub-sections 5.1.4 – 5.1.5
Case study method	Section 5.2

Source: author

5   RESULTS

This chapter contains the custom solution and its results, while reflecting the aims of the doctoral thesis, set out in the third chapter and the selected scientific processing methods presented in the fourth chapter of this doctoral thesis.

5.1   Proposal of a methodology for selecting a strategy for sustainable supply chain management

The methodology for selecting a strategy for SSCM consists of seven consecutive steps, including:

- determining the responsible person for selecting the strategy,
- selection of experts for the expert panel and determination of the competence of selected experts,
- defining a problem and creating a network hierarchical model,
- preparation and creation of a questionnaire,
- completion and transformation of questionnaires,
- aggregation and defuzzification of pairwise comparisons and calculation of weights,
- input processing and strategy selection.

5.1.1   *Determining the responsible person for selecting the strategy*

The first step of the methodology involves the determination of the responsible person (hereinafter *RP*) for the selection a strategy for SSCM. *RP* can be determined using one of the following procedures *P1a* to *P1d*:

- *P1a* – *RP* is determined on the basis of the voting of the members of the supply chain, where each of the members of the supply chain has exactly one vote when voting,
- *P1b* – *RP* is determined on the basis of the voting of the members of the supply chain, where each of the members of the supply chain has a number of votes when voting, which corresponds to its importance within the given supply chain,
- *P1c* – *RP* is determined by a chain of the supply chain who has a privileged economic position, or another privileged position, within the given supply chain,
- *P1d* – supply chain members agree on another way to identify *RP* for selection a strategy for SSCM; the person thus designated is subsequently appointed by the *RP*.

The designated *RP* may authorize to perform some steps of the methodology to another person (persons), or *RP* may implement certain steps of the methodology

in cooperation with the authorized person (persons). However, *RP* and the authorized person (persons) must have adequate knowledge of the issue.

5.1.2 Selection of experts for the expert panel and determination of the competence of selected experts

The selection of experts for the expert panel is carried out by the *RP*, which in this step determines the number of experts who will be further involved in the selection of a strategy for the SSCM, and selects them. *RP* can select individual experts from all stakeholders in the supply chain on the basis of the following procedures *P2a* to *P2c*:

- *P2a* – the selection of individual experts for the expert panel is carried out by the *RP* entirely subjectively,
- *P2b* – *RP* uses the snowball sampling method to select individual experts for the expert panel,
- *P2c* – the selection of individual experts for the expert panel is carried out by the *RP* on the basis of objective criteria or aspects.

RP may assume to determine the competence of experts in the expert panel, that the all experts are equally competent. In case of rejection of the previous assumption, the *RP* may determine the competence of individual experts subjectively.

5.1.3 Defining a problem and creating a network hierarchical model

RP presents the problem to the experts (selection of a strategy for SSCM), duly substantiate it, explain any ambiguities and answer related questions. Subsequently, the *RP* should effectively check the unconditional understanding of the solved problem by all experts using control questions.

RP in cooperation with experts, sets a specific goal and then introduces to the experts possible strategies suitable for SSCM, identified on the basis of a literature review. Based on the performed literature review, processed in this doctoral thesis, strategies for SSCM were defined according to Florescu et al. (2019), there are: supplier selection strategy, product strategy, and logistic management strategy.

Based on the previously obtained inputs, a network hierarchical model is created by the members of the expert panel. Experts with *RP* further transform the identified strategies and their aspects into the form of criteria, sub-criteria and alternatives. They then discuss the existence of individual links.

The result of this step is a network hierarchical model with all relevant objects and links.

5.1.4 Preparation and creation of a questionnaire

As part of this step of the methodology, it is necessary by *RP* to select an appropriate data collection technique, determine the type of questions and introduce the selected scale of relative importance to the members of the expert panel. *RP* selects from the following procedures *P3a* to *P3e* to more accurately determine the used data collection technique:

- *P3a* – personal interviewing,
- *P3b* – written interviewing,
- *P3c* – telephone interviewing,
- *P3d* – electronic interviewing,
- *P3e* – combination of techniques *P3a* to *P3d*.

Given that members of the expert panel can be asked by two general types of questions, but it is absolutely necessary to select only one of these questions, which will be used in pairwise comparisons throughout the whole model, see Saaty (1999, 2016), the *RP* must decide, which of these two types of questions will use to create the questionnaire. *RP* has a choice of the following two procedures *P4a* or *P4b:*

- *P4a* – A parent element γ is given, whose subsets are elements α and β; which of these two elements has a greater effect on the parent element?
- *P4b* – A parent element γ is given, whose subsets are elements α and β; which of these two elements is more affected by the parent element?

Subsequently, *RP* will present to the members of the expert panel a nine-point scale of relative importance, which will be used in the compiled questionnaire as a language variable for answers to individual questions.

The questionnaires are constructed with respect to the compiled ANP model, the selected scale of relative importance, the selected data collection technique and the type of questions. The members of the expert panel must, within the compiled model, make pairwise comparisons: clusters with respect to the set goal, criteria within individual clusters, sub-criteria within individual clusters and selected criteria (sub-criteria) of different clusters.

As the respondents will have to make pairwise comparisons between all individual criteria, sub-criteria and alternatives within the questionnaire, it is necessary to inform the respondents about this fact and the structure of the questionnaire before filling in the questionnaire.

The respondent selects for each question providing a pairwise comparison, which of the listed elements has a greater effect on the parent element. The respondent makes these pairwise comparison:

- individual elements of the criteria „Criterion 1 – Criterion c" in relation to the parent element „Defined goal",
- individual elements of the sub-criteria „Sub-criterion 1 – Sub-criterion c" in relation to the parent element „Criterion 1 – Criterion c",
- individual elements of the alternatives „Alternative 1 – Alternative c" in relation to the parent element „Sub-criterion 1 – Sub-criterion c".

According to the chosen answer of the respondent, another sub-question follows, according to respondent expresses the relative importance between the individual elements. At the same time, *RP* will prepare a Saaty matrix in the form of a table for future evaluation of questionnaires filled in by experts.

After creating the questionnaire, the questionnaire is checked by *RP*. If the questionnaire is correct, the questionnaire is piloted with any non-interested person outside the expert panel under the leadership of *RP*. If, after the pilot test, the questionnaire is evaluated as suitable for further use, then this step is closed. If, on the basis of the questionnaire check, or during pilot testing, any discrepancies are identified, the *RP* must make correction of the questionnaire and check it again.

5.1.5 Completion and transformation of questionnaires

In this step, individual members of the expert panel led by *RP* fill in all the questionnaires created in the previous step. After completing the questionnaires by the members of the expert panel, *RP* will check the completeness and correctness of filling in all questionnaires. If *RP* identifies a discrepancy, the selected members of the expert panel are called upon to correct it. This cycle is repeated until all created questionnaires are completed completely and correctly by all members of the expert panel.

As part of this step of the methodology, it is also necessary to transform the questionnaires filled in by the expert panel into the form of Saaty matrices of pairwise comparisons. The transformation of completed questionnaires is provided by *RP*.

For each matrix created by pairwise comparison, it is necessary to verify the consistency of a matrix. If the matrix is inconsistent, it is necessary to ask the expert panel to check or modify the completed questionnaires that are related to an inconsistent matrix.

If all matrices created by pairwise comparison are consistent, it is possible to continue with the next step of the methodology.

5.1.6 Aggregation and defuzzification of pairwise comparisons and calculation of weights

For the aggregation of individual experts opinions, the geometric average method is used, which takes into account individual expert opinions, or also the competence of experts. Aggregation of fuzzy pairwise comparisons is provided by the *RP* and must be performed for each type of completed questionnaire.

Centroid defuzzification method is used to convert fuzzy values obtained by aggregating pairwise comparisons of expert panel members into standard values. The result of this step is a matrix called a supermatrix. Subsequently, the weights for each pairwise comparison object are calculated. Defuzzification of fuzzy pairwise comparison values and weight calculation is performed by *RP*.

5.1.7 Input processing and strategy selection

For example, the freely available software tool SuperDecisions can be used to process inputs. Working in this software tool with respect to solving the FANP method consists of the following steps that *RP* performs:

- creation of ANP model,
- performing pairwise comparisons according to objects and links between objects in the ANP model by directly weights entering,
- checking the correctness and logical structure of the ANP model (sanity check),
- evaluation of inputs,
- generating the final order of alternatives.

In this step of the methodology, it is necessary to check the correctness of creating the ANP model. If an error is identified, it is necessary to correct the created ANP model so that it perfectly and accurately reflects the model compiled by the expert panel and check it again. Furthermore, it is necessary to verify that all values to all matrices of pairwise comparisons based on outputs have been correctly directly entered to the software tool. If this is not met, it is necessary to complete all values so that the matrices are filled completely and correctly according to the output data obtained by evaluating the expert panel.

SuperDecisions v2.10 software allows to check the logical structure of the model. If all the steps of the methodology are performed, the *RP* can proceed to the evaluation

of the entered inputs in the SuperDecisions v2.10 software, which consists of the following outputs:

- generating the unweighted supermatrix,
- generating the weighted supermatrix,
- generating the limited matrix,
- generating the cluster matrices,
- generating the order of alternatives and determining their final order.

All these steps are automatically calculated and generated by the software tool SuperDecisions v2.10, which also determines the resulting order of alternatives of the FANP model, therefore which of the SSCM strategies is most suitable for a given supply chain based on the use of this method.

5.2 Application of a methodology for selecting a strategy for sustainable supply chain management

The proposed methodology for selecting a strategy for SSCM was applied and tested in the defined supply chain of ŠKODA AUTO a.s., which consisted of the material supplier, company ŠKODA AUTO a.s. and an authorized dealer, in the period from 15th June 2020 to 24th July 2020.

The partial aim was to apply the proposed methodology in the supply chain of a selected industry in the form of a case study. Based on the application of the methodology, a supplier selection strategy was selected for SSCM and thus it was verified that the proposed methodology in this doctoral thesis is a full-fledged and functional management tool applicable in selecting a strategy for SSCM.

6 EVALUATION OF RESULTS AND DISCUSSION

This doctoral thesis deals with the issue of **Supply chain management in accordance with the principles of sustainable development and corporate social responsibility**. In Chapter 2, the existing knowledge in the field of the topic of the doctoral thesis was defined using the method of literature review. Based on the literature review of scientific sources and a critical evaluation of existing knowledge, the aim of the doctoral thesis was set in Chapter 3, which was: „**propose a methodology for selecting a strategy for sustainable supply chain management**". Chapter 4 introduced the scientific methods used

for the processing of the doctoral thesis. Chapter 5 contains custom solution and results reflecting the stated aim of the doctoral thesis.

6.1 Evaluation of results

The aim of the doctoral thesis was to propose a methodology for selecting a strategy for sustainable supply chain management. To fulfil the main aim of the doctoral thesis, partial aims were realized. As a result of the first partial aim, based on a literature review, possible strategies for sustainable supply chain management were identified. As a result of the second partial aim, the recommended steps which need to be implemented within the selection of a strategy were defined, using appropriate scientific methods. The result of the third partial aim was the application of the proposed methodology in the supply chain of a selected industry in the form of a case study.

The proposed methodology, applied in the defined supply chain, provided the required outputs within the individual steps. The strategy of supplier selection was selected by applying the proposed methodology. It follows that the proposed methodology can be applied in any real supply chain. Based on this fact, the relevance and correctness of the proposed methodology for selecting a strategy for sustainable supply chain management can be confirmed. Thanks to this, it is possible to clearly perceive the benefits of the doctoral thesis, or their outputs, in terms of expanding scientific knowledge in research in the field of supply chain management in accordance with the principles of sustainable development and corporate social responsibility. The scientific benefits of the submitted doctoral thesis can be described as follows:

- definition of basic concepts and their systematization in the field of the doctoral thesis topic,
- processing of a literature review in the field of supply chain management and corporate social responsibility, in the field of supply chain management and sustainable development, in the field of supply chain management strategies in accordance with the principles of corporate social responsibility, in the field of sustainable supply chain management strategies,
- application of the method of analytic network process using fuzzy logic for this type of decision problem,
- proposing a methodology for selecting a strategy for sustainable supply chain management.

6.2 Discussion

Based on the content of the previous chapters of the doctoral thesis, it is clear that during the elaboration certain approaches were chosen and subsequently used, based on literature review and theoretical definition, but it could not always be the only possible approach to the solution. With reference to this fact, it is necessary to discuss alternatives of selected procedures, which were not mentioned in the context of previous chapters of the doctoral thesis. Specifically, the following areas are discussed:

- defining supply chain management in accordance with the principles of sustainable development and corporate social responsibility issues,
- identification strategies for sustainable supply chain management,
- justification of the need to apply the methodology in a specific supply chain,
- identification of the person responsible for selecting the strategy,
- selection of experts for the expert panel,
- determining the competence of experts in the expert panel,
- use of the analytic network process method using fuzzy logic,
- selected scale of relative importance.

6.3 Benefits of the doctoral thesis

In order to fulfil the set aim of the doctoral thesis, it was necessary to implement many partial activities. The outputs of these partial activities are a clear benefit in terms of expanding scientific knowledge in research in the field of supply chain management in accordance with the principles of sustainable development and corporate social responsibility.

The first benefit is the definition of basic concepts in the topic of the doctoral thesis, therefore: logistic chain, supply chain, supply chain management, corporate social responsibility, sustainable development, sustainability and sustainable supply chain management.

The second benefit is a literature review of existing knowledge in the field of the topic of the doctoral thesis, especially the issue of:

- supply chain management and corporate social responsibility,
- supply chain management strategies in accordance with the principles of corporate social responsibility,
- supply chain management and sustainable development,
- sustainable supply chain management strategies.

The third benefit of the doctoral thesis is the use of the method of analytic network process using fuzzy logic in connection with the selection of a strategy for sustainable supply chain management. The benefit of using the method of analytic network process using fuzzy logic is crucial, because this method is very suitable for such decision problems, when it is very difficult to accurately quantify the value of each criterion.

The fourth benefit of the doctoral thesis is a proposal of a methodology for selecting a strategy for sustainable supply chain management, which consists of seven steps. The methodology was proposed in such a way that it is applicable in any supply chain, not only in the Czech Republic but also abroad. At the same time, the methodology offers many predefined procedures for users, but it also allows users to supplement their own procedure for the implementation of some steps.

The fifth benefit of the doctoral thesis is the application of the methodology in a specific and real supply chain. Based on the application of the methodology, a supplier selection strategy was selected for sustainable supply chain management. The methodology proposed in this doctoral thesis is a full-fledged and functional management tool applicable in the selection of strategy for sustainable supply chain management.

7 CONCLUSION

The overview of current knowledge in the field of the topic of the doctoral thesis clearly showed the topicality of the issue, which can also be supported by a large number of scientific articles on this topic in the world-renowned scientific databases Web of Science and Scopus.

Scientists and experts from many industries state that nowadays it is no longer enough to deal only with individual companies in isolation, but it is desirable to focus on the entire supply chain and their management using a comprehensive system approach, where synergies can arise that lead to improving the current situation for the supply chain as a whole and its individual chains, but also for other stakeholders. Companies participating in a real supply chain should respect a strategy that allows them to achieve the declared economic, environmental and social objectives and the required performance of the whole supply chain. At the same time, it is important to adequately communicate the achieved results and outputs with regard to all stakeholders and set the method of communication as an effective and beneficial both for individual companies and for the supply chain as a whole.

Based on the literature review, an overview of existing knowledge in the field of the topic of the doctoral thesis was defined, specifically the definition of basic concepts and issues in the field of supply chain management in relation to corporate social responsibility and sustainable development. Subsequently, the strategies used for sustainable supply chain management were identified. These strategies were further analysed in detail with respect to their development and their synthesis was performed. Based on the critical evaluation of existing knowledge, it can be stated that that no comprehensive general methodology for selecting a strategy for sustainable supply chain management has yet been formulated. Subsequently, the third chapter set the aim of the doctoral thesis, which was to propose a methodology for selecting a strategy for sustainable supply chain management. In the fourth chapter, the individual scientific methods used in the processing of the doctoral thesis were theoretically defined, while in the fifth chapter, a methodology for selecting a strategy for sustainable supply chain management was proposed. The proposed methodology was subsequently applied in the form of a case study in a defined supply chain. The obtained results were processed and evaluated and subsequently discussed in the sixth chapter. With regard to the outputs of the doctoral thesis, it can be stated that the set aim of the doctoral thesis has been met.

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