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Role of environmental sustainability in supplier evaluation.

Ympäristöön liittyvät kriteerit toimittajasuhteiden arvioinnissa

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Author: Janne Hölttä

Supervisor: Igor Laine

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Tekijä:	Janne Hölttä
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Tutkielmassa tutkitaan ympäristövaikutuksiin liittyvien tekijöiden roolia toimittajasuhteiden arvioinnissa. Tutkielman tavoitteena on syventää ymmärrystämme ympäristöön liittyvien tavoitteiden ja kriteerien merkityksestä yritysten arvioidessa toimittajiaan osana päätöksentekoaan toimittajasuhteisiin liittyvissä kysymyksissä. Tutkielman teoreettisessa viitekehyksessä käydään läpi kirjallisuutta sekä toimittajasuhteiden johtamisen että ympäristöön liittyvän kestävän liiketoiminnan aihepiireistä. Tutkielman teoreettisessa osuudessa muodostetaan kontekstia tutkimalla toimitusketjujen ja ympäristön kannalta kestävän liiketoiminnan keskeisimpiä teoreettisia käsitteitä. Teoriaosuudessa myös luodaan katsaus siihen, miten tutkijoiden keskuudessa on nähty ympäristötavoitteiden yhteensovittaminen toimittajasuhteiden johtamiseen ja toimittajien arviointiin.

Empiirinen tutkimus muodostuu puolistrukturoiduista teemahaastatteluista neljästä eri yrityksestä kahdelta eri toimialalta. Haastatteluilla kerättyä dataa analysoitiin muodostamalla saman toimialan yrityksistä parit, joiden haastattelut käydään läpi vertailevalla tavalla sekä etsimällä lopuksi vastauksista nousevia suurempia teemoja. Haastattelututkimuksesta ilmeni, että yritykset pitävät ympäristöön liittyviä yhtenä toimittajien arviointiin vaikuttavana tekijänä, mutta sen rooli vaihtelee toimialojen välillä ja jopa niiden sisällä. Haastatteluista löytyi viitteitä siitä, että yritysten välisillä voimasuhteilla on vaikutusta yritysten kykyyn asettaa ympäristöön liittyviä vaatimuksia tai tavoitteita toimittajille, myös standardien vahvasta asemasta ympäristövaatimuksena löytyi viitteitä. Haastatteluiden pohjalta pystyy myös päättelemään, että tietyillä toimialoilla ympäristöystävällisyys mielletään osaksi laatukäsitettä, ja tällöin ympäristöystävällisyys vaatimuksilla on merkittävä rooli toimittajan arvioinnissa. Kokonaisuudessaan tutkimus antaa kattavan kuvan ympäristötavoitteiden ja niihin liittyvien kriteerien painoarvosta toimittajasuhteisiin liittyvässä päätöksenteossa.

ABSTRACT

Author: Janne Hölttä
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This thesis examines the role of factors related to environmental sustainability in supplier evaluation. The purpose of this research is to deepen our understanding about the significance of goals and criteria when companies evaluate their suppliers as part of decision-making related supplier relationships. Theoretical framework of the thesis goes through the literature from both the fields of supply chain management and environmental sustainability in business. Theoretical part forms the context by examining central theoretical concepts of supply chain and environmentally friendly business. Theoretical part also investigates how academics view the combining of environmental goals and criteria into supplier evaluation process.

Empirical research of the thesis consists semi-structured thematic interviews from four different companies from two different industries. Data collected with interviews is analyzed by forming two pairs from companies operating in the same industry and reviewing the answers in comparative way, and finally trying to find consistent themes emerging from interviews. Interviews showed that while environmental responsibility is considered in supplier evaluation the goals of companies related to this differ across industries and even within the given industry. Interviews indicated that power dynamics in supplier relationship affect companies' ability to set environmental criteria and targets into suppliers, they also further indicated strong role of standards in environment related supplier evaluation. Based on the interviews one was also able to determine that in certain fields environmental sustainability is associated with the term quality, and that it therefore has a prominent role in supplier evaluation. As a whole this thesis gives a comprehensive picture about the importance of environmental goals and criteria related to them in making supplier relationship decisions.

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1. Introduction

On November 5, 2019 when this thesis was being written 11 000 scientists endorsed a report published in *BioScience* based on 40-year study which declared that planet earth is facing a climate emergency (Ripple, Wolf, Newsome, Barnard et al. 2019). This continues the flow of alarming reports in recent years about climate change, like the report by Intergovernmental Panel on Climate Change (IPCC) which stated that there is no clear answer whether it is feasible to adapt the consequences of climate change or to limit the global warming to 1,5 degrees of Celsius (IPCC 2018). By now it is clear that even 1,5-degree global warming has serious unpredictable effects on global environment and human systems (IPCC 2018). As companies do not naturally operate in vacuum it is logical to think that these changes influence their operational environment. Already customer perceptions about state of environment are changing demand for many industries (Portney 2015 p. 81-109). Many large and small companies have faced boycotts and decreasing demand when media, NGO's or active individuals have revealed unsustainable practises in value chains of their products. Fulfilling stakeholder's expectations and reaching goals regarding those does not however depend solely on the company's inner processes but instead requires participation on their suppliers' side. Customer awareness and public pressure have therefore encouraged many companies to undertake initiatives to alter their supplier networks to greener directions (Louis, Wu, Kuo 2007 p.4317). If the same standards do not reach down to the whole value chain, every company participating it faces serious risks relating their image and demand of the end products. Supplier evaluation and selection is therefore a key operational method creating sustainable supplier partnerships (Govinda, Rajendran, Sarkis, Murugesan 2015 p.66).

This bachelor thesis examines the role of environmental factors in supplier evaluation using two different sectors as examples. Aim of this thesis is to shed the light on supplier evaluation criteria used by selected companies and role of criteria relating to sustainability. Empirical context of this thesis focuses to finish retail companies that have supplier relations to variety of different suppliers including both domestic and foreign companies

1.1. Theoretical background

Supply management has in many companies transformed in recent decades from tactical and transaction-oriented function to an important strategic process (Gordon 2008 p.1.). As previously outlined this study focuses on supplier evaluation which is one of the key activities in supply management. It is closely linked to another supply chain management activities like supplier selection and supplier performance management, therefore examining supply chain management literature provides valuable understanding on companies approaches and functions regarding their supply chains. (Gordon 2008 p.4-7) (Khan, Yu 2019 p.52)

Supplier evaluation is one of the most important processes in company since only right supplier is capable to fulfil customer's expectations and, in this way generating demand on company's products (Khan, Yu 2019 p.46). This has also been realised by many managers who, in the words of Shelly Gordon doesn't view procurement anymore merely as cost centre, but a function capable of adding cash to the bottom line (Gordon 2008 p.1).



Figure 1: Conceptual framework of thesis

As shown in Figure 1 the conceptual framework of this thesis starts with the assumption that every businesses aim is to reach its business goals directed by its vision and/or mission. In order to reach those goals, businesses must develop an overall business strategy which thereafter is derived to strategies for different functions in business like supply chain strategy (Juuti, Rejonen, Puusa, Laukkanen 2015 p.97-99). Companies implement their strategies in various ways of management, when results of the management are evaluated and possible control actions made could business goals and even vision or mission change thus whole process has form of a loop (Grunig, Khun 2011 p.47). One of the most important ways to implement supply chain strategy via supply chain management is evaluation of current and prospective suppliers (Ceyhun, Ozkarahan 2007 p.585). Supplier evaluation aims to find the right suppliers for company, this is hugely important since, like previously said, only the right supplier can fulfil the end-customers' needs and thus creating demand for each company's goods (Khan, Yu 2019 p.46). So therefor it is relatively easy to articulate that supplier evaluation is key function ensuring realization of company's business goals. It is practical way of deciding which organisations to co-operate with, and it is a way to ensure that company's goals don't get diluted by vast networks global supply chains.

This last bit is important when company has goals regarding environmental sustainability, and it wishes to act according to them, since they can be easily overwritten by economic interests of companies on same supply chain that does not share the same sustainability goals (Chopra 2019). Environmental sustainability goals are especially prone to tragedy of commons which means that individual short-term incentives for each actor are such that acting according to them leads to worse depletion of common good than cooperation could achieve, be it stable climate, oceans fishes or overgrazed meadow, costs from which are eventually shared by all actors (Harding 1968). Therefore, careful and diligent supplier evaluation could be a key to balancing between these sometimes-conflicting goals in webs created by different kinds of companies.

1.2. Defining key concepts

Here, the key concepts of this thesis: supply chain, environmental sustainability and supply chain management are defined, in order to give clear understanding when reading this thesis forward. It should be noted that various definitions for these concepts

may exist and the ones presented here were chosen because they fit best for the context of this thesis. Different theories regarding these subjects are further reviewed in chapters 2 and 3.

1.2.1. Supply chain

Supply chains can be thought to be networks of different parties that are involved, either directly or indirectly, in fulfilling the different needs of end customer's (Chopra 2019 p.15). These networks are characterised by flows of products, information, monetary resources and services (Chopra 2019 p.15). As this study continues this definition made by Chopra (2019) is one that is implied when talking about supply chains.

1.2.2. Supply chain management

Supply chain management (SCM) can be thought as a practice of designing and managing the flows of information, goods and financial resources throughout the supply chain (Sanders 2012 p.3). This rather wide definition by Sanders (2012) is one which is implied when term supply chain management is used later in this thesis. This thesis focusses on supplier evaluation which, together with supplier selection, is key concepts inside the term supply chain management (Ceyhun, Ozkarahan 2007 p.585). From this point onwards in this thesis the letter combination SCM is occasionally used to refer supply chain management.

1.2.3. Environmental sustainability

According to Carter and Craig (2008) the term sustainability in business language refers increasingly to integration of social, environmental and economic responsibilities of a company (Carter, Craig 2008). This thesis focusses only on environmental sustainability. This thesis leans to this notion by Carter and Craig (2008) about environmental sustainability and so in later this thesis the term environmental sustainability could be interpreted as environmental responsibilities of company as such as they perceive those.

1.3. Design and limitations of this study

This study focuses on supplier evaluation in four companies from two different markets in Finland. Goal is to find information about each company that can be compared with the other company on same market and further compare the two markets in question to some extent. This is necessary to find out to what extent examples provided by this study can be utilised.

Two of the companies are food and drinks companies and two are retailers of medical products. Food and drink companies are organising and managing manufacturing of their products, another is focused on drinks, cooking products and snacks, while other is solely focusing on providing blueberry soda. Both companies are reaching to market mainly through retailers. Two other companies both medical retailers are operating exclusively on the B2B sector, providing products to pharmacies, hospitals and health centres among others.

Number of the companies studied is limited to four to ensure that in-depth understanding is gained from every company in question. What is more, two companies per industry are also minimum viable number of them to make it possible to try to distinguish some of company and market specific factors in findings.

The findings of empirical context of this thesis should be regarded as set of examples, as study itself can be thought to consist four short separate of case studies. Possible future generalization of these results should therefore be done in same way and using the same techniques through which case-studies are usually generalized in academia. Markets of which the companies are operating are also source of some limitation. All companies significantly depended on Finnish markets, even though all but another of medical retailers has also revenues from abroad. Furthermore, all companies are also purchasing products and materials from abroad in significant numbers. Still these markets differ in many aspects, and in order to keep the focus clear, the possible sources of differences in findings between two markets will be not discussed comprehensively. Finally, for further reading of this thesis it is important to note that since companies are selling and procuring products (and/or materials) in their main business functions, the whole thesis is constructed on the perspective of product-based supply chains. In this sense many aspects that are relevant in purchasing of services are left out of this thesis in order to keep the theoretical and empirical parts of the thesis in mutual relevance.

1.4. Research problem and question

Criteria and methods used in supplier evaluation are one of the practical ways in which companies are able to answer their customers and other stakeholders demand by trying to influence their supplier network (Seuring, Müller 2008 p.1700). This research aims to provide fresh insight about the practical implementation of supplier evaluation and role of environmental sustainability in evaluation process. Goal is to provide useful examples on how environmental sustainability is incorporated into wider set of evaluation criteria, how these are applied in practice and what are the external and internal factors affecting how all this is done in the companies in question.

Research problem in question is the fact that even though customer demand of environmental sustainability has in recent years increased significantly, effects of this demand into supply chain networks depends on evaluation criteria which companies are applying.

Main research question is complemented by three sub-research question which all answer partly to the main research question and are made to help for better understanding the process which the main research question is aiming to describe. Research question and sub-research questions to which it's divided into will guide this thesis as it forms the basis for empirical interview questions and framework for theory part of the work.

Main research question is:

- *How does retailers evaluate environmental sustainability of their supplier's?*

This question is complemented by following three sub-research question:

- *1. What kind of criteria, methods and processes are behind the supplier evaluation in companies?*
- *2. How does environmental sustainability goals effect on goals of supplier evaluation?*
- *3. How is environmental sustainability integrated into criteria, methods and processes described in SRQ1.?*

Following two chapters form the theory parts of this thesis. Theory, like sub-research questions, will start with the supply chains and supplier evaluation in general followed concept of environmental sustainability and finally proceeding to describe how those can these two themes be linked together.

2. Supply chains, management and supplier evaluation.

In this section terms of supply chain and supply chain management are going to be explored further. Different approaches to supply chain management and especially to supplier evaluation is going to be presented. This is necessary to understand the state of thinking, common approaches and some of the common problems behind the reality of decision making that managers responsible for supply management are facing.

2.1. Supply chains

As previously said, supply chain can be thought to consist of different parties participating, either directly or indirectly, in fulfilling the different needs of the end customer'. Supply chains consist usually of various parties including manufacturers, raw material providers, different operators involved in transportation processes and retailers. Chopra (2019) describes supply chains dynamic with constant information, product and fund flows among different stages. Goal of supply chain is to maximize its supply chain surplus which can be defined as a difference between created customer value and costs of supply chain. (Chopra 2019 p.15-18)

In Figure 2 model of supply chain network is presented. It represents the common situation where companies purchase products and materials from many different sources and therefore supply chains are interlinked. It is important to note that Figure 2 is just example and doesn't represent universal model, instead there are companies that have only one supplier, as well as companies whose supply chain bypasses some links presented in figure. What is more, term "suppliers" in Figure 2 is general term for all those companies that provide necessary components and raw materials for producing a particular product. (Sanders 2012 p.4-6)

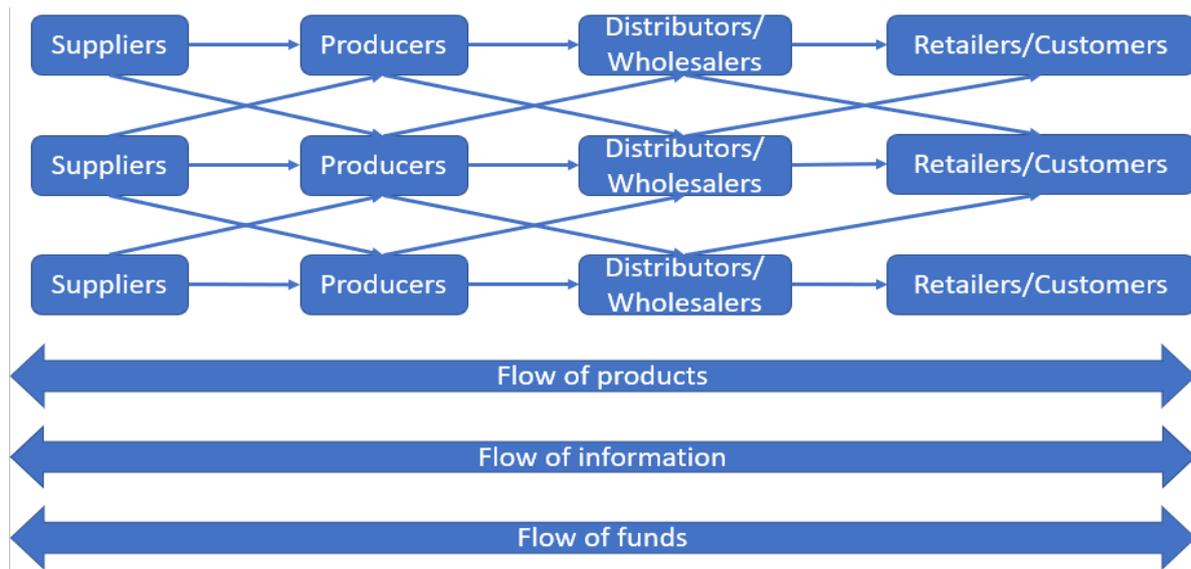


Figure 2 The supply chain network (by Sanders 2012)

For many companies however supply chains do not look like single lines but instead something close to uprooted tree where individual lines branch out of each other in several occasions, this especially true in manufacturing industries. Closeness of relationships differ in different links of this “tree”. Challenge for companies facing branching supply chains is to determine which of the “branches” need attention and management activities. Companies aiming to maximize the benefits made available with supply chain management must pay attention to structure of this network. They should identify the members of the supply chain, structural dimensions of the network and different types of process links across it. (Lambert, Cooper 2000 p.67-72)

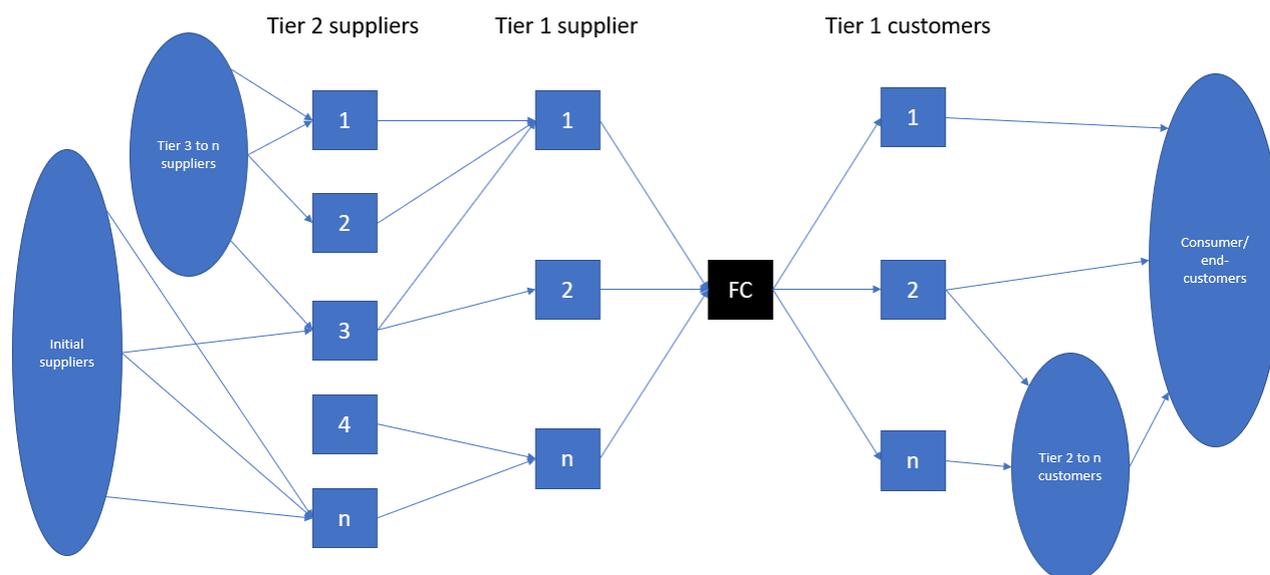


Figure 3 Example about structure of supply chain (after Lysons and Farrington 2006)

This branching structure is demonstrated in Figure 2 which describes supplier and customer network in the point of view of focal company FC (Lysons, Farrington 2006 p.141). Looking this picture, it is important to note that not all the relationships represented by arrows are similar, instead they could range from close partnerships to arms-length relationships with little communication. In fact, the only common thing between them could be just direction of product flow. (Lysons, Farrington 2006 p.121-152)

Sanders identifies three key characteristics of a competitive supply chain: responsiveness, reliability and relationship management (Sanders 2012 p.18-19). Responsiveness, which is also described as “agility”, is ability to respond customers’ needs in increasingly shorter time frames (Sanders 2012 p.18-19). Reliability refers to reducing uncertainty through for example increasing “visibility” and relationship management refers to ability to build partnerships based on trust, mutual commitment and fairness (Sanders 2012 p.18-19). Sehgal on his part highlights that supply chains should be simultaneously stable and in state of dynamic equilibrium, so that they are react fast enough to changes outside and inside of the firm. (Sehgal 2011 p.205)

Because stages of supply chain that don’t add value to the supply chain are quickly cut out or bypassed due to financial pressures, supply chains are sometimes called also as value chains or value networks (Sanders 2012 p.4). Kothandaraman and Wilson also note that among other names these chains are also referred in various writings as

value-creating networks, market networks and value nets. (Kothandaraman, Wilson 2001 p.384).

2.2. Supply chain strategy and design

Each company has business strategy that determines how company is trying to achieve advantage over its competitors (Juuti et al. 2015 p.97). Companies design their supply chains following supply chain strategy which is developed to contribute to business strategy which company in question is following. Design of each company's supply chain depends on specific things that are precondition on operating in the specific industry serving specific market. Other things affecting on a supply chain design are also given due to business strategy followed by company. This leaves certain choices about design of the supplier relations that are not pre-required, supply chain strategy usually aims to optimize these choices so that those contribute as much as possible on company's goals. (Seghal, 2011)

One factor which naturally effect on single company's ability to design entire supply chain is company's position in it. Kothandaraman and Wilson say that supply chains, which they in this case refer to as value networks, tend to have leader who manages the network (Kothandaraman, Wilson 2001 p.389). Authors also tie the position of company in value network to its ability to create value for customer which they define as ratio of perceived benefits and price (Kothandaraman, Wilson 2001).

Regardless of possible limitations resulted from power dynamics, each company should aim to select the best possible suppliers. Khan Yu divide this process of evaluating and selecting suppliers into seven phases, first one is recognizing the need for selection of supplier, followed by classifying key sourcing requirements, after which the sourcing strategy based on these requirements is developed (Kha, Yu 2019 p.52). In fourth phase company should identify potential sources of supply, after this it should continue by limiting suppliers in selection pool, and after having adequate number of suppliers in selection pool the process should continue by determining the method of supplier evaluation and selection, and in final phase choose its preferred supplier and reach for contact (Khan, Yu 2019 p.52).

2.3. Supply chain management

Sanders states that “supply chain management involves the coordination and management of all the activities of a supply chain”, and therefore is a very complex concept in business (Sanders 2012 p.3-15). Like previously stated the goal of the supply chain should be to maximize supply chain surplus as previously defined in chapter 3.1., hence supply chain management should also aim to create value and divide it for the whole supply chain including the end customer (Lambert, Cooper 2000 p.81-82). To minimize the costs in this process supply chain management should focus to maximize the efficiency and effectiveness for the whole supply chain (Lambert, Cooper 2000 p.81-82). Supply chain management differs from simple logistics since it is about the active strategic collaboration between actors of supply chain to reach superior competitiveness rather than just fulfilling the need for efficient transportation (Sanders 2012 p.3-15). Importance of proper supplier management practices has also increased because of a common trend of outsourcing which can be defined as practice to hire a third party to perform a task or set of tasks for a fee. Outsourcing is one of the recent trends raised by competitive pressure, as development of communication and transport technologies and globalization have increasingly forced a number of companies to focus on their core competencies. (Sanders 2012)

2.4. Evaluating suppliers

Supplier evaluation is one of the most vital actions in a supply chain since even one wrong supplier could have serious effects for a company's performance and reputation (Ceyhan, Ozkarahan 2007 p.585). As the importance of supplier evaluation related decisions has been recognized in recent years, many different criteria have emerged to greater importance in the evaluation process, which just a few decades back used to mainly concentrate on just price and cost minimization (Khan, Yu 2019 p.52). The process behind evaluation and selection of suppliers, especially with the most vital procured items, can therefore be a resource-consuming and effort-demanding work (Khan, Yu 2019 p.52). In addition, there doesn't exist a universal best approach to combine different criteria and perform the evaluation process and make the decisions related to it, instead the best possible way for each company depends on many different factors (Khan, Yu

2019 p.52). Regardless of the process and techniques employed the goal of the assessing should be minimising the risks and increasing value to the firm (Khan, Yu 2019 p.52).

Carter and Craig approach evaluation of supplier into framework called seven Cs which aims to give a holistic picture about supplier evaluation. (Carter, Ray 1995 p.44). According to them buyer should assure itself that supplier can meet following requirements: competency to undertake tasks necessary to meet the demand of buyer organisation, capacity to meet the buyers total needs, commitment to customer in terms of total quality and cost driving as well as service, control systems which are sufficiently effective, cash resource which ensure financial stability, costs, and finally consistency which implies ability to continually retain previous aspects (Carter, Ray 1995 p.44). Lysons and Farrington add three more "Cs" on this framework, they are culture which refers the shared values, clean which is notion that suppliers and products should meet legislative as well as other environmental requirements, and finally communication which emphasise importance of communication and compatibility of information systems (Lysons, Farrington 2006 p.390).

Finding appropriate metrics is usually very difficult challenge to many companies. Some companies tend to evaluate performance only with quantifiable metrics that can be thought to come from objective sources while others put greater value to information achieved through qualitative methods. In case of new purchases, before more rigorous evaluation of potential suppliers, companies usually make an initial cut on supplier selection pool narrowing down number of possible options with swifter analyses (Khan, Yu 2019 p.59). This can be done by financial risk analyses, evaluating information provided by supplier or evaluating supplier's performance with its current customers (Khan, Yu 2019 p.59).

One way to approach supplier evaluation is to set different supplier performance expectations created in accordance of procurement strategy which in turn is derived from corporate strategy and business goals of the company (Gordon 2008 p.27, 83-86). Gordon determines performance expectations as "specific statement of business practise, process, or policy and/or the results anticipated or required from a supplier's performance or behaviour in relation to customer" (Gordon 2008 p.27, 83-86). To produce desirable results these performance expectations should be measurable, appropriate to the supplier being measured, well communicated and actionable as well as attainable.

ble (Gordon 2008 p.27, 83-86). There are almost infinite number different things companies could use as their criteria for supplier evaluation and like previously said appropriate metrics vary greatly between companies (Lysons, Farrington 2006 p.384). Gordon continues to suggest two phased approach for companies to identify key criteria. First companies should identify the most important business drivers that impact their performance which according to her are typically costs, quality, time and technology or innovation (Gordon 2008 p.84-90). In second step companies should breakdown these drivers into supplier impacts and supplier risks, for example key metrics derived from business drive costs can be total cost of ownership, inventory reduction, cost avoidance and average cost per order. In case of quality, metrics could be among others: quotation errors, shipment errors, incoming quality, in-process quality and warranty data (Gordon 2008 p.84-90).

Quite often these criteria used to evaluate supplier performance are known as Key Performance Indicators (KPI) (Lysons, Farrington 2008 p.384). Lysons and Farrington share the Gordons notion that traditionally KPI:s used to revolve around price, quality and delivery and while they still remain important things to consider, developments such as just-in-time functions, lean manufacturing, e-procurement and integrated supply chains have widened the scope of necessary evaluation (Lysons, Farrington 2008 p.384). Khan and Yu in their part note that while price or costs to buyer, quality and delivery are indeed, in most companies, certainly factors that have strongest direct impact to the buyer, there are number of other useful criteria to consider in supplier evaluation (Khan, Yu 2019 p.62). Such a criteria are among others management capabilities like state of long-term planning and whether management is committed to continuous improvement, employee capabilities like skills, commitment and flexibility of employees, process and technological capability like state of research and development activities, as well as cost structure and financial stability of supplier (Khan, Yu 2019 p.62-65). Khan and Yu also raise environmental commitments and total quality management (TQM) philosophy among useful criteria (Khan, Yu 2019 p.64-65).

After these criteria or KPIs have been established companies should develop way to evaluate their supplier's performance based on these. There is number of different ways to execute this. As previously said some companies prefer quantitative models to overcome some issues relating to qualitative evaluation such as subjectivity, short-term memory and "halo-effects", tendency to bias suppliers due to irrelevant considerations (Lysons, Farrington 2008 p.385). According Gordon performance of supplier is

usually defined in quantitative terms, but successful management of supplier relation based on the performance needs lot of insight about best business practices and process as well as enabling factors like culture, which can be observed via qualitative methods (Gordon 2008 p.27, 83-86). Quantitative models may still have their downsides. Obtaining necessary data can be expensive, many evaluated factors are affected by circumstances out of suppliers control and even though quantitative ratings may give impression on scientific accuracy, in reality those ratings are exactly as accurate as assumptions which they are based on (Lysons, Farrington 2008 p.385).

One common method of utilising KPIs is scorecards in which every KPI is given grade which is then multiplied by weight representing its relative importance, finally adjusted score is averaged to get suppliers performance level. Another approach to use evaluation criteria is to apply them as service levels, expected levels of performance which are usually used in supplier contracts which impose penalty on supplier if it is not able to reach the service level. Many older methods of supplier evaluation are however increasingly superseded by integrated supplier performance management systems, which can provide real-time data about performance across all products and suppliers and communicate this performance immediately to suppliers. Advanced systems are also capable of giving actionable alerts when defined KPI threshold is exceeded by supplier as well as giving complicated supplier evaluations using data about all elements of the supply chain. (Lysons, Farrington 2008 p.388)

3. Environment and supply chains.

First in this chapter different aspects about environmental sustainability is going to be presented. After this, different ways to combine environmental responsibilities to supply chain management and supplier evaluation is going to be viewed.

3.1. Environmental sustainability in business

Sustainable development is specified by Brundtland Commission under United Nations as development “that meets the needs of the present without compromising the ability of future generations to meet their own” (the World Commission on Environment and Development 1987 p.8). Sustainability is usually thought to consist of three pillars which are economic pillar, environmental pillar and social pillar (Yonghyup 2019). This is sometimes referred as Triple Bottom Line (TBL) which emphasises balance between the three aspects, in fact Gimenez, Sierra and Rodon suggest that three aspects are not mutually exclusive but instead positive financial gains can be made engaging simultaneously responsible behaviour in all aspects (Elkington 1998 p.1; Gimenez, Sierra, Rodon 2012 p.150).

It is also important to note that the environmental aspects of business functions are subject to many different national and international legislation. European Union has issued large number of directives relating to environmental quality and management of water, waste, chemicals as well as packaging and packaging waste. Both national and international laws are generally enforced by national process in each country and therefore tightness of legislation and regulation in home country of each company can also be one factor behind the level of environmental responsibility of given company. (Lysons, Farrington 2008 p.668-669)

Aside from binding legislation there are also several voluntary standards which firms might aim at complying. Examples about prominent standards are ecolabeling or eco-management and audit scheme EMAS awarded by EU or ISO environmental standards which essentially are series of reference documents on voluntary standards and guidelines which include for example environmental management systems, auditing and labels and declarations (Lysons, Farrington 2008 p.674-676). ISO 1400 standards

developed by Swiss-based worldwide organization of national standards bodies to provide all industries a structure for an environmental management system that will ensure consistency and effectiveness of all processes and simultaneously achieve stated environmental objectives of a given organisation (Jackson 1999 p.1600). There are 23 separate ISO 1400 standards that cover everything from eco-labelling and environmental auditing to life cycle assessment and greenhouse gas assertions (Antweiler 2014 p.191-193). These standards come with two “branches” other looking into organisation and other into product. According to Antweiler the most prominent of all ISO 1400 standards is ISO 14001 which set standards for environmental management systems (Antweiler 2014 p.191-193). Besides of increasing efficiency one of the main benefits of ISO 1400 is that it increases credibility of given company’s environmental commitments in eyes of its customers, suppliers, and other stakeholders including government and communities (Antweiler 2014 p.191-193).

Bocken, Short, Rana and Evans have identified several archetypal strategies based on environmentally friendly means what companies can employ in order to create and deliver value and to make financial gains by capturing some of that value with pricing. These include technological ways like maximizing material and energy efficiency, creating value for waste for example through circular economy practices, substituting damaging practices with renewable and natural processes. Archetypes include also more social ways like adopting stewardship role protecting those aspects of triple bottom line that company prioritizes, changing mind set to deliver functionality instead of ownership and encouraging sufficiency through for example consumer education or product longevity. Finally, there is also set of organisational ways like repurposing whole business at least partly for environment and developing scale up solutions through for example collaboration, open innovation, licencing or crowd sourcing. (Bocken, Short, Rana, Evans 2014 p.47-54)

In the management level, environment can be taken into account in case of proposed projects or activities by environmental impact assessment (EIA) or in case of already existing projects or activities by environmental management systems (EMS). In some cases, these are also subjected to legislation. To be effective environmental impact assessment needs to be comprehensive and systematic process set to identify, analyse and evaluate environmental effects of proposed projects or activities. Possible impacts of projects and activities need to be considered in multiple dimensions like time (immediately or long-term), space (local, regional or global) and intent (direct and

anticipated or indirect and unanticipated). EMS in its part can be defined as part of company's management system that develops, implements, maintains, achieves and reviews its environmental policy. In this case the concept management system is to be understood broadly encompassing organizational structure, planning, activities, practices, procedures, processes and resources. (Antweiler 2014 p.163-182)

Srivastava notes that when environmental management first came to relevance it used to be handled by separate organizational units responsible for environmental goals in all functions of company including product design, logistics and marketing. However, since major changes in quality thinking in 1980s and in supply chain management in 1990s, businesses have realized benefits of integrating environmental responsibilities to ongoing operations. (Srivastava 2007 p.53)

3.2. Environmentally sustainable supply chain management

Escalating environmental deterioration, like diminishing natural resources, overflowing waste sites and increasing pollution, has continuously driven growing relevance of environmentally friendly thinking also in the field supply chain management (Srivastava 2007 p.53-54). Supply chain can thought to be environmentally sustainable when it performs well on both measure of profit and loss as well as in on an expanded sense of performance which include also environmental dimension (Giml, Wu 2009 p.37). Traditional supply chain management (SCM) has been complemented with the concept of sustainable supply chain management (SSCM). According to extensive literature review made by Anne Quarshie in 2017 SSCM literature and research combines important themes from traditional SCM field such as transportation and logistics, practices and activities and performance issues with themes from the business ethics field such as codes and standardization, ethical issues and collaboration with non-traditional partners, therefor SSCM can be thought as an comprehensive umbrella term (Quarshie 2017 p33-37). Also, Seuring and Muller state that SSCM takes wider range of issues and therefor longer part of the supply chain into account compared to traditional SCM (Seuring, Müller 2008p.1705-1706). They continue to highlight the need for increased level of cooperation due to wider set of performance objectives in SSCM (Seuring, Müller 2008). However, Quarshie also notes that current SSCM literature is

still quite focused on tactical and operational improvements rather than transformative change of supply chains (Quarshie 2017 p35-36).

Srivastava in his part determines a sister term green supply chain management (GrSCM). Term introduces "green component" to supply chain management in order to address the relationship between supply chain activities and natural environment. According to him, even though scope of the term can vary, the green supply chain management could be defined as environmental thinking integrated into all activities of a supply chain including product design, material sourcing and selection, manufacturing operations as well as end-of-life management of the product. Srivastava notes that green supply chain management approach strives to reduce the ecological impacts of business without in-process reducing quality, reliability or overall performance. (Srivastava 2007 p.54-69)

Lysons and Farrington on their part determine the term green purchasing, another concept associated to environmental supply management, as "purchasing involvement in supply chain activities in order to facilitate recycling, reuse and resource reduction" (Lysons, Farrington 2008 p.668-669). Lysons and Farrington continue by discussing necessary steps to implementing environmental purchasing policy which starts with preparing and thoroughly communicating the policy and preparing guidelines for employees implementing it, this is followed by appraising suppliers and incorporating environmental requirements into specifications, also adopting lifecycle approaches like lifecycle analyses is key part of the process (Lysons, Farrington 2008 p.670-672). Final steps of implementing environmental purchasing policy include preparing guidelines for proposals, providing appropriate training and ensuring regular audit of compliance (Lysons, Farrington 2008 p.670-674).

In practise sustainable approach to supply chain management usually derives from pressure from customers, public administration and other stakeholders which focal company passes forward to its supplier network. Khan and Yu also point out that buyers usually don't want to be associated with known polluters due to public relation and other potential liabilities (Khan, Yu 2019 p.65). Seuring and Muller have identified two not entirely mutually exclusive ways for which focal company can practise this. They could either evaluate and manage suppliers aiming to firstly avoid risks related to unsustainability and secondly improve supplier performance, key enablers here are communication, supplier evaluation and education. Another strategy is product focused aiming to achieve competitive advantage by offering sustainable products using for

example life cycle assessment, deep information-n flows throughout supply chain as well as co-operation beyond first-tier suppliers. (Seuring, Müller 2008)

In addition to answering environmentally conscious demand companies can also achieve many other benefits practising environmentally sustainable supply chain management. Such a benefits include among others cost savings and possibly reduced dependency on specific suppliers due to more efficient use of raw materials as well as energy savings (Lysons, Farrington 2008 p.668).

In order to take environmental factors into account as part of comprehensive supplier evaluation companies must form evaluation criteria relating to supplier's environmental performance. According to Khan and Yu the most commonly used of environmental evaluation criteria are toxic and hazardous waste management, disclosure of environmental infractions, recycling management and ISO 14000 certification (Khan, Yu 2019 p.65). Lysons and Farrington note that environmental aspects could also be included into screening of suppliers before deeper evaluation, this can be accomplished by including environmental factors into prequalification questionnaires, expecting suppliers compliance of certain standards or using special assessment tools to assess environmental performance (Lysons, Farrington 2008 p.674). In addition, there are also several special assessment tools for environmental sustainability that can for example compare decided factors against certain benchmarks (Farrington, Lysons 2008 p.676).

4. Research methodology and analytical tools

Research part of this thesis is qualitative study conducted via four interviews, one from each company, and short analyses of the interviews utilising methods prominent in discourse analysis. Results are presented on the way that allow comparing between the companies on the same market and between the two markets in extent that is possible based on the sample of two companies. Four companies were selected from two different markets, two from both. In this point it is important to note that there was not any qualification process involved in choosing these companies, only thing directing the qualification were the market where company operated in order to get desirable setting of four companies and two markets.

Qualitative research studies meanings of participants words and images as well as relationships between them. Words and images can have multiple or unclear meanings, so it is integral for researcher to clarify these with participants, this is one reason why those who agree to take a part in research are commonly called participants rather than mere respondents. This research is conducted by just one data collection method and corresponding data analyses method so it is classified as mono method qualitative study. (Saunders, Lewis, Thornhill, 2019, p.179)

The interviews are semi-structured thematic interviews. Thematic interview progresses along with specific pre-chosen themes and questions detailing those themes (Tuomi, Sarajärvi 2018, p.87-88). Thematic interviews can vary from near open interviews from more structured ones (Tuomi, Sarajärvi 2018, p.88). One of the clear benefits of thematic interviews are that researcher can ask specifying and deepening questions based on participants answers (Tuomi, Sarajärvi 2018, p.88). Every interview in this study includes ten open answer question that are same for all participants and these questions are, if necessary, complemented with specifying follow up questions. These ten questions fall under three distinctive themes. First set of four questions deals with state of general supplier evaluation process in the company, while the next set of three questions aim to shade a light on how environmental sustainability as part SCM is viewed in company. The last set of three questions is aiming to discover the companies state-of-thinking about environmental sustainability in supplier evaluation, what factors have an effect on it, and how companies perceive role of the possible environment-related supplier evaluation criteria.

Design of the interview was constructed imitating the pyramid design of semi structured interviews presented in Wengraf's book about qualitative interviewing. This model is presented in the context of this thesis in Figure 3. The research starts with the research problem from which the main research question is formulated. In this thesis the main research question is divided into three sub-research questions each giving the perspective into main question. Sub-research questions give in turn basis for themes of the interview which are also linked in the proceeding of previous theory chapters. Finally, these interview themes naturally consist of several questions dissecting the matter further in order to find data suitable to form answers to main research question. (Wengraf 2001)

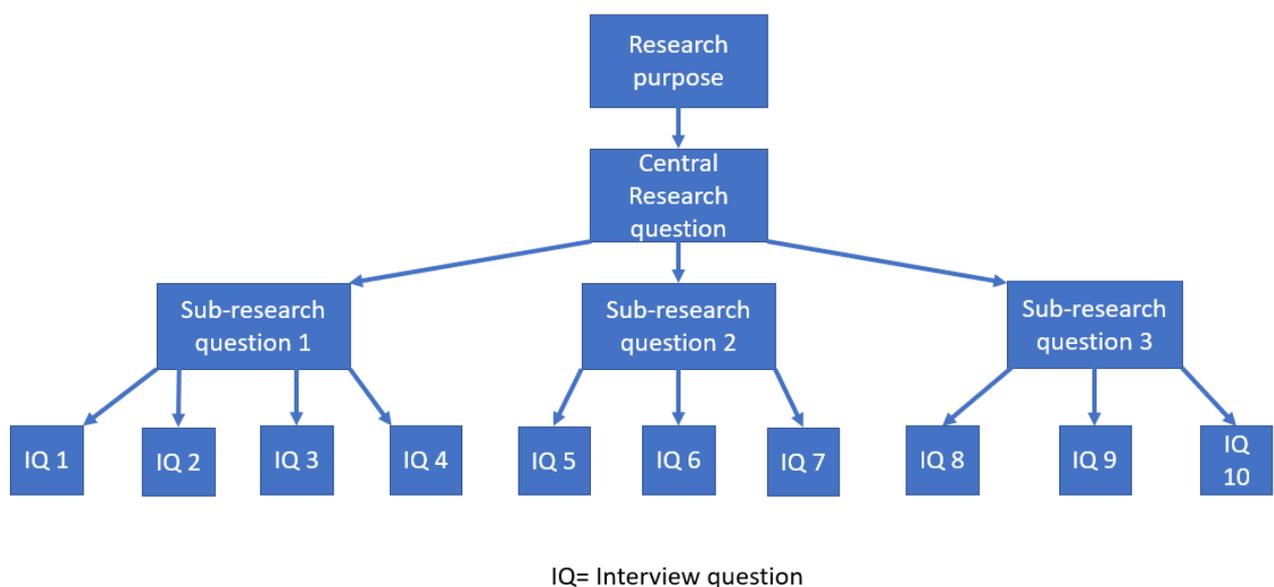


Figure 4. Pyramid model of this research (by Wengraf 2001)

Theme 1: Supplier evaluation

- 1.Q. Could you describe your company's supplier network?
- 2.Q. What are the main objectives of SCM in your company?
- 3.Q. What kind of supplier evaluation criteria and models you have in place?
- 4.Q. Could you describe how evaluation in practice is performed?

Theme 2: Environmental sustainability in SCM

- 5.Q. What kind of goals your company has for environmental sustainability?
- 6.Q. What kind of goals your company has set for SCM regarding environmental sustainability?
- 7.Q. How do you evaluate environmental sustainability of your suppliers?

Theme 3: Factors behind the environmental supplier evaluation

- 8.Q. Why is are you/ are you not evaluating environmental sustainability of your suppliers?
- 9.Q. What are the main goals of environment related evaluation criteria?
- 10.Q. What kind of aims you have for future development of evaluating environmental sustainability?

Figure 5. Interview questions.

Aim of analysing the answers is of course to single out key practices of company's supplier evaluation, but also important goal is to review those factors that have an effect for supplier evaluation and evaluate what kind of effect these factors have based on the answers given by participants. This will provide holistic picture about the role environmental sustainability in supplier evaluation of companies in question. In the words of Patton, analyses should turn data into findings (Patton 2015 p.521-522). Patton states also that there doesn't exist established rules how to perform this analysis but only recommendable methods that fit for some purposes (Patton 2015 p.521-522). Analysis in this thesis is foremost descriptive and interpreting, but goal in reviewing of the results is also to find possibilities to draw causal relationships by future research. The focus is on interpreting which means attaching significance on findings, drawing conclusions, considering meanings and offering explanations (Patton 2015 p.570). To this end, there is also argument to be made about substantive significance of these findings, which means determining how consistent these findings are with other knowledge and evidence and to what extent these findings are useful and to what extent they increase understanding about phenomenon (Patton 2015 p. 572-573). Finally, there are possibility to draw casual explanations. There exists some controversy about to whether it is possible to draw accurate causal relations with qualitative analyses, but Patton states in he's extensive book about qualitative studies that over the

past decades notion that this is impossible has been demonstrated to be wrong (Patton 2015 p.599-600).

In order to achieve aforementioned goals analytical approach of discourse analyses is applied in analysing process. Discourse analysis methods used to analyse data from these interviews has a deconstructive approach, aiming to understand meaning of the use of language and to categorise the nature of the discourse (Saunders et al. 2019 p.679). There is no single proper way to perform discourse analysis, instead of one and only formula discourse analyses can range from finely grained structured analyses to more abstract approaches (Saunders et al. 2019 p.679-681). In purpose of this research the unified analysis approach was adopted for all the interviews. In order achieve comprehensive picture about environmental factors on supplier evaluation process special attention is paid to expressions that the participants used to describe various factors possibly affecting role of environmental sustainability in both supplier evaluation process and in company general. To find out the meanings and categorizing the obtained data, the tools used in rhetorical discourse analyses are applied. Such a tools include reviewing the position taken by participant and evaluating rhetorical ways of the discourse like for example verifying with consensus or statements of experts, using categories, numerical and non-numerical quantifying or assuring with details and stories (Jokinen, Juhila, Suoninen 2016 p.337-359).

5. Empirical results

Interview questions were tailored to test the links of assumed in conceptual framework, which were presented in chapter 1.1. However very first question was aimed to underlie the specific context of company in question by asking about construct of their supplier network. Also, the last question was aimed to find out about possible future plans of company for whole process instead of the specific link or phase in that process. Below in Figure 5 the interview questions (IQ2-9) from second to ninth as well as all three sub-research questions (srq1-3) are presented in same conceptual framework that were in chapter 1.1. Connections presented in figure and their consistency with interview results are further discussed in following chapters. Table 1 contains some useful information about ownership and sizes of the companies in question which can be useful to keep in mind when reviewing the results of this study.



Figure 6: framework for empirical research

Table 1: Comparison between companies.

Company A. <ul style="list-style-type: none"> • Privately owned as part of the Baltic Magnum Corporations. • Turnover between 30 and 70 million €. • Operates solely on Finnish markets. 	Company B. <ul style="list-style-type: none"> • Publicly traded • Around 2700 employees. • Turnover between 300 and 400 million € from Finnish markets. • Over 40 percent market share in Sweden.
Company C. <ul style="list-style-type: none"> • Integration to large (privately owned) food Finnish company in process after recent acquisition. • Products delivered to over 15 countries (revenue mainly from Finland) • Over 170 employees. 	Company D. <ul style="list-style-type: none"> • Start-up in growth phase (privately owned). • Four regular employees. • Revenue mainly from Finnish market (probing also foreign markets).

5.1. Medical retailers: interviews 1 and 2

In retail sector supplier evaluation has recently become more critical as companies are integrating their logistic functions to enhance their competitive advantage (Keah, Lyman, Wisner 2002 p.1). In interviewing the two companies operating mainly in Finnish domestic medical and veterinary medicine and related product retail, the most striking factor was tightness of boundary conditions for operating in market. Because of the nature of these products, verifying quality of both products and logistics processes as well as ensuring suppliers and customers compliance with existing legislation are extremely important. In the following three sub-chapters answers of these two retailers are processed. Retailer A is little smaller company in terms of market share and employee number. Retailer B is larger and operates also in Swedish markets.

5.1.1. Supplier evaluation in medical retailers

As can be predicted, because both companies operate in the same segments, they both described their supplier network in somewhat similar way. Company A described that they have suppliers which products they have in distribution as well as what she called “stakeholder suppliers” like pest control, waste management, logistics providers.

“From us supplier networks can be found on medical companies’ side, whose products we have in distribution, then there are veterinary products suppliers, and then we have suppliers of different equipment used in health care. And then we do have stakeholder suppliers, there is pest control, waste management, logistics partners and similar.”

Company B on its part laid out first their organisation structure in which the purchasing is partly centralised activity and then counted different types of suppliers in its network.

Company B described first purchasing functions: *“Purchasing is in our company partly centralised so not in all purchases part”*

And then the supplier network: *“And with suppliers we have direct suppliers, some of which are our own trademark, these private label products, suppliers and others are suppliers of different brands providers that aren’t our own ones, as these responsibility and choice questions are in a way different kind in these. And then we have service providers as suppliers when we purchase it or support services or for example outsourced labour.”*

Supplier networks as companies themselves described those, already shed a light to possible differences between their practices. It is important to note that in a first sentence company A described itself as a “medical wholesaler” and proceeded to tell different product segments in distribution. Contrary to this company B told that it has different business activities as well as centralised activities and then made a difference between private label and other brands suppliers. Both also noted providers of services as a different category of suppliers.

When asked about the main goals of supply chain management both companies emphasized the efficiency and assurance of quality, even though their answers approached it from different points. Company A mentioned compliance with GDP-codes as high priority and company B in its part compliance code of conduct.

Company A tells about importance of maintaining as comprehensive, efficient and high-quality supply of products throughout the geographically diverse Finnish market. In addition, company also mentioned compliance with international medicine distribution GDP-code.

“Main goals are to ensure as comprehensive and as efficient and as high-quality distribution of medicines to whole width of country encompassing northern most parts and then Ahvenanmaa here in south as well. We invest into efficiency and

quality, in medicine distribution there is this GDP-legislation which bounds us in part of quality, so of course we take demands of GDP into account.”

Company B answered to the same question noting the importance of inventory rotation ratio, prices, compliance with code of conduct and telling that suppliers are regularly evaluated by auditing and SERVQUALs.

“If one thinks about it broadly for example inventory rotation ratio is one goal where suppliers are in central role. Then also there is bidding and price pressures, but we have just recently started to move towards centralised purchasing, so it is possible that there are some things with these going on that I am not aware of. One thing close to my position however is the fact that starting with private label suppliers all of our suppliers are going to have to sign our code of conduct which content previously were in bit and pieces inside different contracts but now it is in separate document. We do some auditing both these SERVQUAL like “paper auditing” as well as physical ones.”

Quality and compliance with different standards seemed the most important factors when moved from SCM goals to more specific criteria and methods of supplier evaluation and evaluation process based on these. Again, two companies approached quality from slightly different viewpoints. Company A talked about importance of GDP, medicine verification system FMD and different legislative requirements depending from products country of origin. Whereas company B emphasized ISO 9000 and 14000 standards for management systems and environmental sustainability respectively, company B also mentioned importance of verifying supplier’s adequate licences.

Company A: “Suppliers must deliver the products to us in accordance with different regulation, we monitor the temperature, we monitor humidity. We also monitor the deliverance time. Then there is also the fact that where these products are coming from, that is really strictly regulated from which country you can import medicines in which legislation. For example, EU area is subject to completely different standards than countries outside EU like Switzerland and Norway, and then there is all other countries like India and China.”

Company A continues with outlining the speciality of medicine industry: *“Things might be bit more complicated in medicine industry than for example some spare parts, because medicine factories and logistics are bound by the same GDP-standards than us.”*

Company A further states that vital criteria are monitored “*exactly all the time*” giving example that temperature-controlled transportation equipment are one thing subject to monitoring, company A notes that monitoring that and many other such things are obligated by Fimea, Finnish medicine and security field bureau.

Company B in its part describes evaluation based on ISO standards: “*Yea, so some of our suppliers are subject to little more specific quality criteria, so suppliers have to be able to prove that there are adequate management systems in background, meaning ISO certificates. There is environment 14000 and management systems 9000, those are traditional ones that we have set as requirements for our suppliers.*”

Company B tells further about other criteria: “*I’m focusing now more to the product suppliers, because there have to be specific licences, because some those products are consumable, so there are quite tightly specified quality standards. Then there are of course basic economic factors which are reviewed.*”

Company B gives quite strong emphasise into ISO standards as evaluation criteria which they are in process of applying into evaluation model. They also recognize the role of regulation in their field but seems to also more focused on voluntarily set criteria than just following compliance with mandatory one.

5.1.2. Sustainability in supplier evaluation in medical retail companies

Environmental sustainability seems to be priority for both companies as both participants told about it enthusiastically. Company A describes:

“*Yes, we have a lot, lot, lot, so we have to answer, so we have to answer today’s environment-side challenges, so appropriate environmental programs and ISO certificates are demanded.*”

Company A further notes the importance of evaluating the packaging materials, reusability of those materials and transportation method consideration. To achieve this participant said that these things are “*supervised and looked after that they are on appropriate level*”.

Company B in their part told that just in the midst of launching their new company wide carbon neutrality to 2030 goal, which according to participant is going to affect for example acquisition of transportation services. Participant describes that this goal is “*going to be reached to supply chain*” and talks further that:

“when talking about procurements for example large transportation service acquisitions- which we are not providing ourselves- so for example in that part there forms quite strong pressure to push emissions to zero in following eleven year”

Company B clearly states that there is process to derive the company level goals, most notably carbon neutrality 2030 goal, to supplier level. One of the main ways to accomplish this is criteria among which certificates seems to come out in top.

In the words of participant: *“And then about these other procurements (Transportation services being other), including product purchases, we have a precondition that company (meaning supplier) is environment certificated.”*

When asked about does certification mean ISO standards participant said they accept also similar other certificates.

Interestingly when asked about evaluation of suppliers environmental sustainability based on the company’s goals revealed that dynamic in the field they operate determines that large medicine companies whose medicine etc. company A is purchasing and supplying forward sets number of requirements to company A which in turn itself is supervising fulfilment of environmental sustainability criteria, among others, in logistics companies.

Company A: *“When we make contract with medical company (medical manufacturers), when it is beginning the distribution through us, there on the side of the medical company comes quite tight criteria to us that we have to follow certain environment program and act in certain way and then they audit us”.*

But in turn company A is evaluating logistic companies in terms of driver education, equipment and environmental matters among others. Company A states that evaluation in their field is *“doing thing crisscross”*.

Company B in their part seems to have a goal to integrate planning required by their carbon neutrality goal to their supply chain forming quite interesting requirement to suppliers, especially in purchased logistic services.

Participant explains using travelling services as example *“Exactly similarly our requirement and goal is that they are able tell us how clearly travelling of our personal creates carbon footprint and what we can do to minimise it”*. Participant also clearly states that this is just one example and explains: *“This (carbon neutrality goal) is brand new thing and there are many factors contributing to it”*

Company A seems implicitly indicate in their field of operation most of the environmental standards are given and that the room for deviating from them doesn't exist. However, company A raises the importance of transparent reporting and states that it is important for better serving the wide variety of medical companies. They also note that environmental criteria are integrated into larger entities and that they aren't separated in logistics field.

Company A: *"...those are integrated into general functions and are solid part them and are followed similar way than other thing. Especially in Finland."*

Company B tells that current pressure from investors and end-consumers as well as management general state of mind seems to be in favour of more diligent approach towards environmental sustainability, carbon neutrality goal for example came originally from investors. Company B tells further:

"... I wouldn't say we are doing these things (regarding environmental sustainability) because we are demanded to it, but it also coming from just the company itself."

What is more, participant from company B tells that she believes that the environmental considerations are becoming more and more as standard expectations in reviewing business partners. She tells that mentality in Sweden is already towards that way of thinking and predicts that in future environmental considerations are *"hygienic factors"* and carbon neutrality plans becomes *"business as usual"* and also that carbon footprint reporting becomes more standardised.

5.1.3 Discourses from interviews with medical retailers: regulation and power dynamics

When contemplating about themes that were conveyed almost throughout interview both interviews had different such a subject. In case of company A, many answers were in touch with regulation surrounding business field and power dynamics of supply chain where medical manufacturers are large compared to downstream retailers and logistic companies. In the word's participant from company A:

"Medical factories and logistics companies are bound by the same GDP-legislation that is bounding us, so in medical sector there are certain own distribution things which are followed bot towards supplier's side and also towards consumers."

Interview from company A forms a picture that whole supply chain is commonly responsible to fulfilment of GDP and other legislation. However, dynamic talked about Seuring and Muller as well as Kothandaraman and Wilson seems to be present in the case of company A, where there is a focal company or “leader” of supply chain who passes the potential pressure through its partner companies and manages supply chain network (Seuring, Muller 2008 and Kothandaraman, Wilson 2001). These “leaders” being medical companies.

Approach coming across from interview with company A seemed to be akin to the green purchasing practices described by Lysons and Farrington which aims to facilitate resource reduction and recycling among other things, and which calls for environmental purchasing policy (Lysons, Farrington 2008). This seemed more corresponding than integrated sustainable supply chain management like Srivastavas green supply chain management which calls for integration of green component to all supply chain activities from preliminary design to recycling (Srivastava 2007).

Company B eagerly presented an ambitious plan for carbon emission reduction and aims for passing down the carbon footprint of its operations through its supplier relations. It is important to note that company B is a larger company so it can be speculated that it is therefore more able to take more integrative approach toward its partnerships. Also, code of conduct, ISO certifications and carbon reduction roadmaps as requirements and auditing of suppliers were mentioned by participant from company B, instead just ISO certifications were mentioned by participant from company A. It looks based on these samples that better position in market (in terms of market share) has given it more opportunities to be initiative, it seems also be willing to use that position drive goals and standards of environmental sustainability through supply chain. Though it doesn't mean that whole supply chain starting from product design is considered and managed like Srivastavas description of ideal green supply chain management (Srivastava 2007). It, however, seems that company B is using some of the strategies presented by Bocken et al. (2014) to achieve both environmental and economic goals simultaneously and to prepare for future where according to participant environmental considerations are common and expected practice. These strategies include probably substituting non-renewable resources with renewable ones, adopting stewardship role in regard of climate change (as carbon neutrality goal seems to indicate) and developing new solution, maybe even with scale-up possibilities, with key partners (Bocken et al. 2014). These are examples of strategies that would together

form a comprehensive economic, social and organisational response to future challenges (Bocken et al. 2014).

Both participants seem to also present the environmental goals well integrated into goals of supplier evaluation and to evaluation criteria itself, so the strategic process described in conceptual framework can thought to be in paper well established. Most notable difference comes instead from the company's position in power dynamics of its value network, and tight regulation in medical industry plays also its role.

5.2. Food and drinks companies: Interviews 3 and 4

In third and fourth interview two companies providing eatables were interviewed. Both these companies own their specific brands are responsible of organising manufacturing, sourcing raw materials and supplying products to retailers. Company C is focusing on providing cooking products, drinks and snacks with strong brands focusing responsibility and Finnish origins. In relatively recently this company was acquired by larger Finnish foodstuff company, but it operates still independently, and its products are served now in over 15 countries. Company D on the other hand is small start-up company focusing solely on producing blueberry soda. Company D operates mainly in Finnish domestic markets but is recently ventured to probing demand in Chinese market.

5.2.1 Supplier evaluation in food and drinks companies

Company C explains that their suppliers can be classified into raw materials providers and packaging material materials providers. Participant said that they have

"...long list of raw material providers but relatively few packaging material providers, when we are aiming to concentrate our purchases into one, two, three larger suppliers."

Participant also said they are concentrating into Finnish suppliers as participant described

"... our procurement organisation is basically just me and international suppliers need so much more work"

Company D in their part explains that brewery purchases roughly half of their raw materials and company itself is purchasing key raw materials including blueberry, citron acid and lime juice.

“In some key purchases we do have few different suppliers to ensure reliability of delivery”

Company C has set clear triple goal for supply chain management, it is to ensure quality, reliability of delivery and competitive price.

“Well there are three elements where we cannot bargain, first becomes quality, from quality cannot be bargained, then comes reliability of delivery and then comes the price, there are the three pillars which in this field have to be in shape in order to get far.”

Company D has similar approach, though participant links quality and reliability in some degree different way compared to company C.

Participant: *“In my opinion absolutely the most important thing in supply chain management is that suppliers are providing us good and stable quality reliably. Of course, the price got to be reasonable too.”* He continues further: *“In my opinion quality and specifically steady level of quality are essentials, that there comes always products that have the same good quality, because we have the specific slot to make our product and when there comes for example spoiled materials, everything has to be moved. It is something that just cannot happen.”*

When asked about criteria and evaluation models and how the evaluation is executed, company C presented clear practice of evaluating suppliers before they started relationship as well as yearly bases. Participant explained that some of this evaluation are required by company's certificates and is key part of risk management.

“There are all kinds of questions we are asking there are about total sales, responsibilities, what certificates they have, and others like that, about quality systems, and others like that. Then we go it through. Then we have separately defined in our own quality handbook that what raw materials packaging materials are mandatory to audit and also how often this auditing has to be made.”

In addition, participant from company C told that they are making yearly evaluations about suppliers regarding their practices, quality service, communication, their financial standing, and “food pro” food forgery prevention criteria. Participant describes the evaluation process further:

“Yea, we are making these yearly to every supplier, and they are given point scores, and if these scores are too low, then this supplier so to speak goes into black list, into special supervision, and we are starting to make closer cooperation with them, visiting their factories to ensure that these things are getting into order and so forth. Luckily no supplier has ever gotten into black list, of course, time to time there are challenges in reliability of delivery but that is part of the game and going to through things also in case by case.”

According to participant company D in their part is also asking their suppliers to present certificates and laboratory results and references as assurance of good quality. He also said financial information checked, but above all he highlights significance of trust. Participant: *“...and naturally we negotiate, probing how they feel like, are we able to trust them, trust is in my opinion in key position addition to contracts in relationship.”*

Participant from company D further explains that the evaluation process is depended on supplier. They have also made strategic decision to use only Finnish blueberries as their key raw material which according to participant somewhat limits their supplier options. Participant: *“We are observing the criteria as one integrity, aim is to make sure that raw materials are adequate to our use.”*

5.1.2 Sustainability in supplier evaluation in food and drinks companies

Company C indicates that it is moving toward more sustainable practices. Participant tells that some of the responsibilities comes with the quality systems and that ecological pressures are necessitating that sustainability is taken into account. Participant is explaining with more detail:

“There exists ecological pressure to move to use more ecological packaging materials. We have many projects going on where we are starting to use ecological and to forgo using unecological ones. Along possibilities we are also trying to avoid sourcing from Asia, because the carbon footprint is larger with these purchase”

He still further adds that company still needs some raw materials that are difficult to attain from Europe.

Participant from company D highlights responsibility as major strategic goal for company is key competitive element, especially when aiming to Chinese markets. Sourcing of blueberries is corner stone of this strategy.

Participant explains: *“...we want to highlight that our blueberries come directly from Nordic forests they are not cultivated, they are not fertilized, they are not industrially grown.”*

Company C usually addresses environmental goals as part of its quality aims, which it regards as their highest priority, in supply chain management.

Participant stated: *“Exactly we take environmental considerations into account in quality pillar of our supply management aims and standards, and also human rights questions for that matter, I must say.”*

Then when asked about specific environment related criteria participant stated that they require certificates specifying responsible production on special risk products like palm oil and cocoa.

He continued further: *“...and when talking about environments point of view, there are specific lands, we have this risk countries list, which we use when evaluating raw materials country of origin and along with possibilities avoid purchases originating from risk countries.”*

Company D also said that it integrates the environmental goals to its supply chain management aims.

When asked about what goals supply chain management has regarding environment, participant answered: *“Well, of course we are discussing a lot with importer about our key sales arguments, when market changes those arguments might change too and he(importer) has his own knowledge about it.”*

This answer didn't reveal any clear milestone objectives, but about context it became clear that the participant was describing that company has clear mission around responsibility which leans into origins of their key raw materials, and in order to achieve that they are aiming to build trust and develop mutually beneficial discussion with their key partners.

For following question about how company D evaluates environmental sustainability participant gave following answer:

“ Discussion and trust building are on the centre, yes we sometimes hold a little meetings with suppliers and we can go through most central things, maybe not for some raw materials that aren't so essential to us, but we sometimes take an opening conversation, same with the importers and manufacturers and discuss about how things are going, can we do some things better, and do they have somethings to develop.”

He further states that certificates have also role on evaluating environmental sustainability, and he explains that they are checked when some raw material are purchased first time and in some other cases, for example when brewery requires them to present those to them.

When asked about why they evaluate environmental sustainability and on what goals, company C described that nowadays many things effect on company's environmental goals. Participant raised on the other hand company's own long-term roadmap and on the other hand opportunities that are rising when suppliers of different raw materials have to answer the environmental pressures by developing new more environmentally friendly raw materials.

“Well there are many things, of course there are company's long-term goals set that what is required to be in year 2024 for example. But I would say that it directs when new packaging materials and raw materials are developing, which one can replace the old materials. So, from that way comes also, when packaging and raw material suppliers have to answer these pressures without our separate asking.”

Company D answered the same questions in slightly different way. Participant gave notion that responsibility is well integrated into whole business idea of the company:

“One reason why blueberry has been selected in our raw material, is that Finnish forests are full of blueberries, majority of which are left unpicked, and I myself feel like it is very responsible action to use these as raw materials.

Company's integral seems to be fulfilling of its sales arguments, participant describes situation in following way:

“Yes, and that it is pure, pure and real, and Finnish forest are one least polluted in the earth, there aren't better place to source these raw materials from.”

Last question for both companies dealt with their future plans for supplier evaluation and environmental sustainability as part of it. Company C answered to this question by indicating that it is planning to focus to develop their three supply management pillars of quality, reliability of delivery and price. Participant also noted that recent integration with larger company is in progress also within the procurement department. However, participant still noted:

“The main points are connected to what I said earlier, all the time toward more responsible direction, trying to decrease those carbon footprints, but still all the time remembering that we cannot bargain from the quality.”

Company D explained its future aims regarding same subjects by telling that they are constantly tendering out price and aiming to improve reliability of delivery, matter in which according to participant they have had problems time to time. Participant explained strategy for ensuring reliability:

“...we are striving to gather good broad set of suppliers that are able to deliver when needed and getting out of situations where we have maybe just one or two possible suppliers, of course Finnish blueberries as a raw material is so specific that this can be a challenging aim, this is one reason why we are choosing to build conversation and trust with our suppliers.”

5.2.3. Discourses from interviews: responsibility as part of quality and supply chain strategies

Thing that clearest stood out of these two interviews was that their most important goal in supply chain management was ensuring and developing good quality products and that responsibility in environmental affairs was seen as part of good quality. Both participants also highlighted reliability as their major goal, company C regarded it as their second highest priority after quality, and company D regarded quality and reliability of delivery as inter-related because of nature of their operations.

Environmental responsibility was clearly seen as part of product quality, this was explicitly stated by participant from company C. Also, from arguments of participant from company D, it became clear that environmental responsibility was linked to core of their business idea of using pure, renewable and natural raw materials and therefore it is also centre piece of their operations from purchasing to sales arguments.

Company C presented clearest supplier evaluation model of all interviewed companies in this thesis. Many things that company C considered were in line in Carters and Rays theory about seven Cs of supplier evaluation and even communication and environmental affairs from Lysons and Farringtons three extra Cs were mentioned as things that were considered (Carter, Ray 1995 p.44 and Lysons, Farrington 2008 p.668-669). Based on these theories I think it's fair to say that company C presented holistic supplier evaluation model (Carter, Ray 1995 p.44). Company C also evaluated suppliers based on a score method which could help with measurability and communicability of performance expectations or KPIs (Gordon 2018 p.27, 83-86). It is also interesting to

note that it is only company interviewed in this study that has presented model to classify raw materials and countries of origins into risk groups regarding environmental sustainability. Company C seems committed to improving the most critical factors quality, price and delivery, but especially when it regards quality in relatively wide terms, it could benefit from taking some more factors presented by Khan and Yu (2019 p.64-65) into precise consideration, foremost total quality management (TQM) and research and development functions (Khan, Yu 2019 p.64-65). This could help it to identify and seize opportunities arising from new materials developed by companies downstream in supply chain. In sustainable supply chain managements point of view of company Cs policy seem to be in line with Srivastava's description about green supply chain management (GrSCM), as Company C strives to reduce ecological impact of its purchases without compromising quality, reliability or competitive costs (Srivastava 2007 p.54-69). Company Cs supplier evaluation system seems to also have similarities with Lysons and Farringtons (2008) steps of implementing green purchasing policy, though education of suppliers and personal, and life cycle assessment were not mentioned (Lysons, Farrington 2008 p.668-669).

Company D, smaller of the two, is according to participant aiming to fast growth. It presented clear strategy and supply chain which clearly contributing to that, so following Seghal's (2011) notion it has been to this date been successful on optimizing its supply chain decision in accordance with its strategy (Seghal 2011). Focus of the supply chain management is heavily concentrated to two criteria that according to Sanders (2012) makes supply chain competitive those are reliability, meaning reducing uncertainty through "visibility" and relationship management, especially building trust through communication (Sanders 2012). Final criteria mentioned by Sanders (2012) responsiveness didn't get so much attention (Sanders 2012). In point of view of environmental consideration company seem to have adapted well both one economic and one social of Bockens, Shorts, Ranas and Evanses archetypal strategies (Bocken, Short, Rana Evans, 2014 p.47-54). Company is substituting damaging practices of traditional soda with natural and renewable processes by sourcing directly from nature itself and encouraging sufficiency through educating consumers with their marketing communication (Bocken, Short, Rana, Evans 2014 p.47-54).

Both participants seem to also present the environmental goals well integrated into goals of supplier evaluation and to evaluation criteria itself, so the strategic process

described in conceptual framework can thought to be in paper well established. Though this strategic process itself was strikingly different between companies.

5.3. Differences and similarities between industries

It can be noted that also both companies from food and drinks industry raised standards as important tool for ensuring quality and reliability of suppliers, though standards didn't seem to have as central role in partnerships than in medical retail industry. Even though naturally food and drinks industry have its own regulatory demands, those were barely mentioned as a side note by participants from companies C and D, making heavy contrast with answers of participants from companies A and D. This gave impression that companies in this industry are freer and more willing to compete with the quality, whereas companies from medical retail industry seem to be thinking quality more as given and facilitated by standards and regulation. Instead they emphasized reliability of delivery as their competitive advantage, this of course might be affected by the fact that retailers are located in downstream of their supply chains.

Whereas environmental sustainability was viewed as part of quality in food and drinks companies, it was regarded as somewhat more separate thing by companies in medical retail industry where large part of environmental policy is reducing carbon emissions of transportation.

One notion that seemed to be similar in all interviews, was that there was no such question whether to consider environmental impacts in supplier evaluation and related decision making or not. Like participant from company B was pondering, all interviews gave impression that environmental considerations are already business as usual in Finnish companies and that environmental sustainability is indeed one decision making criteria. Furthermore, they also gave impression that prevalence of ISO 1400 and other environmental standards are part of this generalising of environmental considerations in supplier evaluation.

6. Conclusions

After reviewing the empirical results and looking into existing literature and research about the subjects, it can be argued that environmental sustainability seems to indeed have a role in supplier evaluation, but that role varies across industries and even across individual companies. Based on the sample of this research, medical retailer's environmental policies and supplier evaluation seem to be more similar with each other's than food and drinks companies.

Criteria, methods and processes behind supplier evaluation seem to be as varying as different suggestions in subject's literature were. No consistent paradigm or process were found. Theories presented by authors like Gordon, Lysons and Farrington, and Khan and Yu which state that most important factors for purchaser are quality, price or costs and reliability of delivery (sometimes called as time), were in-line with answers given by food and drinks companies. Standards like ISO 1400 and ISO 900, licences, and proof of compliance with different legislative requirements were preconditioning criteria for suppliers in companies in medical retail industry, where otherwise reliability of delivery seem to be most prominent goal of supplier relationships. Weighted score methods and auditing were use in companies B and C, but company D relied heavily on discussion and relationship building as methods to ensure that mutual value was created. Company A seem to be focusing ensuring its medical products providers fulfilled requirements of different standards and itself focused on auditing and evaluating transportation companies and other providers of outsourced functions.

Environmental goals of medical retailers seemed to focus mostly on reducing environmental impact of their own operations, which in practice means that those goals influence most of all evaluation of providers of transportation and other outsourced services. They do not seem to be focussed on evaluating in-coming medical products, although company A said they do take environmental impacts of packaging materials and freight method into consideration. Interviews gave indication that reasons for this might be negotiation power of the medical companies as well as the fact that environmental standards are incorporated into wider sets of standards that in medical retail business are tying the whole supply chain. However, in the food and drinks companies,

who seemed to compete also with environmental sustainability, environmental sustainability was seen as part of quality which was their highest priority in supplier relationships guiding their sourcing decisions. In the other words they seem to regard environmental sustainability as one side of high quality, so in both companies C and D environmental sustainability was seen as one of the evaluation targets of incoming products and materials.

Like previously mentioned many environmental considerations are incorporated into sets of standards that are then used as criteria to choose appropriate suppliers and those effects are especially strong in medical retail industry. Other ways to incorporate environmental sustainability into specific supplier evaluation criteria, methods and processes that emerged from interviews with medical retailers were requiring suppliers to participate discussions about how to reduce carbon footprint, making signing of code conduct as mandatory requirement of partnership and taking impact of freight and packaging material as part of the evaluation process. Also, existence of environmental program was mentioned as criteria by company A, although as a medical companies' requirement for company A. In food and drinks industry company C approaches the incorporation of environmental sustainability into criteria, methods and processes by evaluating certain risk groups including risk countries pointed out in their handbook as well as risk raw materials, applying special attention to risk raw materials and avoiding risk countries. Company C also indicated that it has included environmental responsibilities in its weighted score evaluation method. In case of company D conclusion can be made that as the sourcing of its raw materials from nature is in core of business idea, it is already itself one excluding criteria for suppliers. Otherwise, as it aims to discursive relationship with its main partners, it doesn't have such rigorous evaluation process in place.

What is more, notably any of the interviewed companies didn't mentioned environmental management systems (EMS) or life cycle-assessment. Likewise, policies regarding toxic or hazardous materials and waste weren't mentioned by any of the participants, instead most answers were focused on addressing carbon emissions. This could be due to climate policies prominent role in public discussion or because these companies may consider inclusion of avoiding those as a self-evident practice. Also, there were no concrete example about Seurings and Müllers theory that SSCM in the level of supplier evaluation necessitates taking into account greater part of supply chain because of wider set of objectives. What is more, notions like the one made by Gimenez

et al. (2012) that companies can make financial gains engaging multiple objectives of TBL seemed to be at least partly contained in answers made by participants from companies C and D as they emphasised environmental sustainability's role in competitive strategy of company.

To conclusion, it can be said that environmental sustainability seems indeed to be prominent factor when companies evaluate their key partners. Most prominent of all environmental factors seems to be carbon pollution minimising. All companies of the research approached this subject from different points and used different evaluation methods. From this thesis different examples of different approaches can be seen from ambitious future roadmap of company B to central pillar of business idea of company D. Given the similar goals regarding carbon reduction and altogether different approaches of companies, appropriate next question would be that which of the companies are the most successful of reducing carbon emissions in their supply chains.

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