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SUSTAINABLE SUPPLY CHAIN IN THE CONTEXT OF PRIMARY STUDIES OF THE POLISH MARKET

Abstract

The aim of this paper is to determine barriers and advantages connected with SSC implementation and reasons for undertaking socially responsible actions in a supply chain. The research was conducted among the Polish companies with the usage of structure questionnaire. As a result of the research, it has been assumed that despite the increase of the awareness of SSC importance, there is a research gap in terms of primary analysis regarding SSC implementation in the Polish market and the questions formulated in the context of the paper's aim have been answered.

Key words: sustainability supply chain

Introduction

The interest in Sustainability Supply Chain (SSC) has been growing year after year, which is exemplified by many review studies in which the increase of interest in SSC from theoretical and practical side is stressed. Carter and Rogers define Sustainable Supply Chain Management (SSCM) as the strategic achievement and integration of an organization's social, environmental, and economic goals through the systemic coordination of key interorganizational business processes to improve the long-term economic performance of the individual company and its value network (Carter and Rogers 2008, p. 368); The United Nations Global Compact refers to supply chain sustainability (SSC) and defines this as the management of environmental, social and economic impacts and the encouragement of good governance practices, throughout the lifecycles of goods and services (2010, p. 7). SSC is a development of Corporate Social Responsibility (CSR) in the context of horizontally integrated companies. CSR is a concept whereby a company accepts economic, legal and ethical accountability for the effects of its operations and also is involved.

Sustainability supply chain-theoretical background

The current literature reviews on SSC include:

- the literature review on sustainable supply chains during the last decade: 2000–2010. The review form different perspectives (Hassini, et al., 2012),
- the literature review on sustainable supply chain management taking 191 papers published from 1994 to 2007 into account (Seuring and Mueller, 2008),
- the nine theories (Complexity; Ecological Modernization; Information; Institutional; Resource Based View; Resource Dependence; Social Network; Stakeholder; Transaction Cost Economics), which can be useful when building and implementing green (sustainable) supply chain (Sarkis, et al., 2011),
- the review of the literature on identifying six themes applied to SSCM-related research, i.e. Reporting, Governance, Integration of CSR, Performance measurement, Standards and monitoring, Collaboration (Morali and Searcy, 2013),
- the literature review on the major elements of implementing sustainability in a manufacturing supply chain according to APICS , i.e. Process innovation, Clean production, Closed-loop manufacturing, Reverse logistics, Sustainable procurement or green purchasing, Life Cycle Management (So, et al., 2012),

- the theoretical overview of existing concepts and theories in supply chain management and buyer - seller relationships literature, which might be of particular relevance to SSCM (Chkanikova, 2012).

Research question and conceptual framework

The issue of a supply chain is the most frequently discussed topic within CSR, as one of its elements. There is still too few studies focused only on SSC and too few research on the character of its implementation in a particular country. The discussion on SSC is the most frequently led as one of the elements of CSR, particularly in the context of relations with suppliers. For example, in one of the study concerning the Polish market the idea of CSR is interpreted in relations between retail chains and suppliers in the context of: offering suppliers a longer period of cooperation, guaranteeing minimal order volumes, meeting payments, avoiding dishonest practices, as well as a straightforward specification of who and to what extent bears the cost of e.g. developing packaging, or launching new products. It is equally significant to create the basis for optimization of costs, reducing risk, improvement of image, or cooperation in developing new products and services (Bilińska-Reformat and Stefańska 2014, p. 5).

The focus of the following research is to present the level of the selected CSR actions in the supply chain on the example of the Polish companies. The presented analyses are simultaneously the attempt to fill in partially the research gap connected with the fact that in the Polish or foreign literature regarding the Polish market the studies have mainly a theoretical character (Brzozowska i Nowakowska 2013; CSR w łańcuchu dostaw 2012; Ćwik 2011, Gołaszewska-Kaczan 2011; Jałowiec 2012; Jastrzębska 2011; Kisperska-Moroń 2012; Klopott 2009; Płaczek, 2012; Rudnicka 2011; Sieniawski i Porter 2012; Stefańska 2014a, 2014b; Szpręglewska i Zięba, 2013) and rarely refer to primary studies (Dżoga et al. 2010; Kostrzewa 2013; Odpowiedzialny łańcuch dostaw 2010; Small Suppliers in Global Supply Chains 2008). The research attempted to identify the barriers and advantages connected with implementing the idea of SSC and reasons for which companies undertake CSR actions in a supply chain– Figure 2.

REASON
FOR IMPLEMENTATION
P1

SUPPLIERS

SUPPLIERS

SUPPLIERS

SUPPLIERS

SUPPLIERS

BENEFITS
OF IMPLEMENTATION
P2

SUPPLIERS

BENEFITS
OF IMPLEMENTATION
P2

SUPPLIERS

BENEFITS
OF IMPLEMENTATION
P2

Figure 2. Research scheme

Source: Own work.

Summing up, the following research questions have been formulated:

- (P1) What factors determine undertaking SSC actions?
- (P2) What kind of advantages gives the involvement in SSC actions?
- (P3) What kinds of barriers are on the way to implement SSC?

Research methodology and sample characteristics

The research had an identification character and can be an introduction to further developed analyses. It was conducted among the Polish companies, which undertake at least to a minimum degree the actions within CSR along the supply chain. The characteristics of the companies selected for the research is presented in Table 1.

Table 1. Characteristics of the companies

Company size	Number of responses	Percent
small+micro	38	36,9
medium	37	35,9
large	28	27,2
Total	103	100,0
Chain of sales	Number of responses	Percent
manufacturers	19	18,4
service	37	35,9
trade	35	34,0
others	12	11,7
Total	103	100,0
Capital	Number of responses	Percent
Polish	55	53,4
foreign	29	28,2
mixed	19	18,4
Total	103	100,0
Scope of actions	Number of responses	Percent
regional	16	15,5
domestic	36	35,0
international	51	49,5
Total	103	100,0

Source: Own work.

The research was conducted in 2014 on the purpose sample of companies. The method of snowball sampling was used in the implementation of the research. This method is used in case of population consisting of the specific entities which are difficult to identify and to reach and in situations when there is lack of a sampling frame or when the researcher has little budget. Snowball sampling, despite many limitations and dangers, broadly discussed in the literature of the subject (Biernacki and Waldorf 1981; Shaghaghi et al. 2011) might be a starting point for the development of the research with the use of triangulation and be the ground for identification the problematic issues in the research area. The choice of the method was determined by the difficulty of data gathering about the topic which is not spread in the Polish market and the lack of sampling frame.

The fact that very few companies report CSR in a professional and comprehensive way (http://odpowiedzialnybiznes.pl/) and at the same time report less issues regarding SSC, justifies the low level of SSC implementation and even implementing it to a lesser extent (Stefańska 2014a, 2014b). Therefore there is few companies, which have a complex SSC programme. These which implement it are usually at the initial stage of its development, which is difficult to communicate as an advantage or anything which a company should boast

and inform about. The following criteria have been taken into account when sampling the companies:

- the company has been recognized in the business world as a one which has undertaken SSC initiative.
- the representative of the company agreed that the research was conducted.

In order to increase the credibility of the responses the research was conducted in the area of Wielkopolskie Voivodeship. Adopting such limitation allowed to conduct the interviews directly with the company representatives with the use of a structured questionnaire. In the questionnaire the questions was constructed with the use of nominal and ordinal scales. During the research there was an opportunity to explain the possible merit doubts and check the correctness of the answers. As a result of the research, 103 questionnaires were correctly filled in. The data was encrypted and processed with the use of SPSS software.

Findings

1. Factors determining the implementation of SSC

Among the factors which determine SCC actions one can distinguish these which come from the interior of the company (the existing corporate culture, attitudes and ideas which influence the company, leading social strategy to differ from the competition, employee requirements) and these which come from the exterior of the company, which depend on:

- elements of a supply chain (supplier requirements, agent/recipient requirements, client/customer requirements, policies of logistic companies, which provide services to the chain),
- market (investors requirements, level of competition, globalization of actions and international pressure, business and industry organization pressure) and
- farther company environment (pressure of local society, pressure of media, public opinion, governmental policy and local government policy, rules and regulations regarding environmental protection, human rights, international conventions and contracts etc.).

The review of many research results has been a basis to distinguish several meaningful factors having influence on undertaking actions within SSC (Brammer et al. 2011). These are: consumer pressure/concerns, government legislation/regulation, societal/public concern, NGO/pressure groups.

It results from the conducted studies that only some of the mentioned factors have significant statistical meaning for undertaking SSC actions – Figure 3. To these belong factors connected with natural environment and key stakeholders in the supply chain. It may be therefore assumed that there is a lack of systemic solutions on the central and regional level which would activate the companies to such types of actions and that there is a little awareness of the society in this area.

The fact that respondents draw more attention to environmental issues results clearly from the regulations of law, which make companies draw more attention to environmental protection.

¹ The analysis was conducted on the basis of the literature review using widely available search including the Web of Science and EBSCO Business source Premier databases.

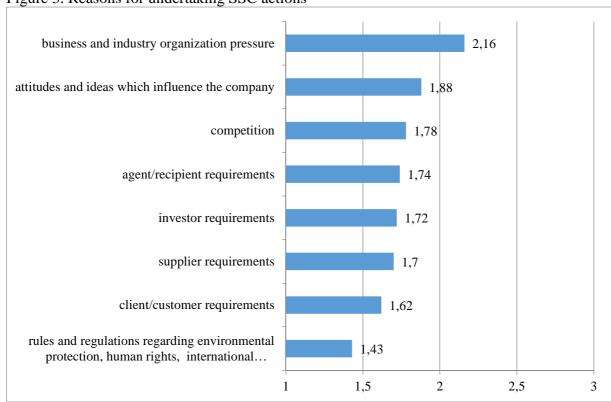


Figure 3. Reasons for undertaking SSC actions

Variables statistically significant, test Chi sq., p<0,01;

1- important factor, 2 – moderate meaning factor, 3-non-important factor

Source: Own work

Moreover, the SSC initiatives of the supply chain participants can be justified from the one side by expectations of the weaker supply chain elements, and from the other side by the willingness of companies dominating the chain to be socially responsible companies. The second case is therefore about making the market effects. The lack of systemic solutions and the SSC policies developed both on regional and national level as well as low level of the culture in this area causes that the farther environment of the investigated companies, directly not connected to business is not an incentive for SSC actions.

Summing up, the results of the analysis show that the respondents draw the most attention to undertaking SSC actions by the supply chain participants. External stakeholders were put on the second position, whereas each of the four main groups were assigned medium values so it is difficult to point out to an explicitly significant group.

2.Advantages from SSC implementing

The companies gain many multi-dimensional advantages through implementing SSC actions. For example, according to Blackhurst et al. these are (2012)²:

- using high standards referring to suppliers (in terms of complying with applicable laws of their country, restricting bribery, respecting basic human rights, restricting employment of children, prisoners, indentures, bonded labor, and corporal punishment, establishing zero tolerance of harassment, discrimination, physical or mental punishment, or other abuse),
- using new sources and raw materials more environmentally friendly,

² The research conducted on the basis of the six case study analysis in the context of SSC implementation.

- making maps the entire cycle of a product,
- striving for activities of the closed-loop supply chain,
- using alternative energy means (wind, solar, biomass),
- tracking their carbon emissions,
- optimizing routes,
- using minimizing waste technologies, which allow to (Blackhurst et al. 2012):
- improved fleet efficiency,
- -improving electric energy, water and gas energy management,
- improving security and working conditions in a supply chain
- reduce the amount of waste in the whole product life cycle
- deliver more sustainable products to the end consumer

The following research attempted to determine advantages resulting from SSC implementation in the context of the interests of the investigated companies.

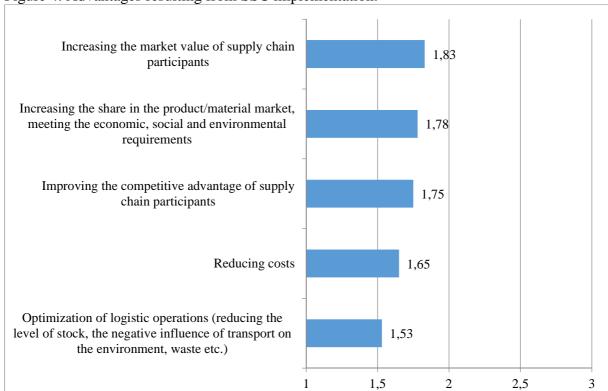


Figure 4. Advantages resulting from SSC implementation.

Variables statistically significant, test Chi sq., p<0,01;

1- important factor, 2 – moderate meaning factor, 3-non-important factor

Source: Own work.

According to the respondents, the development of SSC is connected with the operational advantages regarding logistics (reducing the level of stock, reducing the negative influence of transport on the environment etc.), the reduction of operational costs and the improvement of competitive advantage. The respondents notice in the first place the factors which indirectly influence market effects – Figure 4.

3.Barriers of SSC implementation

Despite many advantages of SSC, the companies notice many barriers connected with it. Among significant barriers on the way to implement SSC, the following can be distinguished: the lack of return on investment, cost to implement and maintain, not enough resources, lack of knowledge [AlixPartners' 2013 Executive Survey]³. It results from the conducted study that costs and the low level of SSC awareness are the most important limitations – Figure 5. To statistically non-significant variables belong: the lack of initiatives from the side of government (central/regional and local) and governmental organizations, the differences in perceiving social responsibility by different chain elements and the low level of the integration in the chain as well as hardly noticeable non-financial advantages.

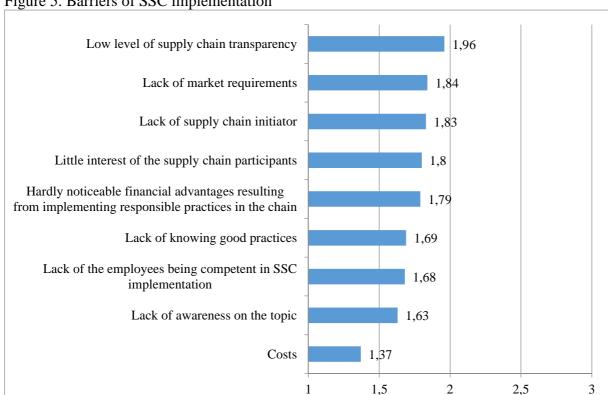


Figure 5. Barriers of SSC implementation

Variables statistically significant, test Chi sq., p<0,01;

1 - important factor, 2 - moderate meaning factor, 3-non-important factor

Source: Own work

It can be therefore concluded that the barriers on the way to implement SSC result from misunderstanding of its idea. It is connected with the fact that companies perceive SSC as cost-generating, associated mainly with sponsoring, charity actions and social security of employees.

Discussion of results

Identifying the involvement level of manufacturing chain elements in conducting CSR actions along the supply chain in the Polish market explains the SSC issues and is an incentive to

³ AlixPartners conducted a Web-based survey of 150 C-level and other senior executives at a broad range of companies in the United States and Europe across more than 10 industries.

further research challenges. With reference to the investigated companies it has been concluded that:

- the greatest role in undertaking SSC actions is assigned to supply chain participants,
- conducting socially responsible actions in a supply chain firstly generate indirect market effects,
- the main barriers connected with SSC implementation regard the lack of understanding of its idea.

The research results and the literature analysis are the ground for concluding that the issues of SSC is undoubtedly a new trend on the way to the industrial development and a new trend in scientific research (Alexander and Walker 2012). The so far conducted analyses are diverse and relatively limited in terms of their number (Brammer et al. 2011). The results of world's analyses show that there are still many challenges in the process of permanent integration in SSC in terms of supply chain risk management, SSCM standards, co-operation with suppliers or measuring the research results gained in this field (Morali nad Searcy 2013).

Till now, the researchers have undertaken mainly topics regarding reasons for implementing SSC (Teuteberg and Wittstruck 2010) such as public reporting obligations and standards, reverse logistics and waste avoidance management act, framework for supply chain risk management, development of a reference model for SSCM. Moreover, they have analyzed the issues of CSR in a supply chain first of all, in economic and organizational context (above all with the use of case studies, argumentative deductive research and formal deductive research).

Managerial implications

SSC idea will support cooperation between supply chain partners and make it more competitive in some circumstances. Among factors which are drivers for SSC are factors connected with natural environment and key stakeholders expectations in the supply chain. These factors strongly influence a strategy of cooperation, and it may be assumed that there is a strong need for systemic solutions in that area. Also although the list of benefits coming from SSC is long, supply chain members are often not aware of it. They concentrate mainly on optimization of costs. What's more, they perceive a long list of barriers which slow down the process of its' implementation. This makes communication crucial for tightening cooperation based on SSC and competitive advantage of the supply chain.

Further research

It is therefore reasonable to go a step further in the future analyses and concentrate on posing strategic, instrumental and methodological questions. On the strategic level it is reasonable to answer the following questions:

- in what direction should SSC management develop?
- how different cultural conditions of the same supply chain should be overcome in the process of SSC implementation?
- how does the process of SSC implementation look like in the countries at the different stage of development and what conclusions can be generated according to that?
- in what segments of intellectual capital is there the biggest deficiency of SSC?

On the instrumental level it is reasonable to discuss the following issues:

- which instruments of SSC implementation succeeded and which failed and which problems occurred as a result of the failure?
- what should the best sequence of implementation of standards and guidelines look like?
- how to combine measure indicators with decision-making processes regarding SSC development?

- why does the knowledge transfer in the discussed area run with different intensity in the case of different chain elements?

On the methodological level the following should be discussed:

- what research method should be used the best to solve the given SSC problem?
- is the fact that SSC research is conducted from one and not from the other research perspective is justified regardless of the frequency of its occurrence in the research?
- what paradigms (ontological and epistemological) are appropriate to solve SSC problems? The above requirements are getting more and more important facing the occurring statements in the literature that in the context of SSC and intraorganizational integration, knowledge sharing and distribution are crucial (Harm 2011).

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