How to achieve a strategic sustainable supply chain management (SSCM)?

A case study of Swedish Global Enterprise in Wire and Cable Industry — Habia Cable

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Abstract

The concept of sustainability has become a buzzword in today’s business marketplace. Particularly, the incorporation of sustainability into Supply Chain Management (SCM) has received a great deal of attention from companies of all sizes and even involved a wide range of industries in recent years. Meanwhile, Sustainable Supply Chain Management (SSCM) has been highlighted by academic and corporations. With SSCM, more enterprises have benefited from being sustainable in their daily operations. Although research has made contributions, there is still a lack of understanding on how to achieve sustainable development in SCM. Therefore, the overall purpose of this research is to find out the key success factors for implementing the strategic SSCM. To achieve this target, it is necessary to identify appropriate indicators to measure the sustainable activities and figure out the relationship that combined social and environmental dimensions with supply chain activities. This research focused on Swedish global company. Both summaries of literature review and findings of the case company were analyzed to satisfy the research purpose, as a result, definition of sustainability, implementations in SSCM, and the relationship between sustainability and SCM that are based on the actual situations of the case company were presented. After that, five key success factors for implementing the strategic SSCM have been concluded: (1) SSCM needs to be ensured as a strategy within long-term consideration; (2) Standard management system needs to be complied with daily operations; (3) Communication with stakeholders needs to be increased in the supply chain; (4) Respect for human rights, and provide safety working environment; (5) Control resources usage and reduce negative emission to the environment. Accomplish of this research, on the one hand, it clarified the relationship between sustainability and SCM; on the other hand, it also deepened knowledge about how to achieve a strategic SSCM based on an empirical study in wire and cable manufacturing industry.

Keywords: Sustainability, SCM (SCM), Relationship, Corporate Social Responsibility (CSR), Sustainable SCM (SSCM)
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1. Introduction

In recent years, sustainability has become a buzzword in today’s business marketplace. There are a number of drivers to promote the development of sustainability, for instance increased consciousness relating to climate change, supply and demand characteristics in energy consumption, and greater transparency concerning both the environmental and social perspectives of actions in organizations (Carter and Easton, 2011). The term of sustainability, which refers to the integration of social, environmental, and economic responsibilities, has involved both management and operations of companies. In addition, the topic of Supply Chain Management (SCM) has attracted many practitioners and scholars to research and investigate. In order to ensure the competitiveness of supply chains, outsourcing has become an integral part of SCM in a physically distributed enterprise environment (Ageron et al., 2011).

Meanwhile, the incorporation of sustainability into SCM has been highlighted by both industrial and academic communities (Po’voa, 2009). Thus, it has received a great deal of attention from companies of all sizes and even involved a wide range of industries (Seuring et al., 2008). Based on the concept of Sustainable Supply Chain Management (SSCM), more companies have benefited from trying to be sustainable in their practices. However, there are still many challenges for implementing sustainable practices, and many of these are raising more questions than answers (Linton et al., 2007). With the concept of SSCM, the research literature has clearly illustrated that supply chains must be managed to achieve higher economic returns to its members (Power, 2005). Nevertheless, all stakeholders cannot achieve satisfactory solutions because economic objectives cannot be detached from the environmental and social dimensions (Markley and Davis, 2007; Seuring and Müller, 2008). Moreover, recent studies showed evidence that the implementations of SSCM can lead to commercial success (Zaillani et al., 2012). However, several studies still mentioned that the social aspect of sustainability has been often ignored in existing researches and practices (Beske, 2012). What is more, most
Journals are primarily focusing on environmental dimensions (Seuring et al., 2008). Besides that, the environmental practices and principles were discussed well than social dimension from literature reviewed in recent years (Ashby et al., 2012). Consequently, there is a need to go beyond the environmental dimensions of supply chains or to integrate environmental principles within Corporate Social Responsibility (CSR) focus of the whole supply chains.

Furthermore, the definition of sustainability results in a difficult task to create benefits to satisfy present needs while practices sustainable activities to reduce possible impacts on the lives of future generations (WCED, 1987). Beyond economic considerations, challenges related to sustainability and SCM should be reconsidered in a way which people understand and implement sustainable practices with only limited knowledge, experiences and tools (Zhu et al., 2008a; 2008b). Most of the companies have not implemented SSCM practices (Zhihong and Joseph, 2013). In addition, even some companies have adopted a certain level of commitment into sustainable activities; however, other companies are still hesitant do that. The common trait between these companies is that there is no a common standard for evaluating sustainability initiatives (Searcy et al., 2009; Tweed, 2010). What is more, some studies emphasized that there are existing incompatibilities between the known principles of sustainability indicators and supply chain dynamics (Hassini et al., 2012).

After that, there is a need to investigate the topic about how to achieve the sustainable performance in SCM. Thus, this study explored a case company in an emerging economy and focused on both sustainability and SSCM in both conceptual and practical perspectives, relating the incorporation of sustainability into SCM system. There is no doubt that, it is very significant and necessary to deepen the understanding about how to achieve a strategic SSCM for organizations, especially under current situations of increasing competitive marketplace and complex industrial area.
1.1 Purpose and Research Questions

The overall purpose of this thesis is to find out the key success factors for implementing the strategic SSCM. In order to achieve this target, there is a need to identify appropriate indicators to measure the sustainable activities in the supply chain, and figure out the relationship that combined social and environmental dimensions with supply chain activities to understand how to achieve the goal of sustainability. This research is compared with an in-depth view to referencing a Swedish global enterprise – Habia Cable, which is one of Europe’s leading wire and cable manufacturers that focuses on the importance of SCM and practices CSR for many years. Importantly, the concept of sustainability has been effectively integrated into the performance of SCM in Habia Cable’s daily operations. These natural elements such as environmental responsibility, social responsibility and a high level business ethics are concerned to gain sustainable development and also regarded as a long-term strategy in Habia Cable. Because of the rich experiences, Habia Cable can be deemed as a case to investigate about how to achieve a strategic SSCM in the area of wire and cable industry. Following research questions have been formulated in helping to achieve aforementioned purpose:

1. How can the sustainability concept be defined and applied into SCM in Habia Cable?
2. How to evaluate the relationship between sustainability and SCM for Habia Cable?
3. What are the key success factors for implementing a strategic SSCM in wire and cable industry?

1.2 Outline Structure

This thesis is organized as follows:

Section 1: Introduction
This section is a general introduction that provides background information about the driving factors to promote the sustainability concept. It has received a great deal of
attention from companies and emphasized the importance of integration of sustainability into SCM. Later, the research purpose and research questions of this study were mentioned.

Section 2: Review of Related Literature
This section gives a brief literature review on the current practices of SSCM. In order to satisfy research questions in this study, literature related to the definitions and indicators of sustainability, stakeholder management, material management in SCM, and relationship between sustainability and SCM have been reviewed and summarized.

Section 3: Research Methods
This section introduces and explains the research methodology in details. Based on the research purpose and the nature of this thesis, case study was selected as research strategy and the qualitative methods has been used to analyze this research. The process of data collection and data analysis were described. Especially, reliability and validity of the research methods also have been mentioned.

Section 4: Findings of Case Study
This section firstly introduces background information of the case company that is based on official-website on the internet. Secondly, the stakeholder groups and how to work with CSR in case of the company were presented. Moreover, implementations of SSCM were described through generating both quantitative and qualitative data according to face-to-face, phone and e-mail interview with managers, engineer in the case company. At last, a summary relating to the findings of the case study was presented to review sustainable activities in the case company.

Section 5: Analysis/Discussion
In this section, each research question in this study will be answered in details. Thus, in order to explore how to achieve the strategic SSCM in a systemic way, both literature reviewed and previous findings of the case study were recalled to define the
incorporations of sustainability into SCM and evaluate the relationship between sustainability and SCM from environmental and social dimensions that are based on the case company. After that, key success factors for implementing strategic SSCM based on aforementioned discussions will be illustrated.

Section 6: Conclusions
This section concludes the final observations of this research. It mainly responds the definition of sustainability, list the specific implementations in SSCM, presented a relationship between sustainability and SCM that are based on empirical study of the case company. Consequently, the key success factors have been summarized in general. Following, contribution, limitation of the research, further studies were also mentioned.
2. Review of Related Literature

The essential objective for a company is making maximum profit for the company and related stakeholders, but with the development of globalization and international business implementation, the concept of sustainability has become more and more indispensable for organizations (Zhihong and Joseph, 2013). Some indicators describe implementing sustainability into the supply chain, and the stakeholder is an important component to achieve sustainable development. Consequently, purpose of this research is to find out the key success factors for implementing the strategic SSCM, through identifying appropriate indicators to measure the sustainable activities and figuring out the relationship that combined social and environmental dimensions with supply chain activities to understand how to achieve the goal of sustainability.

In the last decade, many firms have already practiced the concept of sustainability into the SCM. Therefore, such management can be called as SSCM which is a strategic, transparent integration and achievement of an organization’s social, environmental, and economic goals (Carter and Rogers, 2008). SSCM is generated from Social-SCM and Environmental-SCM that associated with financial performance in one organization (Zhihong and Joseph, 2013). The aim of this section is to understand how sustainability to be defined and applied into SCM, and focus on the relationship of the framework in SSCM. Three objectives come up that are based on the purpose of this research:

1. Introduce the definition of SSCM
2. Discover a theoretical framework that how to define sustainability and apply sustainability into SCM
3. Evaluate theories and findings of the relationship between sustainability-SCM

The review in this section firstly gave readers a background of the concept SSCM to answer objective 1 and provided a model comprising three dimensions that are based
on the concept of sustainability to achieve the long-term strategy. The objective 2 can be addressed by providing a theoretical framework, which described the definition of sustainability, indicators of sustainability, stakeholder management, and push- and pull-based materials management in SSCM. It can describe how the case company defines sustainability and apply sustainability concept into SCM. The last objective can be answered through identifying both objective 1 and 2 in this research. Thereafter, it offered readers to get an in-depth insight regarding social, environment and economic performance in the whole SCM context.

2.1 Methods of Literature Reviewed

Considering about the nature of this study and research strategy, lots of relevant articles have been read by authors to gain some knowledge from the course “Strategic Sustainable Management”. Therefore, it is helpful to understand the concept of sustainability in SCM initially. Consequently, this section was made through reviewing intense researches within well knowledgeable about the topic that related to SSCM. The relevant literature were searched by authors from internet databases, like Google Scholar, Emerald, and Science Direct. These articles have brought a thorough understanding of SSCM and key aspects. Identifying the concept SSCM can help to recognize the definition, and understand what are the key elements or factors in SSCM, what are the benefits, and how it can be useful.

In the section of the theoretical framework, we reviewed relevant literature and summarized the important and trustworthy information from the researches that performed on the qualitative analysis. Hence, it is necessary to pursue specific results although articles containing information about SSCM are easy to come across since this strategy is implementing commonly in many firms to achieve long-term profitable development. In addition, we also described earlier scientific articles related to the social dimension of sustainability and environmental dimension of sustainability based
on a conference, then brought key points that were used during the study in a scientific way to give a full understanding on this relationship.

2.2 Introduction of SSCM

The concept of SSCM has emerged as a global trend in recent years. Mentzer et al. (2002, p.18) have described SCM as, “the systemic, strategic coordination of the traditional business functions and the tactics across these business functions within a particular company and across businesses within the supply chain, for the purposes of improving the long-term performance of the individual companies and the supply chain as a whole.” Moreover, according to Lambert et al. (2006, p.2), SCM is “the integration of key business processes from end-user through original suppliers, that provides products, services, and information that add value for customers and other stakeholders.” Furthermore, Christopher (2011) stated that SCM can be defined as “the management of upstream and downstream relationships with both suppliers and customers in order to deliver superior value at fewer costs into the entire supply chain.” In addition, sustainability has become a buzzword in today’s business world. Based on these prominent and complementary definitions of SCM, Carter and Rogers (2008) started to focus on the framework comprising the concepts of both sustainability and SCM, and thus defined SSCM as the strategic, transparent integration and achievement of an organization’s social, environmental, and economic goals. Moreover, they also claimed that SSCM could help to improve the long-term economic performance of the individual company and its supply chain in the systemic coordination of business processes. Thereafter, Carter and Rogers (2008) have proposed a framework of SSCM, which is based on the triple bottom line and four different supporting categories of sustainability that included risk management, transparency, strategy and organizational culture (see Figure 1).
Obviously, both the social and environmental perspectives of SSCM must depend on the conscious of economic goals of the organizations. In particular, Carter and Rogers (2008) have explained that the term “Good?” in the SSCM framework which means that the intersection of social and environmental but ignores the economic perspective of the triple bottom line. What is more, they also suggested that there is no necessary to force organizations to undertake social and environmental goals relating to the supply chain. In fact, Porter and Kramer (2002) claimed that implementing SSCM should consider within the broader context of an organization’s strategic and financial objective to achieve the social responsible goal.

In addition, meeting the requirements of social and environmental initiatives for companies to launch their business are a costly undertaking. For instance, Walley and Whitehead (1994, p. 46) have emphasized that it would be a costly and complicated proposition for managers when responding to environmental challenges, and the “win-win” relationships between economic and environmental perspectives are very rare for
a company. According to a similar argument by Colby et al. (1995, p.135), they highlighted that organizations could deal with the easy problems, but the remaining difficult challenges are becoming increasingly expensive for them to resolve. Porter and van der Linde (1995) stated that focusing on the practices of the company relating to the reactive governmental regulation would also result in increased costs for business. However, Clarke (1994, p.37) argued against the view of Walley and Whitehead (1994, p. 46) that it is necessary to put forward a broader approach to offer opportunity financially as well as ecologically that focuses on basic changes in product, service, and business strategies. Moreover, it also could be helpful to become greater transparency for stakeholders that allow to see further along the organizations’ supply chain. Thereafter, Carter and Rogers (2008) have concluded that there are environmental and social supply chain activities that lie at the intersection with the economic bottom line which can be deemed as sustainable practices. Consequently, it would result in potential economic advantages for organizations that include as follows:

1. Saved costs are resulting from reduced packaging waste (Mollenkopf et al., 2005) and the ability to design for reuse and disassembly (Christmann, 2000; Hart, 1995).
2. Reduced health and safety costs, and lower recruitment and labor turnover costs due to safer warehousing, more effective transportation and better working conditions (Brown, 1996; Carter et al., 2007).
3. Lower labor costs due to better working conditions which can increase motivation and productivity, and increase the attendance of supply chain personnel (Holmes et al., 1996; McElroy et al., 1993).
4. A difficult-to-replicate competitive advantage for companies and their suppliers, and proactively shaping the future regulation— companies address environmental and social concerns proactively into their existing production and processes which can impact on government regulation (Carter and Dresner, 2001)
5. Shorter lead times, better product quality and reduced costs resulting from the implementation of ISO 14000 standards, which offer a framework to manage the environmental issues (Hanson et al., 2004; Montabon et al., 2000).
6. Improved reputation—implementing sustainable activities can make organizations more attractive to suppliers and customers (Ellen et al., 2006), to potential employees (Capaldi, 2005), and to shareholders (Klassen and McLaughlin, 1996).

Hence, the true sustainability occurs at the intersection of all three dimensions—environmental, social and economic, and also involves those activities that companies comprehensively associated with environmental, social and economic goals in developing long-term strategic objectives. Furthermore, Carter and Rogers (2008) emphasized that both the environmental and social aspects of sustainability can extend beyond an organization’s boundary to include supply chain activities. Especially, the inclusion of SCM in a firm’s sustainability can actually create a long-lasting, and less imitable set of processes, when considered with the economic dimension to form a long-term strategy (Carter and Rogers, 2008).

2.3 Theoretical Framework

2.3.1 Definition of Sustainability

Although it is frequently stated that there is no agreed upon definition of sustainability, the most well-accepted and often quoted definition of sustainability is defined by United Nations’ Brundtland Commission (World Commission on Environment and Development, 1987, p. 8):

“‘Sustainable’ development is development that meets the needs of the present without compromising the ability of future generations to meet their needs.”

That is to say, such a broad definition of sustainability could help to look for a directive for tangible actions. Erlich and Erlich (1991) have claimed that this broad rubric of sustainability could gain an understanding the environmental impact of economic
activity in both developing and industrialized economies. Unfortunately, the macro-economic and societal definition of sustainability is difficult to apply and provides little guidance on organizations regarding how organizations might determine the technologies and resources, which are required to meet future versus present needs and understand how to balance corporate responsibilities effectively for multiple stakeholders such as stakeholders, customers, employees, other organizations, and the broader stakeholders including both society and natural environment in the entire supply chain (Starik and Rands, 1995; Hart, 1995). In addition, organization also realized that the broader definition of sustainability within the macro-economic perspective is difficult for them to determine their individual roles in the business, because the definition by Brundtland Commission is so far reaching (Shrivastava, 1995; Stead and Stead, 1996).

On the other hand, more and more micro-economic applications of sustainability have been invested in the fields of management, operations and engineering (Carter and Rogers, 2008). Within the management perspective, most of existing concepts of organizational sustainability would only consider implicit recognition of social and economic responsibilities and focus on ecological sustainability. Shrivastava (1995, p. 955) highlighted that the sustainability can be defined as: “the potential for reducing long-term risks associated with resource depletion, fluctuations in energy costs, product liabilities, and pollution and waste management”. The definition of sustainability in operations would also focus on the ecological perspective without considering explicit incorporation of the social aspects of sustainability (Sarkis, 2001; Hill, 2001). Based on the sustainability in the engineering, Sikdar (2003) defined organizational sustainability as: “a wise balance among economic developments, environmental stewardship, and social equity.” Besides that, Blowfield and Murray (2011, p. 59) illustrated the key concept of sustainability as:
“Sustainability refers to the ability of a company to continue indefinitely by making zero impact on environmental resources. That way, future generations will also benefit from the goods and services provided and form the employment offered.”

Moreover, Elkington (1994, 1997) has presented a clearer clarification including the consideration of three impact areas in sustainability (see Figure 2): (1) environmental, (2) economic, (3) societal, or “people, planet, and profits” which can be regarded as part of the triple bottom line concept for corporate and governmental responsibility. Consequently, the concept of triple-bottom-line aims at addressing the interests of all stakeholders affected by project implementation or deployment (Harmsen and Powell, 2010).

![Figure 2 - Triple Bottom Line of Sustainability, or People, Planet and Profits](Source: Elkington, 1994, 1997)

Further, Harmsen and Powell (2010) explained that the sustainability is the consideration of societal and environmental performance, on top of a broadened concept of financial performance that considers economic cost-benefit impacts beyond corporate profits. In other words, sustainable development helps organizations to achieve the composite and varying needs of stakeholders beyond simply the traditional
financial interest of stakeholders. As a result, this way could lead to reduce future risks and liabilities extend future viability, and sustainability enhances stakeholder value as well for organizations in a win-win manner (Harmsen and Powell, 2010). Interestingly, they also claimed that the imperfect economic systems which cannot reflect total costs or values including social and environmental impacts can be deemed as the key driving factors for the need of sustainability. For this reason, Böhringer and Jochem (2007) indicated sustainability metrics has attempted to “measure the immeasurable” by including those costs and values that defy traditional economic analysis.

2.3.2 Indicators of Sustainability

It is no surprise that there is no uniform standard regarding indicators of sustainability because of the complexity definitions of sustainability. Wilson et al. (2007) have stated that the current problem leads to a broad “industry” of indicators, metrics and tools. Consequently, there are approximately 500-650 or more indicators with limited cross-standardization to evaluate the sustainability that can be regarded as an “indicator zoo” (Pintér et al., 2005; IISD, 2009). Thus, it is necessary to identify and ensure the most important impact areas that can be addressed by a given entity or organization to achieve sustainable development.

According to Böhringer and Jochem (2007), they have concluded 11 of the most popular or widely used indices among the more than 500 reported within the perspective of National and International Public Policy-level indicators:

1. *Live planet index*: tracks 1100 species (World Wildfire Federation)
2. *Ecological footprint*: water and land use per capita
3. *City development index*: infrastructure, waste handling, health, education
4. *Human development index*: life expectancy, education, gross national product
5. *Environmental sustainability index*: preserving environmental resource
6. Environmental performance index: environmental stressors
7. Environmental vulnerability index: fragile ecosystems
8. Index of sustainable economic welfare: consumption, income distribution
9. Well-being index: aggregate index of all sustainable development
10. Genuine savings index: economic “rents” required to sustain a lifestyle
11. Environmental adjusted domestic product

The findings of this study provided some recommendations for organizations in the area of sustainable development including improved standardization of reporting, further development of aggregate and goal-oriented indices, and identification of gaps in current indicator assessment methodologies. Moreover, Wilson et al. (2007) also offered a comprehensive review of global policy-level metrics to guide actions in the sustainable development.

In addition, it is also important to consider the indicators of sustainability from the view of Corporate Level and Management System, because the most specific indicators could guide a given entity or organization to practice their goals. Based on the generic triad of societal, environmental, and economic performance indicators, the Institute for Sustainability of the American Institute of Chemical Engineers (AIChE) put forward the following sustainability index that related to corporate management and governance (Cobb et al., 2007):

1. Strategic commitment to sustainability
2. Safety performance (employee and process)
3. Environmental performance (resource use, emissions, including green gases)
4. Social responsibility (community investment, stakeholder engagement)
5. Product stewardship (product safety, Responsible Care/Reach)
6. Innovation (in sustainability)
7. Value chain management (supplier and customer standards)
According to the above, Schuster (2007) pointed that there are available tools that related to this initiative could assist organizations to achieve a sustainable program. In particular, the indicator of Responsible Care, as part of this initiative, which can be regarded as a voluntary initiative in the area of chemical industry. At the meanwhile, Harmsen and Powell (2010) have emphasized that such a positive initiative could associate with companies together continuously to improve the performance in health, safety and environment and enhance the communication with stakeholders about the ecological processes and products. In general, the industry-wide initiative is helpful to establish credibility in corporate responsibility for industrial companies, even involving an emphasis on compliance. Moreover, there is a more recent program in the European Union (EU), Reach (EC2007), which is responsible on industry to ensure testing the risk management of all chemicals market in the EU. Especially, it mainly focuses on human and environmental health aspects of sustainability.

2.3.3 Stakeholder Management

The origin of the stakeholder concept was put forward by Freeman (1984, p. 46) in the business management literature, and defined stakeholder as any group or individual in an organization who can effect or is affected by the achievement of the organization’s objectives. Freeman (1984) has emphasized that business organizations should concern about the interests of stakeholders when taking strategic decisions. In particular, within this perspective, the development of stakeholder theory can be deemed as an alternative form of strategic management that responds to rising competitiveness, globalization and growing complexity of company operations. The company could tackle its business effectively when company understands the specific relationship between its business operations and individual or groups who can be influenced by it. What is more, Freeman (1984, p55) claimed that general stakeholder groups that confirmed by most organizations are customer, supplier, shareholder, employee, and local community. In
addition, there still have other stakeholder groups that should be considered with the business situations by companies (see Figure 3).

Moreover, the concept of stakeholder has become greater important because of public interest and coverage by the media. Hutton (1999) and Greenwood (2008) pointed that the stakeholder concept could help companies to concern about corporative governance and implement it as a policy within the scope of the “Third way”. Furthermore, Blowfield and Murray (2011, p.206) stated that companies would respond to certain features of globalization because of the changing nature of governance and the multi-tiered values framework that achieve to their expectation of business. For this reason, stakeholder has gained its prominence in such changes. As the time went by, the stakeholder concept has a total of 66 different definitions (Mainardes et al., 2011). However, these different concepts of stakeholder would reflect the same principle to a greater or lesser extent: the company should consider the needs, interests and influences of people and groups who impact on or be impacted by its policies and operations (Frederick et al., 1992). Hence, Clarkson (1995) proposed the concepts of stakeholder
that included three fundamental factors: the organization, the other actors and the nature of the company-actor relationships.

2.3.4 Push- and Pull-based Material Management

Manufacturing orders and purchasing orders are created with the purpose of initiating flows of materials and satisfying current requirements. Materials management aims at determining quantities and time points for all item’s manufacturing and purchasing orders. Consequently, the goal of materials management is to achieve material flows as efficiently as possible with respect to capital tied up, delivery service and the utilization of resources in the supply chain. In particular, Jonsson (2008) explained that materials management can help organizations to balance supplies of materials and demand of materials in a cost-effective manner. One common way of characterizing materials management is to distinguish between materials management based on the section of requirements or the pressure of planning. Therefore, there are two types of materials management for companies to implement in the supply chain that include so-called “push-” and “pull-based” management. What is more, Jonsson (2008) defined the two different concepts in the following way:

- Materials management is of the pull type if manufacturing and the movement of materials only take place on the initiative of and authorized by the consuming unit in the flow of materials.
- Materials management is of the push type if manufacturing and the movement of materials take place without the consuming unit authorizing the activities, i.e. they have been initiated by the supplying unit itself or by a central planning unit in the form of plans or direct orders.

The principles have been illustrated by Jonsson (2008) in Figure 4.
According to Bonney et al. (1999), “pull-” and “push-based” are distinguished by the source of information: push means to take actions in anticipation of a need while pull means to take actions on request, “product push” and “demand pull” can be deemed as two opposite dimensions. The push principle means that materials flows are based on manufacturing order. However, the pull principle means that material flows are directly initiated by customer orders or sub-orders of different types.

Therefore, the push-based materials management should make the production approximation and anticipate the total usage of products. Then, it will manufacture a large scale of products and keep high inventory. As a result, it could lead to resource waste and poor communication that depended on the push-based material management. On the other hand, the pull-based material management would like to follow the actual consumption and production precision. Moreover, the manufacturing companies can produce a small scale of products and deal with lower inventory. Further, it is better to communicate within the processes in the supply chain, and helpful to reduce waste in processes and to manage the usage of resources efficiently.
2.4 Relationship between Sustainability—SCM

There is a lot of literature about the topic of corporate sustainability and one of the core studies has concerned on the economic impacts of how it negative or positive impacts on corporate sustainability efforts (Sarkis et al., 2011). Implementing social dimension in SCM, many studies argued that the “win-win” possibilities may happen between Corporate Socio-Environmental and Economic performance in supply chain. After decades of studies on the issues between Socio-Environmental and Economic performance relationships, there still need more investigations in the significance of such a topic (Barnett and Salomon, 2012).

A multivariate regression analysis is used by Zhihong and Joseph (2013), which stated that most of the firms have not yet implemented SSCM practice. What is more, some firms have only implemented Social-SCM, and some only practiced Environmental-SCM. In addition, after analyzing through comparing hundreds of case companies in the study of Zhihong and Joseph (2013), the result has shown some evidences that only implementing Social and Environmental SCM at the same time is positively associated with corporate financial performance; however, firms only implementing Social-SCM or Environmental-SCM might be harm to firm’s performance, especially respecting to Environmental-SCM.

In addition, companies should realize the payback of implementations in SSCM might not occur in the short-term. From the other results of the delayed effect got a suggestion that implementing Green SCM (GSCM) might not be rewarded immediately, but if implementing Social Responsible-SCM and Environmental-SCM jointly, the corporate financial performance might improve after two years. Long-term and strategy benefits of SSCM programs is necessary to be realized for the firms to implement and manage successfully (Carter and Roger, 2008).
Moreover, SCM has integrated the management of cooperation with both material and information flows (Handfield and Nichols, 1999), therefore, the development of SCM has gone beyond the simple logistics which can be regarded as an evolutionary step in the management area (Samaranayake, 2005). Accordingly, there is a need for a firm’s SCM to focus on the practices of suppliers and consider both the expectations and pressures from internal and external stakeholders, especially in the complexity supply chain under the trend of globalization and competitive economic marketplace (Ashby et al., 2012). Hence, the SCM can be deemed as an effective way to successfully achieve being responsible behaviors in the whole supply chain. Importantly, two dimensions of sustainability including environmental and social aspects need to be highlighted in SCM, which is in order to gain the sustainable development in the daily operations for companies. So that, the next section reviewed relevant activities in SCM, specifically involving to both environmental and social dimensions of sustainability, but not mainly concentrating on the economic dimension.

### 2.4.1 Environmental Dimension of Sustainability

According to Min and Galle (1997), the way to practice environmental considerations in SCM can achieve the goal of sustainability. Gupta (1995) also emphasized that there were two types of design including design for recycling (DfR) and design for disassembly (DfD) that can integrate environmental considerations into supply chain. Ashby et al. (2012) mentioned that practices and principles in the environmental dimension of sustainability have been discussed well than the social dimension in recent years. Besides that, they also stated that product-based green supply is an important factor to gain sustainable goal which can extend environmental perspective to the entire value chain that considered the needs of stakeholder such as suppliers and designers. Thus, activities relating to integration of “green” into SCM were widely implemented by most firms that cooperated with the suppliers in order to improve the environmental performance in manufacturing lines and final products along the whole supply chain.
flows (Simpson and Power, 2005; Zhu et al., 2005). In addition, the GSCM is helpful to manage and reduce the wastes elimination efficiently through identifying benefits, costs and risks that related to the processes in the supply chain (Handfield et al., 2005; Zhu et al., 2008).

In general, wastes and emissions in supply chains result in the main negative problems to the environment. Gupta (1995) claimed that controlling and recycling both wastes and emissions in the production processes can be regarded as the most effective way to handle with environmental problems. Moreover, Porter and Kramer (2002) stated companies are urged to integrate the sustainability concept into their SCM schemes because of the pressures from different stakeholder groups, governments and customers, and the increasing awareness of protecting the environment to achieve sustainable development. Darnall et al. (2008) suggested that with the help of Environmental-SCM, it would reduce both the direct and indirect potential environmental impacts of an organization’s final products. More, the first and easygoing issue is the environment dimension (Gold et al., 2009). Alison et al. (2012) have mentioned that the Reverse Logistics (RL) can support the concept of SSCM at different stages in supply chain which mean that manufacturers would like to accept formerly shipped products or parts for reprocessing, remanufacturing or disposal extends this responsibility from “cradle to cradle”. According to Carter and Ellram (1998), the goal of Return Loss (RL) aims at achieving the resource reduction through recycling, re-use, and waste elimination in an effective and efficient way. Therefore, Rao and Holt (2005) highlighted that the resource reductions can lead to cost saving, enhance competitiveness and then to influence the economic dimension of implementing sustainability in SCM.

Furthermore, Simpson and Power (2005) have claimed that the implementations of Environmental-SCM for a local firm would like to concern on the improvement of environmental performance in products and manufacturing processes along the entire supply chain with their suppliers and customers. However, there is rarely critical compared with the quality, costs, and delivery performance in the supply chain within
the environmental dimension of sustainability. There is a necessary to connect financial considerations and a holistic environmental concern with the conservative association of success that related to Environmental-SCM. Consequently, the relationship between environment and SCM can be deemed as an important avenue for firms to influence their environmental performance in their daily operations. In particular, most current Environmental Management investment have a tendency to “end-of-pipe” technologies (Vachon and Klassen, 2006). Based on the research of Ashby et al. (2012), three main approaches can handle with the environmental issues:

1. Responsive characterized by “end of pipe” pollution control
2. Practical where firms recycle and re-use products/materials within their supply chains and pre-empt new environmental legislation
3. Value-seeking where environmental behavior is integrated into business strategy with a supply network wide obligation

2.4.2 Social Dimension of Sustainability

Under the trend of globalization and international business, SCM has achieved a great attention from scholars and practitioners. Tseng and Hung (2014) have emphasized that the implementations of incorporating sustainability into SCM is becoming critical issues that are driven by the pressures from governments, customers, and various stakeholder groups in the past decades years. In addition, Gold et al. (2009) illustrated that key issues in the development of supply chains such as the design, organization, interactions, competences, capabilities and management of supply chains should be required more attentions because the supply chains have tended to more complex in the recent economic and globalization. Moreover, Defee et al. (2009) have explained the characteristics of CSR that mean how firms can address their economic goals to satisfy the needs of both society and environment. Keating et al. (2008) mentioned that the great strategic elevation of CSR in firms should require the assistance of facilitate
coordination across purchasing, manufacturing, distribution and marketing in the management of supply chains. Besides, Handfield et al. (2005) explained that a formal system of firms is good to monitor and report on CSR issues in the supply chains that could achieve performance advantages and greater commitments for stakeholders.

Moreover, the importance of addressing responsible behaviors and gaining a successful performance in the present marketplace should involve all stage in the supply chains. Importantly, integrating social considerations and implementations into SCM can be regarded as an important discipline for establishing the environmental aspect to satisfy the objective of sustainability (Alison et al., 2012). Nevertheless, the social dimension of sustainability is different from environmental one, which has not many relevant terms in supply chain like “Social Supply Chains”, “Social Management System”, etc. Even more, the human elements like labor, skill, experience and forming of such a relationship need to be deemed as the major component of SCM. In particular, Burgess et al. (2006) mentioned that the development of Social SCM has been mostly led by practitioners.

In the study of Kleindorfer et al. (2005), it mainly emphasized that the profit is only one important factor in the long-term strategy of enterprises, and the future of people (both internal and external) and plant are considered as new legitimacy concerns; however, there is no single definition of social sustainability to be used. According to Sharma and Ruud (2003), the sustainability should be an ethical code for human survival and progress, and address the goal of “inclusive, connected, equitable, prudent and secure manner”. In addition, Leire and Mont (2010) stated that the management of supply chain should strongly associate with the social dimension of sustainability that can effectively reduce unemployment, ensure equal treatment, protect employees’ health safety, and prevent social exclusion. Especially, four main categories in the social dimension of sustainability composing of internal human resources, external population, stakeholder participation and macro social performance issues have been formulated by Sarkis et al. (2010). The details of four categories explained as follows:
(1) Internal human resources: practices associated with employment stability, health and safety; (2) External population: human, productive and community capital; (3) Stakeholder participation: information provision and stakeholder influence issues; (4) Macro social performance: Socio-Economic and Socio-Environmental performance.

Based on the study of Strong (1997), the element of “people” principles within good working conditions and standards for all employees along the entire supply chain need to be highlighted to preserve and cooperate resources usage which are trans-boundary and also evaluate the positive and negative impacts on the environment. Furthermore, Bansal (2005) illustrated that the social dimension of sustainability in the supply chain required to have equal access to resources and opportunities, fair treatments, equitable rules to employees in their working situations by all members of society in general. Even more, Krause et al. (2009) emphasized that social sustainability ought to concern on poverty, injustice, human rights and the welfare of global employees based on a comprehensive supply chain consideration. Besides, it will practice the firm’s values and regulations with its suppliers in a close relationship from the assistance of Social-SCM (Tate et al., 2010). Meanwhile, Leire and Mont (2010) have stressed that Social-SCM is an important way for firms to form long-term relationships with their suppliers through expanding a good development of communication.

2.5 Summary of Literature Review

To sum up, the SCM has to face various risks as the challenge of business marketplace. Consequently, companies expect to pursue the sustainability in their supply chain. Moreover, the change of technical improvement and social practices can improve the performance of SSCM. Most studies have illustrated that implementations of SCM were started from academic business and engineering, and focused on the maximization of profit in the whole supply chain through satisfying both low cost and high quality with sustainable design of production and transportation management. Thereafter, with
the increased awareness of environmental and social dimensions, the concern about SSCM has been accepted by more and more companies. Further, SSCM can help companies to adapt the sustainability into supply chain and respond to quickly in social and environmental changes. Carter and Rogers (2008, p.368) defined SSCM as “the strategic, transparent integration and achievement of an organization’s social, environmental, and economic goals in the systemic coordination of key inter-organizational business processes for improving the long-term economic performance of the individual company and its supply chains.” The indicators of corporate-level and management system provided more specific goals for implementations in sustainable management (Cobb et al., 2007). These indicators can be deemed as references to guide how to practice SSCM for companies. After the literature review, this research decided to focus on the details of SSCM that are based on seven indicators for SSCM: Strategic Commitment; Safety Performance; Environmental Performance; Social Responsibility; Product Stewardship; Innovation; and Value Chain Management (see Figure 5).

**Figure 5** - Indicators for Sustainable SCM (Source: Cobb et al., 2007)

Furthermore, the integration of sustainability into SCM has become an increasing concern for companies of all sizes and across a wide range of industries (Seuring et al., 2008). Consequently, companies try to be sustainable in their practice with SSCM. Thus, identifying the relationship between sustainability and SCM can help companies to manage the supply chain responsibly and understand the supply chain sustainability
practices, especially to focus on the issues of society and environment. There have some studies to illustrate the relationship of sustainability—SCM from two perspectives of the *triple bottom line* including environmental and social dimension (see Table 1).

<table>
<thead>
<tr>
<th>Performance</th>
<th>Theoretical rationale and practices</th>
<th>Authors</th>
</tr>
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| Environmental Performance    | • Environmental-SCM integrates environmental issues into SCM through identifying costs, benefits, and risks, along with chances to manage and reduce waste with the final aim of waste elimination.  
  • Design for recycling (DfR), design for disassembly (DfD) are two recognized dimensions of integrating environmental concerns in SCM.  
  • With the assistance of implementing GSCM which can effectively reduce both the direct and indirect potential environmental impacts.  
  • Measures of resource reduction including recycling, re-use, and waste elimination can lead to cost saving, enhance competitiveness and then influence on the economic dimension of sustainability in SCM. | Handfield et al. (2005), Gupta, 1995, Darnall et al. (2008), Carter and Ellram (1998), Rao and Holt (2005), Simpson and Power (2005) |
| Social Performance           | • The sustainability should be an ethical code for human survival, progress, and address “inclusive, connected, equitable, prudent and secure manner”.  
  • Enacted through SCM by reducing unemployment, protecting employee health and safety, ensuring equal treatment and preventing social exclusion that connected with social dimension strongly.  
  • Social dimension of sustainability would concern on poverty, injustice, human rights, and consider the welfare of employees globally from a supply chain perspective.  
  • Social-SCM is anticipated to practice a firms’ values and regulations with suppliers, also is an important way to build up the long-term relationships with suppliers through expanding a good development of communication. | Sharma and Ruud (2003), Gladwin et al. (1995), Leire and Mont (2010), Krause et al. (2009), Tate et al. (2010) |
3. Research Methods

As mentioned in the last section, it has introduced the framework of SSCM, however, those questions that included how to apply SSCM effectively, how to evaluate the relationship between the concept of sustainability and SCM, and thus what are the key successful factors for implementing SSCM should be handled step-by-step in this research. Obviously, both research question 1 and 2 have been responded to gain some relevant knowledge through reviewing relevant literature in the section of “Review of Related Literature”. In addition, deeper exploratory based on research question 1 and 2 should be connected with the real contexts of a specific case company—Habia Cable. Consequently, the authors have collected primary data (face-to-face, phone, and e-mail interviews) and secondary data (CSR report, internal documentations, official website resources, etc.) from Habia Cable. Consequently, it could be significant to address the key successful factors for implementing a strategic SSCM that can answer to the research question 3.

Considered with the importance of sustainability in supply chain, connecting and comparing the relevant theories with an insight of referencing a real manufacturing enterprise could bring a comprehensive realization about the implementation of SSCM. In this study, qualitative method has been used to analyze the process of research. Moreover, the authors applied the deductive reasoning approach to complete as “theory then research”. Hence, the data acquisition mainly by means of interviews and relevant internal documentations of the case company were mentioned later in order for reliability and validity of this study. In addition, the framework for data analysis has been built up in order to illustrate the process of analyzing data in this study. However, limitation of the methods in this paper cannot be avoided. Thus, limitation of research methods and data collection have been presented in the part of Reliability & Validity.
3.1 Research Strategy—Case Study

How to select an appropriate research strategy in the research design? It is mainly based on the nature of the research problem or issue being addressed, the researchers’ personal experiences, and the audiences for the study. Creswell (2009, p5) proposed a framework to conduct research that contains *intersection of philosophy, strategies of inquiry, and specific methods* (see Figure 6).

**Figure 6 - A Framework for Design—The Interconnection of Worldviews, Strategies of Inquiry, and Research Methods (Source: Creswell, 2009, p5)**

What is more, Creswell (2009, p4) concluded the definitions of qualitative, quantitative, and mixed methods research: *qualitative research* aims at exploring and understanding the meaning individuals or groups ascribe to a social or human problem; *quantitative research* focuses on testing objective theories through examining the relationship among variables; *mixed methods research* is an approach that combines or associates both qualitative and quantitative forms. Based on the purpose of this study, the
qualitative research is suitable for authors to conduct the research through exploring and understanding the specific groups that involve the social or human problems. Hence, it is necessary to select the specific strategy of inquiry after identifying research design as qualitative research in this research. Regarding to the strategies of inquiry, Creswell (2009, p12) has summarized that provide specific direction for procedures in different types of research design (see Table 2).

| Table 2 - Alternative Strategies of Inquiry (Source: Creswell, 2009, p12) |
|---------------------------------|---------------------|----------------------|
| Quantitative Research           | Qualitative Research | Mixed Methods Research |
| ● Experimental designs          | ● Narrative research | ● Sequential         |
| ● Non-experimental designs, such as surveys | ● Phenomenology  | ● Concurrent         |
|                                 | ● Ethnographies     | ● Transformative     |
|                                 | ● Grounded theory studies |           |
|                                 | ● Case study        |                     |

As mentioned in Table 2 about strategies of inquiry, there have five different strategies to conduct a qualitative research. *Narrative research* is the study about the lives of individuals and records the stories about their lives. *Phenomenology research* aims at identifying the essence of human experiences about a phenomenon. *Ethnography* tries to research an intact cultural group in a natural setting over a prolonged period of time. *Grounded theory* emphasizes the views of participants that are based on general, abstract theory of the process, action, or interaction. *Case study* focuses on exploring in-depth a program, event, activity, process, or one or more individuals. Besides that, Yin (2003) stated that the case study allows researchers to retain the holistic and meaningful characteristics of real-life events—for instance individual life cycles, organizational and managerial processes and the maturation of industries.
In this research, case study is the best selection for authors to explore in-depth the concept of sustainability relating to SCM with a view of referencing the specific groups. According to Yin (1994), case study is the preferred research method to address “how” or “why” questions; in other words, it involves questions of process. Thereafter, Yin (1981a, 1981b) has claimed that case study can be used for all three purpose—exploratory, descriptive, or explanatory. Definitions about these three types of case studies have been illustrated as follows: the exploratory case study mainly focuses on defining the questions, and even determines the feasibility of the expected process of research problems; the descriptive case study offers the description of the specific phenomenon within its context; and the explanatory case study mainly explains how the specific events happen through comparing data based on the relationship of cause-effect. Yin (2003) also highlighted that the research questions are exploratory if they mainly focus on “what” questions; similarly, the research questions are more explanatory if they are relating to “how” and “why” questions. Regarding to three research questions in this study that are based on above reasons, the authors decided to carry out both exploratory and explanatory perspectives into our case study.

In particular, Yin (2003) defined case study as: “Case study is an empirical inquiry that investigates a contemporary phenomenon within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident.” Moreover, Biggam (2011) stated that the case study can help students to focus on their researches easier relating to one organization or part of an organization. In addition, case study can be classified as single- or multiple-case study based on the specific number of case. Yin (2008) claimed that a single case study is often suitable under contain conditions: (1) a critical test of existing theory; (2) a rare or unique circumstance; (3) a representative or typical case; (4) where the case serves a revelatory; (5) a longitudinal purpose. However, multiple-case studies should follow a replication but not a sampling logic, and the investigator have to choose each case carefully. Thus, the authors preferred to use the single-case study which can be helpful to investigate the specific research questions of this thesis with less extensive resource and time.
In general, it is necessary to select and design the case unit once deciding the case study as research strategy. Yin (2008) emphasized that the specific case should be relevant to the objectives and problems in the research. After that, the Swedish global enterprise in wire and cable industry—Habia Cable has been chosen by authors as the case unit or case company in the section of empirical study. There have three main reasons to explain why to selecte Habia Cable as the case company in this research: (1) Habia Cable is a global manufacturing enterprise which focuses on the importance of SCM that relates to being a strategic discipline with crucial significance for the company’s competitiveness; (2) The case company has already practiced CSR for years that cares about the concept of sustainability that involves the performance of SCM. As a result, the information and data that relate to the research purpose are more completed than other companies who do not implement CSR; (3) In particular, the location of Habia Cable is at Elementvägen, Söderfors (around Tierp Center) which is at the south of Gävle City. Therefore, it is convenience for authors to get a study visit and ask for a face-to-face interview during the period of doing this research.

Bathmaker and Harnett (2010) state that, the statement about research never can be done flawlessly, limitation of research strategy cannot be ignored. Case study can be recognized as one of best research strategies but still has some weaknesses (Yin, 2013). In this research, limitation related to doing a case study in Habia Cable cannot be avoided. Due to the nature of the case study, qualitative methods were used to analyze in this research that might cause a subjective view on those research questions. Besides that, case study only can focuses on answering several questions relevant to the same research area, unlike quantitative method could give a clear and obvious answer.

### 3.2 Qualitative and Quantitative Methods

As stated in Creswell (2009, p3), three types of research methods have been highlighted: *qualitative, quantitative, and mixed methods*. There is no doubt that these three research
methods cannot be deemed as discrete as they appear. Newman and Benz (1998) have illustrated that qualitative and quantitative methods should represent different ends on a continuum, but not to be viewed as polar opposites or dichotomies. In addition, mixed methods comprising qualitative and quantitative approached should stand in the middle of this continuum. Moreover, Creswell (2009, p3) has explained the distinction between qualitative and quantitative research that is framed in terms of using words (qualitative) rather than numbers (quantitative), or using closed-ended questions (quantitative hypotheses) rather than open-ended questions (qualitative interviews).

Some researchers have defined qualitative and quantitative methods in their literature. Walliman (2005) explained that the qualitative method was evolved to describe and analyze qualities, attributes and make distinctions in the research. Cavana et.al (2000) has defined that qualitative methods can be used in the range of interpretive paradigm. On the other hand, Clissett (2008) explained that quantitative research focuses on formal objective and systematic process in order to getting quantifiable information about the world. Biggam (2011) stated that the quantitative approach referred to the research that is concerned with quantities and measurements.

The authors decided to use the qualitative case study as research strategy in this research. Therefore, qualitative methods are involved in this study in order to gain a general and in-depth understanding of sustainability and SCM. Accordingly, the researcher aims at seeking to establish the meaning of a phenomenon from the view of participants (Creswell, 2009, p16). That is to say, it is important to study how the key issue develops shared patterns of behavior over time and to collect data that should observe participants’ behaviors by engaging in their activities.

In particular, the specific research methods would involve the forms of data collection, analysis, and interpretation. Consequently, Creswell (2009, p15) proposed a framework for researchers to conduct their researches more clearly (see Table 3). The authors have chosen these qualitative methods to describe the concept of SSCM and explore the
relationship between sustainability and SCM in emerging wire and cable manufacturing industry based on the single in-depth case study in Habia Cable through interviews. In particular, this research would use emerging methods to analyze the questions. Open-ended questions have been formulated into the face-to-face and phone interviews. Internal document data of the case company also have been collected.

| Table 3 - Quantitative, Mixed, and Qualitative Methods (Source: Creswell, 2009) |
|----------------------------------|----------------------------------|----------------------------------|
| Quantitative Methods             | Mixed Methods                    | Qualitative Methods              |
| ● Pre-determined                 | ● Both pre-determined and        | ● Emerging methods               |
| ● Instrument based questions     | emerging methods                 | ● Open-ended questions            |
| ● Performance data,              | ● Both open- and closed-ended    | ● Interview data,                |
| attitude data,                   | questions                        | observation data,                |
| observational data,             | ● Multiple forms of data         | document data,                   |
| and census data                  | drawing on all possibilities     | audio-visual data                |
| ● Statistical analysis          | ● Statistical and text analysis  | ● Text and image analysis        |
| ● Statistical interpretation    | ● Across databases interpretation| ● Themes, patterns interpretation|

3.3 Inductive and Deductive Approaches

There are two general approaches to reasoning which may gain new knowledge, namely inductive reasoning and deductive reasoning. Hyde (2000) explained that inductive reasoning is a theory building process which starts with observations of instances and aims at establishing generalizations about the phenomenon under investigation; and deductive reasoning is a theory testing process which starts with an established theory or generalization and seeks to test if the theory matches to specific instances. In addition, Walliman (2006) illustrated the difference between inductive and deductive thinking,
therefore, inductive thinking is going from the specific to the general while deductive one is going from general to the specific. Inductive reasoning seems like the bottom-to-up analysis; in contrast, deductive reasoning is the way of up-to-bottom to analyze.

In general, both inductive and deductive approaches can be used in qualitative research (Patton, 1991, p194). However, Yin (1994) claimed that he would stand relatively alone in advocating a deductive rather than an inductive approach to case study research. In addition, the deductive approach is always related to the qualitative research, seeking to practice untested theories in most case studies. Meanwhile, the deductive approach also could assist researchers to handle established questions with less time and efforts. Wallimian (2011) described the deductive approach as ‘theory then research’, and the research is guided by the theory which precedes it. Based on above statements, the deductive approach is most suitable to satisfy the research objectives in this research. Consequently, the authors provided specific theories firstly to answer the perceived problems, and tested them through carrying out observations.

3.4 Data Collection

After applied the single-case study as a research strategy in this study, therefore, the next step is to start collecting data that related to satisfying the research purpose and questions. In this research, the authors collected data mainly by means of interviews and written materials from the case company. In order to formulate the findings and put the data into a larger context, the authors compared and analyzed both the primary data and secondary data that collected from the case company. The primary data was mainly collected by the interviews with the managers, design engineer of the case company, and the secondary data was gathered from written materials, such as company internal documentations, operations records, and official website publications, etc.
3.4.1 Collecting Primary Data

It is no doubt that there have lots of potential data in the world. However, it is necessary collect appropriate data that closely related to the research topic in order to meet the research purpose and investigate the research questions in this study. Walliman (2011) has mentioned that there have seven ways to collect data in the research: sampling, questionnaires and diaries, interviews, standardized scales and tests, accounts, observations and physical surveys, using the internet for primary research. Especially, face-to-face, telephone and e-mail interview with relevant employees in the case company to gain primary data have been used in this research.

*Face-to-face interview*

Regarding to the process of interview, the authors contacted the interviewee by e-mails at the morning on April 7\textsuperscript{th}, 2014 at first time. After a few time contact with a specific manager at the same day, we gained the permission of a face-to-face interview at Habia Cable. Then, the authors decided to visit the company located at Elementvägen, Söderfors at the afternoon on April 8\textsuperscript{th}, 2014. The interviewee named as Hans Larsson, who is the Technical Manager Telecom in Habia Cable. Interview question had been sent to the specific interviewee before the formal interview so that he has time to look through and comprehended the questions in advance. It took 90 minutes to have a face-to-face interview at Habia Cable in Söderfors as planned before. In case to have unclear problems or confuse the matter information, the dialogue was recorded by mobile-phone during the interview. The advantage of a face-to-face interview is that the interviewee can answer the questions in a comfortable position that can help to collect proper answers. Meanwhile, the interviewee also discussed the questions with other colleagues to improve the reliability of the data when he though it is difficult to answer or cannot insure the answer. Then, the authors got answers based on the fact-to-face interview with the manager. After the interview, the manager gave the document of Corporate Social Responsibility of Habia Cable (2013) to us in order to satisfy the research objectives in this study.
Telephone interview

The first interviewee has answered most of the questions, however, some questions are still not easy to answer, especially involving the supply chain flow of the company, because some of the questions are not closely connected to his daily work. Therefore, the first interviewee helped us contact with a second interviewee, a cable design engineer, David Feng, who answered some questions in details related to our research objectives. However, there is no chance to do a face-to-face interview with the Cable Design Engineer due to his busy work. Thereafter, the second interview accepted a phone interview and answered some questions related to supply chain flow and raw material chosen. Even more, from the secondary interviewee, internal documentations as secondary data have been collected to answer some further questions.

E-mail interview

After the face-to-face interview with Technical Manager and phone interview with cable design engineer, there still have some confused questions. The authors continued to ask the further questions to those two interviewees through e-mail. Both of them also gave us some explanations regarding to confused questions. Even more, some technical terms in the internal documentations are still difficult to understand. Thereafter, the Technical Manager helped us to communicate the questions related to waste monitor with the Environmental & Quality Manager. After a few days, the Environmental & Quality Manager also sent back some explanations regarding to questions by e-mail. After collecting the primary data as mentioned above, it is helpful to do this research.

3.4.2 Collecting Secondary Data

There are many types of secondary data and the main being documentary sources in the form of “written materials”, “non-written materials”, and “survey data” (Walliman, 2011). In this research, the written materials have been collected from the interviewees of the case company. The written materials included the document of Corporate Social
Responsibility of Habia Cable (2013), and some internal documents like “Suppliers Management”, “Material Management”, “Emission charge”, “Risk Management”, etc. In particular, the CSR of Habia Cable was published on the internal websites in 2013, which can be regarded as high reliable data to satisfy the following study. The document describes the details of CSR performance entirely and supplements with information and data from interviewees. These written materials, like internal reports and production records, can support to understand the company’s sustainable flow. In addition, secondary data of the survey data, like emission and waste charge data, which can support our findings and analysis with quantitative data. It is able to provide the case study a positive evidence, which is conducive to achieving our research purpose. At last, the drawback of these data is that some of descriptions were difficult to understand regarding to terminologies and actual means. In fact, the secondary data has been collected that might not match our objective totally.

3.5 Framework for Data Analysis

Walliman (2005) stated that it should become evident what kind of data and analysis will be required to study after the research questions have been formulated. The reasons for selecting data analysis methods are always determined by the nature of the research questions, and the specific sources of information. Importantly, Walliman (2005) also mentioned that it will be appropriate to decide first on the type of analysis, quantitative or qualitative. Besides, the data collection and analysis can be closely interlinked that is depending on the particular research aims. In order to fulfill the objective of this section, the authors conducted it into five stages. Both the primary data and secondary data will be analyzed at first; second stage is to describe the data with descriptive words; third stage is to figure out the answers related to research questions that mentioned in the literature review; the fourth stage is to build up a cross relationship based on literature reviewed and the case study; the last stage is to add more relative data from
extra literature to satisfy the further problems in case of reviewing relevant literature is not sufficient.

In the first stage, the voice record will be listened to obtain properly understanding of interviewees’ answers and fully understand the explanations of questions. Meanwhile, the useful and proper information from the reports and documents will be figured out to match the research objectives. Because some data is not connecting with our research objectives closely, therefore, it is necessary to discuss and find out some relevant information that can match to our purposes properly. Secondly, the main work is to describe data with descriptive words and give direction to do the following qualitative analysis in this research. The authors will figure out the data that collected before, and combine them with the literature reviewed, and then use the descriptive words to give general ideas of the problems. Accordingly, confused problems will be addressed by using some descriptive words that need to pay attention. The third stage is mainly to figure out the answers based on two objectives mentioned before. Theoretical background of this study and the insights mentioned in the literature will be reviewed by authors. Three research questions in the analysis are: (1) How can the sustainability concept be defined and applied into SCM in Habia Cable? (2) How to evaluate the relationship between sustainability and SCM for Habia Cable? (3) What are the key success factors for implementing a strategic SSCM in wire and cable industry? In the fourth stage, the cross relationship was developed to obtain qualitative data based on the literature findings and case company. Thereafter, it will address to explain some key success factors to achieve the strategic SSCM effectively. In the fifth stage, some uncertain details might occur when doing the analysis because of the limited review. Some relative data will be added when analyze the three questions with the combination of collecting data and literature reviewed. Details of data analysis has been described in Figure 7.
Figure 7 - Framework for Data Analysis (Source: by authors)

3.6 Reliability & Validity

Winter (2000, p7) illustrated that reliability and validity are tools of an essentially positivist epistemology. The survey of the study should be reliable and valid, because reliability and validity are the two characteristics that researchers should take caution for the study quality (Biggam, 2011). In this research, the authors used both interviews and literature review as part of scientific methods to satisfy our research purpose. The reliability and validity are important to guide our methodology and overall study that aims at achieving a reliable and valid analysis and results in our entire research.

3.6.1 Reliability

Reliability refers to discuss whether the research is reliable and trusted (Biggam, 2011). Due to the busy work of supply chain manager of the case company, the authors cannot gain an opportunity to do the fourth interview in this research. As a result, it might seem not reliable enough to collect information with the proper person that in charge of logistics and supply chain department. However, the first two specific interviewees are
responsible for designing the products in case company, meanwhile, the process of manufacturing process depends on pull-based material management from customers’ orders. Therefore, they have a close relationship with both customers and suppliers that can provide another professional perspective for us to explore the topic of this thesis. Hence, it also can obtain higher reliability in this research through collecting the data of Habia Cable based on several interviews with different person in the case company.

Nevertheless, the answers from interviews might have some errors because different interviewee has owned subjective opinions due to different personal experience. As a result, it will lead to negative impacts on reliability in this research. In order to improve the reliability in this research, the authors compared with the internal documentation of case company and asked the further questions with each interviewee through e-mail. While, the internal documentation we have obtained is published on the case company’s internal website and only employees allow to consult and download. So we consider the internal documentation as secondary data can be reliability. Consequently, the communications with interviewees in e-mail would be helpful to understand and identify some confused questions in details. In addition, some internal documentations, reports, and survey data relating to the case company are too professional for authors to gain a comprehensive understanding. Therefore, it might also have a few negative impacts on the reliability because of the limited ability of authors.

3.6.2 Validity

Different from reliability, validity can be defined as choosing the correct and appropriate method for doing the research (Biggam, 2011). That is to say, all research activities including research strategy, data collection techniques and framework for data analysis should be suitable for the research. All research activities in this study included in selecting the research strategy of single-case study, reviewing scientific literature,
collecting primary and secondary data based on interviews and internal documentations that can ensure the validity of the research and keep a correct direction to follow.

Regarding to increase the internal validity in this research, a lot of literature has been used to support. The process of selecting the literature is strict enough, and these literature should be published and confirmed to find out on the formal internet databases. Moreover, the authors also searched and used many books in the library which related to our research closely. However, all related literature and books can satisfy but might be not the most appropriate for this research. So that, it has to take sometimes to discuss and analyze the information carefully by authors in order for a high validity. According to the data collection in this research, documentations related to CSR, SCM, sustainable activities that can be valid for this research. Meanwhile, the secondary data obtained from interviewees was discussed and analyzed before used as findings of case study to avoid these data is part of case company’s marketing which only states positive aspects, even the internal documentation only can be consulted and downloaded by employees. Nevertheless, some data from official-website and internal documentations of case company might be not objective, and the information also might be not exhaustive to analyze how to implement SSCM within a comprehensive way. Besides, all answers from different interviewee also can ensure the validity so that helping to obtain reliable information.

With regard to the external validity of this research, it has not a high result of external validity due to the nature of the single-case study. The single case company in this research has its own situations to deal with relevantly sustainable practices which are not similar to other manufacturing companies in different areas of industry. As a result, it might lead to lower external validity for this research. However, for the same area of wire and cable industry, this in-depth single-case study could provide a comprehensive perspective to investigate how to achieve a strategic SSCM, which also can ensure a part of external validity in this research.
4. Findings of Case Study

The overall purpose of this study is to find out the key success factors for implementing the strategic SSCM. In order to do that, there is a need to identify appropriate indicators to measure the sustainable activities and figure out the relationship that combined social and environmental dimensions with supply chain activities with referencing to the case company. Thereafter, the findings of the case study have been organized as follows.

First of all, an introduction of Habia Cable has been described from the official-website on the internet. According to the interviews and internal documentations of Habia Cable, the study identifies the stakeholders group and understands how Habia Cable works with CSR in daily operations. In particular, these how questions are clarified and explained through specific real examples of the case company based on qualitative information that mainly collected from the face-face interview with the Technical Manager Telecom, telephone interview with the Cable Designer and e-mail interview with both of two interviewees mentioned before and event with another Quality & Environment Manager in Habia Cable. Thus, the implementations related to SSCM in the case company are described through generating both quantitative and qualitative data. These implementations included supplier management, pull-based material management, resource and emission control and risk management are mainly practiced by Habia Cable that can support sustainable development in supply chain. Furthermore, regarding to the objective of evaluating the relationship between sustainability and SCM from social, environmental and economic dimensions, however, there is no any direct illustration to describe the specific relationship from interviews and internal documentations of the case company. Therefore, the authors will analyze and discuss the relationship with regard to reviewing the sustainable actions in the next section. At last, the findings of empirical case study based on an overview have been summarized.
4.1 Introduction of Habia Cable

Habia Cable is a company that focuses on manufacturing of high specification, custom-designed cables for demanding applications, which owned by Beijer Alma Group. Since 1957, being one of the leading wire and cable manufacturers in Europe, Habia Cable has more than 50 years’ experience in design and manufacture of high performance wires and cables. As a Global Company, Habia Cable has 12 Sales Offices Worldwide and 4 Global Production Facilities that provides customers standard products with international quality systems. Consequently, Habia Cable insists of offering high quality services for global customers with specific products, such as telecom, nuclear power generation and other industrial marketplaces.

According to the interview with the technical manager telecom in Habia Cable, he showed us that Beijer Alma Group is implementing Corporate Social Responsibility (CSR) is based on the international agreements and guidelines. The CSR in Beijer Alma Group is suitable for Habia Cable organization in the same way. Especially, the ultimate objective of CSR in Habia Cable is to create added value for customers, shareholders, business partners and employees. Under the trend of global business environment, Habia Cable strives to achieve the target of profitable growth and the Group’s long-term strategy by creating sustainable efforts and values for shareholders and other stakeholders. More, the environmental responsibility, social responsibility and a high level of business ethics are expected elements when implementing the sustainability into the entire SCM of company’s daily processes (Habia, 2013). Furthermore, Beijer Alma made a Code serves as a framework applies to all Beijer Alma employees, managers and Board members, regardless of where they are in the world, which without no doubt applies to all employees in Habia Cable.
4.2 Stakeholders in Habia Cable

The concept of stakeholders can be regarded as the successful strategy correspond to the integration of all stakeholders’ interests that can company to create added values. The CSR of Habia (2013) illustrates that the ultimate objective is to create added values for customers, shareholders, business partners and employees without compromising their aspirations and concerning quality and sustainable development. Moreover, it is very significant for the company regarding to define the stakeholder groups which are helpful to implement CSR projects and determine what the company should take considerations about in its sustainable development on the entire supply chain.

Accordingly, Habia Cable keeps balancing their long-term strategy to fulfill the specific requirements, views of society and all different stakeholder groups. In particular, it is important to gain an efficient communication with the stakeholder groups regarding sustainable development and listen to their views. CSR is integrated through the Group of Habia Cable and mainly practiced in relation to customers, shareholders, employees and suppliers (see Figure 8).

Figure 8 - The Stakeholder Groups in Habia Cable (Source: Habia Cable, 2013)
Hence, environmental responsibility, social responsibility and a high level of business ethics can be regarded as nature elements in Habia’s daily operations and also as a long-term strategy to fulfill variety requirements. Therefore, Habia has created added values for their main stakeholder group in different ways that involved contributing to financial benefits: encouraging suppliers to prevent the operations from generating negative environmental and health impacts; protecting the shareholders’ investments and striving to ensure the competitive returns that continuous improvement; providing the market-based salaries and safety working conditions for employees; and improving profitability and competitiveness for customers. Moreover, Habia Cable has to identify the different requirements from four distinctive stakeholder groups and to practice the real sustainability concepts into SCM based on the international agreements and guidelines of their own Code of Conduct. Furthermore, the following sections will describe the details of how Habia Cable practices CSR in daily operations with their stakeholder groups, and implements SSCM to commit their social responsibility.

4.3 How Habia Cable works with CSR?

As a global company with 50 years’ experience, Habia Cable has become one of the leading wire and Cable manufacturing company in Europe which cares about the social activities for a long time. Nevertheless, the idea of CSR came from Beijer Alma that implemented on Habia Cable for a few years when CSR is becoming a hot topic in the globalization and international business area. Clear responsibility for both people and environment can be deemed a national feature of Beijer Alma’s corporate strategy, which is also suitable for Habia Cable (Habia, 2013). In addition, the primary objective of Habia is to create profitable growth and achieve sustainable development in long-term development. Thus, the case company has reached a consensus that assumes the CSR approaches to achieve its ultimate objective. Whereby Habia attempts to reduce the impact on environment and offers a safe and inspiring work environment for the employees worldwide. In order to realize the objective and address the sustainability, it
is very important for the company to form a good relationship with customers, suppliers and business partners based on credibility and healthy values.

The following figure 9 is summarized to explain how Habia Cable implements CSR to be responsible for profitable growth, people and environment based on the CSR of Habia Cable (2013) to achieve the company’s primary objectives and come true the sustainable development in their SCM.

![Figure 9](image)

**Figure 9 - Responsibility for Growth, People and Environment**
(Source: by authors)

Working with CSR ensure Habia Cable to being a sustainable company from economic, environmental and social point of views. For clarifying approaches of CSR, Beijer Alma formulated the Code of Conduct, which mainly describes how they assume the responsibility on society and environment performances. Thus, the Code of Conduct provides support for the company to play a responsible role. Based on working with continuous improvements, the Code of Conduct in Habia Cable can be implemented to many areas in daily operations. Importantly, the company believes that only people working in a group can guarantee the social and environmental responsibility that will
be part of the everyday life (Habia, 2013). People working in the group have a common view of being responsible for their daily work. Therefore, the implementations of cooperating with suppliers in a green way and providing customers high quality products can be realized. Moreover, the group also strives to limit the impacts on the environment and offer a secure and stimulating work environment for the worldwide employees. In addition, it is equally important for the group to associate with credibility and healthy values in its contacts with customers, suppliers, and business partners. Furthermore, the supply chain of Habia Cable with the responsibility on the whole production processes can keep the SCM in a sustainable way.

Nevertheless, how the case company works with CSR? Thus, the Group defines CSR from three perspectives: people, environment and ethics. The Code of Conduct describes the suitable approaches in every area and requires that all employees have to commit this specific vision. The details of each perspective are mentioned as below. Meanwhile, the Code serves as a framework for all employees, managers and board members in Beijer Alma, hence, it also applies into Habia Cable.

4.3.1 People

Respect for human rights

The Code Shows respect for human rights from seven points. The company hopes employees to be treated fair no matter what religion, nationality, sexual orientation, etc., and respect employees’ right to the collective agreement. The company requires beyond pay salaries and remuneration reasonable, the minimum age for working is legal age, and do not permit illegal or forced labor. The Code also does not permit behaviors that employees harass or discriminate against colleagues or business partners. And it permits the company that provide employees opportunities to enhance professional skills and strength their social and financial opportunities by developing their expertise.
For example, the design engineers in Habia can have opportunities develop their expertise in Sweden or other organization periodically.

Clear social commitment

Habia has regions in different countries, like China, Netherlands, Germany, etc. The guidelines on Clear Social Commitment have three points in the Code which are: they will involve themselves in the local community when develop local employees and managers wherever possible; they will prioritize sponsorship that can benefit operation places, uphold values and strengthen the relationship with customers and partners; they avoid making contributions to or involving in the political activities.

4.3.2 Environment

External environment

Habia Cable expects to achieve the overall objective that can result in less harmful effects to the environment and people’s health. The company will use appropriate technologies to prevent damage and inconvenience by applying the precautionary principles that identify risks for people and environment. In particular, the person who is in charge of the environmental regulators on supervising the emission and waste for the manufacturing factory, which is helpful to gain a healthy development. Learned from the interview with the technical manager telecom and the emissions report, Habia insists of utilizing energy, water, raw materials and other natural resources as effective as possible. When designing the product for the customer, Habia would like to choose appropriate materials and make profits for the customer. The company tries to minimize the wastes and emissions from facilities and other operations. Besides that, recycling the waste products also is an effective solution. Habia reduces the company’s climate impact performing with risk analysis and supervising how the climate change affected by the operations because efficient resources utilize included avoiding accidents, uncontrolled emissions and revelation to hazardous chemicals.
The operations in Habia consider about the environmental and working environmental legislation, satisfy with standards and adhered to with an ample margin. The company has long-term planning, which is suitable for the new regulation, and recognize requests and needs from customers and other stakeholders. Habia designs product that mainly depend on customer’s requirements. Thus, the company would consider the quality and safety aspects into the products and provide solutions that result in lower environmental impacts from their products. Even more, the products need to meet agreed, statutory norms and health standards concerning use. The Code also requires the information on products that to be used, which should be clear and correct to avoid misunderstandings. ISO 14001 environmental certification is introduced in the operations, and the company keeps training employees in an environmental consideration, and tries to solve the relevant issues that make the continuous improvement. Habia provides some reports relating to their progress and carries out agreements with international guide.

*Safety working environment*

ISO 9001 quality management system is to be applied in place at all manufacturing units in order to address an efficient operational control. Therefore, the case company provides a high standard working environment for employees to reduce the risk of accidents and occupational injuries. For example, the technical manager telecom mentioned that the safety shoes are compulsive required when employees enter the operating place. Consequently, it can ensure safety perform of employees in their working duties is attached importance of risk analysis, training and others.

### 4.3.3 Ethics

*Strong business ethics*

The relationship among the case company and employees and business partners should be honest throughout the operations even for long-term business partners. The company accepts conventional hospitality gifts but not allows break the local legislation and
prohibit the bribes typically. All the employees must comply with competition laws, and forbid conflicts of interest between private financial matters and company’s benefit. More importantly, the financial perspective in the company must be clearly satisfied to international standards.

**Responsibility to shareholders**

According to the information of official-website, the Beijer Alma Group is a public company. For protecting the interests of the different shareholder group, it is important for Habia to consider about making any decision to satisfy their requirements. In fact, they trend to let shareholders to have well-versed of the Group’s operations, earnings, risks and strategies. Especially, any other relevant information should be known by stakeholders. Meanwhile, important information to shareholders need to be provided as quickly as circumstances can allow.

**Well-reasoned communication**

The communication with stakeholders should be openly, correctly, straightforward, honest and without any leakage problem. Keeping in touch with stakeholders is a necessary way to form a good relationship. And the Code requires each employee in the company to observe confidentiality rules regarding the information owned by the company and its related partners. Keeping secret of sensitive information can have an influence on the Beijer Alma’s shareholder’s competitiveness and survival. Based on the Beijer Alma’s CSR Policy, Habia Policies has been formulated. Therefore, Habia Routines are developed based on the Habia Polices (see Figure 10).

[Figure 10 - Habia Cable Relevant Policies (Sources: Habia Cable, 2013)]
The Habia Policies as the guiding policies in Habia includes the following sections: Environmental Policy, Work Environment Policy, Business Ethics & Code of Conduct, Leadership Policy, Supplier Code of Conduct, and Quality Policy. Similarly, Habia Routines as the follow-up/implementation in daily operations have shown in Figure 11.

![Corporate Social Responsibility Structure Habia Cable Group](image)

**Figure 11** - Habia Guiding Policies (Source: Habia Cable, 2013)

Based on the Work Environmental Policy of Habia 001056, the leadership development program and performance reviews have been formulated. Then, it would implement specific action plans, risk assessments, employee surveys, and crisis management plan in operations. Regular training program for the employees is also realized that can ensure people working in the organization to involve the standards, procedures and process in daily activities. As a result, the supply chain of Habia Cable has operated under such the CSR policy, and then tries to be more responsible for social and environment dimensions of sustainability to achieve the objective of creating profitable growth for the company within the long-term consideration for their stakeholder groups.
4.4 SSCM in Habia Cable

Habia Cable implements the incorporation of sustainability concepts into their entire SCM, which is important to the future of corporate performance. According to the interview with Mr. Larsson, the technical manager telecom in Habia Cable, he explained that the sustainability concept by his view can be defined as: “make things (products) as efficient as possible through using resources in the best way and reducing harmful impacts and waste to the environment.” That is to say, sustainability concepts mainly concern on proving the products in a sustainable way that involves resources usages and environmental impacts. Based on a partnership in supply chain, suppliers, Habia Cable, and stakeholders are linked by information, material and capital flows. With regards to this, Habia Cable’s SCM might be held responsible for the environmental and social performances of their suppliers and stakeholders. As starting points, external pressures from stakeholder drive Habia to focus on the sustainable development. On the one hand, customers are deemed as one of great important part in stakeholder, as operating the supply chain is only justified if both products and services are satisfied by customers. On the other hand, the pressures usually pass on to suppliers when Habia is pressured. Then, the distinctive SSCM emerges for Habia Cable that involves four different strategies comprising of supplier management, pull-based material management, resource and emission control and risk management to deal with such issues (see Figure 12).

![Figure 12 - SSCM in Habia Cable](Source: Internal Documentations of Habia Cable)
4.4.1 Supplier Management

Habia Cable works together with and imposes demands on their suppliers that achieve the common goals to gain success in their sustainable development efforts. The regular dialogue between Habia Cable and their suppliers is mainly based on Supplier Code of Conduct and Quality Requirements. The code of conduct ensures suppliers to prevent their operations from generating negative environmental effects. Suppliers of Habia Cable are encouraged to introduce certifiable quality and environmental management systems. In addition, suppliers’ performance will be supported and monitored by Habia. If a supplier cannot meet the agreed specification, Habia might take some necessary actions or improvements, even more, or discontinuing the relationship to their suppliers.

In particular, the purchasing department of Habia Cable uses the Supplier Classification Matrix as an assisting tool in order to obtain full supplier control with regards to the supply of materials and services. Therefore, it is helpful for Habia to determine the right strategic or operational decisions for a specific supplier through using the matrix. The Supplier Classification Matrix (based on the Kraljics Matrix and Portfolio Models) focuses on the four types of procurement consisting of Strategic Suppliers, Leverage Suppliers, Bottleneck Suppliers, and Non-critical Suppliers. Consequently, the aim of the matrix is to identify the majority of the suppliers according to the non-critical criteria which mean that more than 75% of the suppliers shall stand for less than 10% of the total spend (see Table 4). Habia Cable will evaluates all suppliers at the start of every year according to the tool of Suppliers Classification Matrix and take the specific adjustments to deal with their suppliers that depended on the values as stated below. There have four strategies that are implemented by Habia to review the performance of different types of suppliers, including partnering for Strategic Suppliers, consolidation for Leverage Suppliers, Re-Positioning for Bottleneck Suppliers, and Order Processing for Non-Critical Suppliers (see Figure 13).
### Table 4 - Typical Values (Source: Internal Documentations of Habia Cable)

<table>
<thead>
<tr>
<th></th>
<th>Share of Suppliers</th>
<th>Share of Purchased Volume</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strategic Suppliers</td>
<td>5%</td>
<td>40%</td>
</tr>
<tr>
<td>Leverage Suppliers</td>
<td>10%</td>
<td>40%</td>
</tr>
<tr>
<td>Bottleneck Suppliers</td>
<td>10%</td>
<td>10%</td>
</tr>
<tr>
<td>Non-Critical Suppliers</td>
<td>75%</td>
<td>10%</td>
</tr>
</tbody>
</table>

**Figure 13 - Suppliers Classification Matrix of Habia Cable**

(Source: Internal Documentations of Habia Cable)

### 4.4.2 Pull-based Material Management

In general, materials management is an important part in the SCM. Materials management involves balancing requirements or materials with availability of materials as cost-effectively as possible. Hence, if required demand is more than supply, the flow of materials would be increased by planning new manufacturing orders. If, on the other hand, required demand is less than supply, the planned and released orders would be delayed. Therefore, imbalances between demand and supply will lead to poor delivery capacity and shortage situations if demand is too larger, or larger stocks if supplies are too large. There are two different types of materials management that included “push-” and “pull-based” which based on the requirements or the pressure of planning.
Regarding to the material management in Habia Cable, the manufacturing process is depending on the customer orders. Thus, it can be deemed as the “pull-based” materials management in Habia Cable. Such “pull-based” materials management aims at answering the customers’ enquiry accurately and/or providing a proposed solution for them effectively. According to Mr. Larsson, the technical manager telecom in Habia Cable, he mentioned that Habia prefers to provide a more sustainable solution to customers when they have more than two alternative selections to manufacture the final products. In addition, it also is helpful to communicate within the processes in the supply chain and reduce waste of resource usage. In the “pull-based” materials management of Habia Cable, it is necessary to identify what should be required from customers (input) firstly, and thus to creates the important information about the products as responses to customers (output). The process relates to providing offers in Habia Cable can be seen as follows (Figure 14):

Figure 14 - Process relate to Providing Offers
(Source: Internal Documentations of Habia Cable)
Hence, Habia Cable lists three types of offers to satisfy variety demands of customers. Then, the customer requirement is received as an enquiry. Habia Cable receives these enquiries by fax, mail, telephone conversation or through sales-man’s visit. Meanwhile, all necessary information related to purchasing orders is collected by the sales-man or administrator. In particular, Habia Cable firstly evaluates the information from customers and then decides to practice the manufacturing processes. Further, the processes should be based on the three types (references) of offers that shown as follows:

- **An existing design:**
  The enquiry is given an offer number and the offer is created in the sales support program. Customers can receive an offer from sales-man or administrator and all relevant data would be filed.

- **A new design:**
  The offer has not logged in the enquiry software package. Thus, it is necessary to consider the local designer which prepares the technical solution and a calculation when a proper checklist has been filled in and submitted.

- **A more complicated design (outside the design guidelines):**
  The enquiry is handed over to Operational/Strategic Design.

### 4.4.3 Resource and Emission Control

As a global manufacturer in the areas of wire and cable marketplace, Haibia Cable aims at finding better solutions to solve the customers’ problems and providing the friendly product based on technical, economic and environmental development to society. In additions, Habia Cable has already realized what activities affect to the environment by themselves. These activities can be summarized that consuming energy in the process of manufacturing and transportation, using raw materials—mainly plastic, basic and precious metals that are finite supply, resulting the emissions to air, scrap and waste to land. Hence, Habia Cable strives to minimize the ecological foot-print through reducing
energy and material consumption in products and processes as well as improving the ability to handle the waste. In order to control resources and emissions, Habia has integrated the consideration of the environmental dimension into decisions that is related to environmental impacts. Then, the processes should be measured and reviewed relevantly environmental objectives. Moreover, resources usage and emissions should comply with environmental requirements from authorities. The environmental policy aims at minimizing the effects of activities on the environment. In order to achieve that, it is very necessary for companies to practice a continuous task consisting of many small steps. Last but not the least, the scrap and waste are recycled and then used to provide energy and material. In particular, to take the example of one factory at Söderfors which owned by Habia Cable, Mr. Larsson mentioned that there has one section which monitors the resource usage, emissions, and waste at every month, and also records these data into documentation. According to the monthly internal environmental report in Habia Cable Söderfors, industrial petrol and flux agent (alcohol-based), and the energy water consumptions are shown in Table 5.

| Table 5 - Production and Consumptions of Habia Cable Söderfors in 2013 (Source: Internal Documentations) |
|---------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|                                | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Total  | Permission |
| **Industrial petrol/ton**       | 0.5 | 1.6 | 1.9 | 2.1 | 1.1 | 2.1 | 0.6 | 2.5 | 2.8 | 3.0 | 2.7 | 1.9 | 22.8   | 150         |
| **Flux Agent/ton**              | 0.2 | 0.3 | 0.4 | 0.4 | 0.4 | 0.3 | 0.2 | 0.4 | 0.6 | 0.7 | 0.4 | 0.4 | 4.76   | x           |
| **Electrical Energy/ MWh**      | 589 | 502 | 615 | 509 | 376 | 348 | 172 | 372 | 434 | 508 | 559 | 576 | 5560   | 589         |
| **LPG-Fill, Ceramic Bed/ton**   | 2.06| 2.68| 2.04| 4.57| 1.824| 1.977| 4.58| 4.024| 2.3 | 2.04| 2.325| 2.678| 33.092 | x           |
| **Water/m³**                    | 192 | 223 | 249 | 283 | 213 | 247 | 70  | 284 | 318 | 297 | 268 | 212 | 2856   | x           |
Moreover, the environmental report has compared both Consumed Petrol (Figure 15) and Consumed Electrical Energy (Figure 16) from 2003 to 2012, which mainly illustrated the trend about the consumption related to materials and energy have decreased gradually by year and year. In particular, Habica Cable focuses on the control of consumption of raw materials, energy and water effectively. Consequently, it helps company to reduce the resource usage, and deliver ecological products to customers so that the processes in Habia Cable can be more sustainable.

**Figure 15** - Consumed Industrial Petrol/LGP (ton) from 2003 to 2012  
(Source: Internal Documentations of Habia Cable)

**Figure 16** - Consumed Electricity (MWh) from 2003 to 2012  
(Source: Internal Documentations of Habia Cable)
After reviewing the consumptions in Habia Cable, the way to record the residuals is necessary to be followed. As a cable manufacturer, it mainly involves many different types of residual after manufacturing products. Therefore, it is important for company to manage these residuals and control the hazardous emissions which aim at achieving sustainable development. The Monthly internal environmental report in Habia Cable Söderfors has listed the different types of residual and shown the details in Table 6.

<table>
<thead>
<tr>
<th>Table 6 - Residuals and Emissions of Habia Cable Söderfors in 2013 (Resources: Internal Documentations)</th>
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<tr>
<td>Waste to deposit/ton</td>
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<tr>
<td>Waste to combustion/ton</td>
</tr>
<tr>
<td>Wood/ton</td>
</tr>
<tr>
<td>Well-board/ton</td>
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<tr>
<td>Waste paper/ton</td>
</tr>
<tr>
<td>Rigid plastics/ton</td>
</tr>
<tr>
<td>Soft plastics/ton</td>
</tr>
<tr>
<td>Hazardous waste/ton</td>
</tr>
<tr>
<td>PTFE/Tinning VOC (air emissions)/ kg</td>
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4.4.4 Risk Management

As a global manufacturer—Habia Cable, which would deal with several different risks of political, financial and other types. In order to handle these risks, Habia Cable has
implemented some policies to solve them that are based on its own experiences and the specific guidance from its owner Beijer Alma group. Therefore, Habia Cable created Risk Management Policy, which mainly focuses on four main perspectives: suppliers, own production, information technology and contracts (Figure 17).

![Diagram of Risk Management Policy of Habia Cable](Source: Internal Company Documentations)

- **Suppliers**
  Habia Cable would rather use mainly well-known global manufacturers of raw material that are based on their core values reliability, transparency, integrity and flexibility. In order to achieve these objectives and secure deliveries, Habia Cable insists associating with at least two suppliers for all raw material and keeping a long-term relationship with key suppliers. What is more, the way of keeping stable stock in factories for the standard material ensures to run the manufacturing process.

- **Own Production**
  In order to minimize the risk of the production line, most products of Habia Cable are produced in more than one factory. Consequently, Habia Cable is continuously implementing this strategy in the further development. Moreover, Habia Cable also installs the sprinkle in all factories to reduce the risk for fire and has close cooperation with the local fire brigades. In particular, all staffs in Habia Cable have
accepted the training for the fire situation. Furthermore, it is important to keep the power suppliers’ infrastructure updated which can ensure to minimize the risk of electric power.

- **Information Technology**

  Tracking is a very necessary task for many orders, and thus Habia Cable has its own system to deal with these issues. In addition, Habia Cable has redundancy, daily information backup and battery backup to secure the safety of managing all information in company. What is more, the Production Data Management (PDM) system helps Habia Cable to manage design and documents of products efficiently.

- **Contracts**

  Hibia Cable establishes some instructions to review the contract in the Quality System Procedures for the sales processes. These instructions can provide the details about how to review enquiries and offers that are based on customers as well as contracts. Hence, it can control the risk of the process about contracts.

### 4.5 Summary of Case Study

Habia Cable is a global enterprise which has rich experience in the area of designing and manufacturing a high performance wire and cable. Measures of CSR in Habia Cable come from the international agreements and guidelines by its owner—Beijer Alma Group. In order to practice CSR specifically, the Code of Conduct has been formulated that mainly concerns on three areas: people, the environment, and ethics (Habia, 2013). In particular, the ultimate objective of CSR is to create added values for their stakeholders (suppliers, shareholders, employees, and customers) in a sustainable development. Meanwhile, Habia Cable assumes responsibility for the impacts of their operations and products regarding to both society and environment in the long-term.
Although the Code of Conduct could provide supports for the development of the company, Habia Cable believes that only all employees fulfilling the objectives of CSR in the group can guarantee the social responsibility that become part of life in every day. Therefore, presenting and analyzing CSR performance in Habia Cable can be deemed as part of efforts to continuously improve in future. Consequently, it could not only good for the development of Habia Cable, but also create added values to satisfy their customers, suppliers and other stakeholders in the supply chain. Hence, Habia Cable implements the incorporation of sustainability concept into their SCM that can satisfy the requirements from social, environmental, and economic dimensions efficiently. Moreover, to achieve a strategic SSCM, four different strategies including supplier management, pull-based material management, resource and emission control and risk management are applied to deal with relevant issues in Habia Cable’s SCM.

Since the purpose of this study proposed to recognize how the sustainability concept can be defined and applied to SCM and explore the relationship between sustainability and SCM among social, environmental and economic dimensions of the case company. According to the findings of case study, it described the sustainable implementations for achieving a balance between finances, social factors and environment. However, the question related to how sustainability concept influence SCM with each other will be discussed in the next section. In addition, the authors will analyze what the key success factors are for implementing a strategic SSCM in wire and cable industry that are based on the current situation of case company.
5. Analysis/Discussion

In this section, both literature review and previous findings of the case study are recalled to satisfy the purpose of this research. In order to do that, this section will intend to provide analysis and discussion to define the incorporation of the sustainability concept into SCM and evaluate the relationship between sustainability and SCM that are based on the case company—Habia Cable. After that, key success factors for implementing strategic SSCM can be addressed and summarized in the end.

The management process can influence to the company’s ability to organize in daily operations by allocating appropriate resources and combining them effectively to achieve the desired result. In particular, resources in an organization include human, investments, raw materials and energy in the process. Interesting, the quality management would like to consider the quality aspects for production, while the environmental management would like to concern on how to protect the environmental issues. There is no doubt that, each management aims at finishing the relevant processes in view of legal obligation and using resources efficiently. Hence, it must contribute to increased profitability for companies if they would like to accept the management concentrating on sustainable business strategies (Harmsen and Powell, 2010, p.220). That is to say, companies should present a visible positive effect at the end of each business year to keep a balance of saving the raw material and energy, reducing costs in financial aspects, and improving effective of internal procedures. Besides that, the sales of productions will increase based on a better company’s image.

Consequently, effective way to start the process within a vision of a sustainable economic in the management for companies is implementing SSCM. Therefore, SSCM can be defined as the management of material and information flows as well as cooperation among companies along the entire supply chain to satisfy the stakeholder requirements and take goals from three dimensions of sustainable development, i.e.
environmental, social, and economic (Seuring et al., 2008). That is to say, SSCM has integrated sustainability into the entire supply chain (from up-stream to down-stream) that provides a comprehensive vision for companies to pursue a sustainable path. After that, each research question of this study will be presented as the following structure, thus in order to uncover the context of the strategic SSCM in a systemic way.

5.1 RQ1: How can the sustainability be defined and applied to the SCM in Habia Cable?

According to World Commission on Environment and Development (1987, p.8), the sustainability concept can be traditionally defined as “meeting the needs of the present generation without compromising the ability of future generation to meet their own needs.” Thus, sustainability would like to focus on issues like global warming and climate change that aims at keeping the world intact. This broad rubric of sustainability would consider the environmental impact of economic activity. However, it provides little guidance for companies to determine the technologies and resources, and to focus on the multiple stakeholders with regard to both society and natural environment along the entire supply chain (Starik and Rands, 1995; Hart, 1995).

Moreover, most of the concepts about organizational sustainability only pay attention to implicit recognition of social and economic responsibility and concern on ecological sustainability. Thereafter, it is quite necessary to keep a wise balance among economic developments, environmental stewardship, and society equity (Sikdar, 2003). In addition, Elkington (1994, 1997) put forward a clearer definition about sustainability that is based on three impact areas (environmental, economic, and social), which can be regarded as the triple bottom line concept for corporate and governmental responsibility. Besides, Mr. Larsson, the technical manager telecom in Habia Cable, explained the sustainability concept in the interview: “make things (products) as efficient as possible through using resources in the best way and reducing harmful
impacts and waste to the environment.” As mention above, the authors defined the sustainability in this research as: “The way to gain continuous improvement that considers cost-benefit economy, through providing the products and service required by society and delivering less harmful impacts on the environment.”

After defining the sustainability concept, there is a need to realize the importance of applying the sustainability into the supply chain with referencing a management vision. According to the indicators of sustainability from the view of Corporate Level and Management System (Cobb et al., 2007), seven different areas are mentioned in the sustainability index: (1) Strategic commitment to sustainability; (2) Safety performance (employee and process); (3) Environmental performance (resource use, emissions, including green gases); (4) Social responsibility (community investment, stakeholder engagement); (5) Product stewardship (Responsible Care/Reach, product safety); (6) Innovation (in sustainability); (7) Value chain management (supplier and customer standards). Hence, the authors have established appropriate indicators for guiding the implementations of SSCM. Thus, these indicators can be used to explore and measure the performance regarding to the SSCM of Habia Cable at Söderfors (see Figure 5).

**Figure 5** - Indicators for Habia Cable’s Sustainable Supply Chain Management

(Source: Cobb et al., 2007)
As mentioned in the findings of the case study, it mainly described how Habia Cable to apply a strategic SSCM in daily operations that mainly based on the guidance from Code of Conduct in its CSR. Consequently, incorporation of the sustainability concept into SCM of Habia Cable containing both sustainable activities relating to Code of Conduct in CSR and specific implementations in SSCM need to be illustrated and matched through referring to seven indicators of SSCM (see Figure 18).

<table>
<thead>
<tr>
<th>CSR/SSCM activities in Habia Cable</th>
<th>Indicators of Sustainability</th>
</tr>
</thead>
<tbody>
<tr>
<td>◆ Supplier Classification Matrix to ensure the supply of materials and services</td>
<td>◆ Strategic Commitment</td>
</tr>
<tr>
<td>◆ Pull-based material management that based on customer’s order</td>
<td>◆ Safety performance</td>
</tr>
<tr>
<td>◆ Resource and emission control</td>
<td>◆ Environmental performance</td>
</tr>
<tr>
<td>◆ Risk Management Policy in suppliers, productions, information, contracts</td>
<td>◆ Social responsibility</td>
</tr>
<tr>
<td>◆ Respect for human rights</td>
<td>◆ Product stewardship</td>
</tr>
<tr>
<td>◆ Clear social commitment</td>
<td>◆ Innovation</td>
</tr>
<tr>
<td>◆ Establish healthy and safety working environment</td>
<td>◆ Value chain management</td>
</tr>
<tr>
<td>◆ Comply with competition laws and regulations</td>
<td></td>
</tr>
<tr>
<td>◆ Responsibility to shareholders</td>
<td></td>
</tr>
<tr>
<td>◆ Well-reasoned communication with stakeholders</td>
<td></td>
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</tbody>
</table>

**Figure 18** - Habia Cable’s Sustainable Activities (Source: by authors)

As mentioned above, every aspect of the sustainable activities in Habia Cable can be related to the Indicators of Sustainability that can be explained to how Habia Cable pursues sustainable development in its entire SCM (Figure 18). Obviously, the strategic commitment of Habia is to hold on a clear social commitment in three main areas: focusing on a local community and develop local employees and managers;
strengthening the relationship with customers and business partners; not being as political organizations. Therefore, Habia would like to pay more attentions on Social responsibility, for instance, a responsible company in society through keeping a good relationship with all stakeholders and complying with the local legislation. Moreover, Habia also has formulated the standards for both suppliers and customers that can lead to an effective value chain management in SSCM. With Regard to the environmental performance, Habia implements ISO 14001 environmental management into its daily operations. Moreover, Habia insists of monitoring the resource usage, and record the emissions, and waste at every month that can strive to minimize negative impacts on the environment effectively. In addition, Habia respects for human rights and provides a high standard safety working environment that aims at reducing the risk of accidents and occupational injuries for employees. The ISO 9001 quality management can help Habia to get an efficient operational control at all manufacturing units and keep products safety. What is more, pull-based material management in Habia provides a more sustainable solution for customers, and ensures to offer safety products for them. Last but not the least, based on the continuous improvement, Habia prefers to use innovate raw material in processes to reduce the environmental impacts and also applies other improved implementations. However, a few actual examples in the findings of Habia can directly reflect the ability of innovation in sustainability. These sustainable activities as mentioned above can response to how Habia Cable integrates sustainability into its whole SCM.

5.2 RQ 2: How to evaluate the relationship between sustainability and SCM for Habia Cable?

Under the trend of globalization and competitive economical marketplace, a company ought to concentrate on the actions of suppliers and also care about the expectations and pressures from different stakeholder groups in the entire complex supply chain. In fact, Porter and Kramer (2002) claimed that SSCM could help to improve the long-term
economic performance of the individual company and its supply chain in the systemic coordination of business processes. But what activities can be defined as sustainable? Carter and Rogers (2008) have explained that social and environmental supply chain activities lay at the intersection with the economic bottom line make these activities as sustainable (see Figure 1). Furthermore, it has represented increasing focus on environmental and social responsible principles and the specific practices could satisfy the expectations of stakeholders according to the literature reviewed. Next, it will discuss how the environment dimension and social dimension works in the SCM to achieve the sustainability. Thereafter, evaluating the relationship between sustainability and SCM has presented through considering environmental and social dimensions that lay at the economic bottom line as follows.

Figure 1 - Sustainable Supply Chain Management
(Source: Carter and Rogers, 2008)

5.2.1 Environmental Dimension of Sustainability

Product-based green supply is one of the factors that achieve sustainability for a firm with a part of supply chain by extend environmental perspective to the entire value chain to include other stakeholders such as designers and suppliers (Ashby et al., 2012). As the interviewees explained, the custom-design is particularly realized in Habia. Thus,
the designers will choose the suppliers that can provide more “green” materials when
design a new product or improve an existing product according to the Habia Policies and
Habia Routines. Besides, the designers will design a product for recycling which
opposite is allowing for more efficient and profitable reused of product components.
Thus, reduced impact in the environment can happen when designing products.

Besides, being a manufacturing company, measures of resource reduction including
recycling, re-use, and waste elimination are quite important to save costs, meanwhile,
to enhance competitiveness. The recycled waste products and emissions can deemed as
an effective way to handle with the environmental problem, which can be used as raw
material again for further manufacturing processes (Gupta, 1995). In order to record
and analyze the input-output process in Habia Cable factories, there has one specific
section that mainly monitors the resource usage, emissions and waste at every month.
In particular, Habia emphasizes recycling in many areas that the activities enable them
to reduce the environmental impacts and improve the working environment. Hence,
ensure a consistent supply of recycled material is a brilliant way toward the reduction
of packaging materials for its products. This is another sustainable way for economic
even some more sustainable materials and processes may occur.

Furthermore, based on the literature review, companies should realize that the payback
of implementation in SSCM may not occur in the short-term, some firms failed but
some survived (Sarkis et al., 2011; Zhihong and Joseph, 2013). Learned from these
failed firms, one of the reasons is a lack the knowledge of being improvement. From
the documents in Habia (2013), continuous improvement is considered in Habia daily
activities. Especially learned from interviewees, employees worldwide include design
engineers, sales, workers, etc. in Habia have opportunities to enhance professional skills
and strength their social and financial opportunities by developing their expertise in
Sweden or other organization periodicals. As a result, continuous improvement is
especially crucial important for the global manufacture company like Habia.
5.2.2 Social Dimension of Sustainability

With the objective of Habia that creates added value for stakeholders which added value involves contributing to the financial benefit whereby improved profitability and competitiveness for customers, make based salaries and conditions for employees. Firms undertake both social dimension and environmental dimensions to achieve economic performance will better than only pursue one component (Samaranayake, 2005; Bansal, 2005; Zhihong and Joseph, 2013). Also like Carter and Rogers (2008) mentioned that firms will achieve higher economic performance if strategically carry out SSCM than firms only follow social responsibility or only pursue environmental responsibility of the triple bottom line. To avoid this failure, Habia assuming clear responsibility for people and the environment. Thus, they try to achieve a long-term profit growth strategy by implementing CSR approach which to be responsible for a limit the impact on the environment and offer employees a good working environment.

Social SCM is anticipated to implement a firm’s values and standards with its suppliers. According to the documentations of Habia, the growth strategy has stated that it is important be associated with credibility and healthy values in its contact with customers, suppliers and business partners. Based on the literature review, corporate with suppliers in a stable and low-cost manner is one of the tenets of transactions cost economics that firms attempt to acquire resources (Kleindorfer et al., 2005; Handfield and Nichols, 1999). Furthermore, have a strong business ethics with business partners can tend the company to realize social and environmental responsibility (Habia, 2013). And the honesty and honorably needs impose throughout the operations and expect the same with company’s business partners. More, bribes are prohibited, Habia asks all forms of compensations to agents, suppliers and partners must only be for actual goods or services. Besides this, gifts and other benefits may not exceed local customs. This stable and well ethical coordination with supplier can decrease the transaction’s cost economics, which can improve the economic sustainability.
One of the most important ways to ensure the social sustainability in supply chain is to have equal access to resources and opportunities, fair treatments, equitable rules to employees in the society (Bansal, 2005). Similarly, associating with the social dimension of sustainability in the management of supply chains can effectively reduce unemployment, ensure equal treatment, protect employees’ health safety, and prevent social exclusion (Leire and Mont, 2010). What is more, social sustainability within the supply chain perspective ought to concern on poverty, injustice, human rights and the welfare of global employees (Krause et al., 2009). Respecting human right has been considered as the company’s daily guideline in their daily operations that learned from Habia (2013). All the stages of the supply chain “people” principles are underlying of good working environment and well working operations (Strong, 1997). With then can guarantee preserve resources, assess environment impacts and co-operate with internal and external resources. In addition, in Habia’s daily operation routines we learned that, people working in the group is regards as a role that guarantee the company implement social and environment responsibility, then to limit the impact on the environment and achieve long term profit growth. All in all, provide employees a safe working environment and good working condition are necessary for a guarantee that can achieve long term development for Habia.

5.3 RQ 3: What are the key success factors for implementing a strategic SSCM in wire and cable industry?

According to the definition of SSCM, there have three dimensions including social, environmental and economic dimensions based on the long-term development need to be considered. Consequently, most firms consider social performance and environment performance linked with economic performance can achieve SSCM. Based on above discussion of how to apply sustainability into SCM and the relationship between sustainability and SCM from social and environmental dimensions that lie on economic
performance, key success factors for implementing the strategic SSCM based on the case company—Habia Cable in wire and cable industry have been summarized:

◆ Ensure the concept of SSCM as a strategy within long-term consideration
Integration of the sustainability concept into SCM, the *triple bottom line* (economic, social, and environmental dimension) need to be cooperated together to achieve long-term benefits for focal firms and business partners in the supply chain. The idea of sustainability should be highlighted in company’s culture through enhancing the education and training for employees and suppliers, thus it leads all members in supply chain to practice conscious actions, and thus shape a sustainable image for the company.

◆ Comply with the standard management system in daily operations
Due to the complex and unstable factors in supply chain, especially the trend of globalization of supply chains in nowadays, the way to complying with international standard management system is necessary for companies. ISO 9001 Quality Management, ISO 14001 Environmental Management, and SA 8000 Social Accountability International Standard ensure the independence of each supply chain member, meanwhile, standardize the code of conduct and management system in the whole supply chain.

◆ Increase communication with stakeholders in the supply chain
There is an essential and urgent need for making continuous improvements in SCM to increase communication among all stakeholders along the supply chain. Internal stakeholders require to cultivate sustainable principles that support management system. Besides, cooperating with business partners (supplier, investor) can push and force to come true the incorporation of sustainability into SCM. These external stakeholders require to increase communication, share information, and enhance the transparency of the supply chain that aim at reducing the costs in term of the initial stage of implementing SSCM and gaining long-term benefits together.
◆ **Respect for human rights, and provide safety working environment**

Regarding to the social responsible SCM, it mainly refers to the extent a company promotes human rights and employee welfare in its supply chain. Organizations that more effectively adapt to improvements in human rights will be more economically sustainable. In particular, human rights including equal opportunity, fair wages, working hours, health and safety, etc. What is more, based on the social dimension of sustainability in SCM, offering employees a secure and stimulating working environment is helpful to achieve long-term profit growth.

◆ **Control resources usage and reduce emission to environment**

Green design for products is one of important factors to integrate sustainability into supply chain that can satisfy the expectations of stakeholder within less harmful impacts to an external environment. Therefore, the critical way to deploy sustainable practices in supply chain should rely on the relationship between suppliers and focal companies. Consequently, a healthy supply relationship can lead to positive environmental impacts, cost reduction, flexible demands, effective operations, energy efficiency reduction in carbon emissions. Carbon emissions are a major contributor to global warming, therefore, it is necessary to monitor air emissions for industrial manufacturers. The adaptations of lean manufacturing techniques is an appropriate method for suppliers to improve environmental sustainability by reducing resources usages, enhancing green procurement, consuming fewer energy and eventually lesser carbon emissions.
6. Conclusions

With the perspective of SCM, translating sustainable concept into small steps that can be readily understood and implemented is a challenging task (Linton et al., 2007; Zhu et al., 2008a; Zhu et al., 2008b; Seuring et al., 2008; Searcy et al., 2009; Tweed, 2010; Hassini et al., 2012; Beske, 2012). The process can be handled with long-term consideration by practicing a strategic SSCM through defining the sustainability and identifying the sustainable implementations in SCM. Therefore, careful attention to economic, social and environmental dimensions of supply chain operations is defined as the compliance with triple bottom line (Elkington, 1998). Based on the review of related literature and findings of the case study, three main research questions have been analyzed and discussed to satisfy the purpose in this study. Thus, the summary of these answers relating to each research question will be presented as below.

As for research question 1, the definition of sustainability, as mentioned in the review of related literature section, there are a large of definitions for sustainability from different perspectives. In addition, Mr. Larsson, the technical manager telecom in Habia Cable, explained the sustainability concept in the interview. Therefore, the term of sustainability can be defined as: the way to gain continuous improvement that considers cost-benefit economy, through providing the products and service required by society and delivering less harmful impacts on the environment. Indicators of sustainability including seven areas can guide enterprises to achieve SSCM. Besides, as a result of the findings of the case study, implementations in SSCM of the case company—Habia Cable, are found: (1) Hold on a clear social commitment within the global perspective; (2) Pay more attentions to social responsibility to keep a good relationship with all stakeholders; (3) Formulate the standards for both suppliers and customers to ensure an effective value chain; (4) Apply ISO 14001 environment management and ISO9001 quality management in daily operations; (5) Minimize the negative impact to the environment by monitoring the resource usage, recording emissions and waste at every
month; (6) Respect for human rights and provide a safety working conditions for employees; (7) Implement continuous improvement, use innovate raw material to reduce harmful impacts.

As for research question 2, evaluating the relationship between sustainability and SCM in case company—Habia Cable, based on both social and environmental supply chain activities that lay at the intersection with the economy bottom line to achieve sustainable development. In particular, the relationship will be discussed from two separate aspects in sustainability consisting of social and environmental dimensions. Briefly, with the environmental dimension of sustainability, green customer-design, continuous technical improvement, and recycling in the whole SCM can help to achieve sustainable development. With the social dimension of sustainability, there have three main aspects to be concentrated: determine the importance of sustainable supply chain strategy; maintain a stable and ethical coordination with suppliers; and ensure to provide a secure and stimulating work environment for employees.

As for research question 3, only after understanding how to integrate sustainability into SCM, and gaining a comprehensive relationship between sustainability and SCM with an in-depth view of referencing a real empirical study of Habia Cable, therefore, the key success factors can be addressed according to the aforementioned analysis. To sum up, five major success factors for implementing a strategic SSCM have been concluded as follows:

1. SSCM needs to be ensured as a strategy within long-term consideration
2. Standard management system needs to be complied with daily operations
3. Communication with stakeholders needs to be increased in the supply chain
4. Respect for human rights, and provide safety working environment
5. Control resources usage and reduce negative emission to environment
6.1 Contribution of the research

As mentioned in the section of introduction, most studies relating to this research subject merely concentrate on evaluating the relationship between sustainability and SCM based on both environmental and social dimension that lay at the intersection with the economy bottom line (Power, 2005; Markley and Davis, 2007; Seuring and Müller, 2008; Zhu et al., 2005), and limited knowledge, experience and tools to be understood and implemented into SSCM for companies (Zhu et al., 2008a, 2008b).

Accomplish of this thesis, on the one hand, it clarified the relationship between sustainability and SCM based on an empirical study in traditional manufacturing industry. On the other hand, this thesis also deepened the knowledge about how to integrate sustainability into SCM that associated with wire and cable enterprises. Importantly, those companies without the implementations of SSCM in wire and cable industry can be inspired by this research. In addition, this research can guide for those wire and cable companies which practices SSCM but lacks of experiences that will gain a comprehensive understanding about how to achieve sustainable development. At last, this research has concluded the key success factors for implementing the strategic SSCM in general.

6.2 Limitation of the research

Although this study is scientifically developed and in-depth discussed with appropriate data, some limitation of this research still exists. The empirical findings of the research may not comprehensive obtained because of lack interview with the manager in charge and not a full introduction of SSCM implementation in this company, even though some relevant person had accepted to have interviews with us. Due to the restriction to access the financial data of the case company, there is a few direct focus on the economic aspect. Thus, this research mainly concentrates on social and environmental dimensions
in sustainability. At last, key success factors have been concluded that only based on the current situation of the case company, it might be not sure suitable for others that have different background and operations.

6.3 Further studies

Single-case study as research strategy is used to define the sustainability into the field of SCM and explore the relationship between sustainability and SC. Therefore, further studies can be generated to analyze within multi-case study research strategy, to compare the specific implementations in SSCM across different industries, to analyze the differences based on the sustainable activities in SCM at the same area, or to establish the standard factors about how to effectively achieve a strategic SSCM. In addition, due to the lack of financial data, otherwise it is possible to explore how SSCM impacts on the economic dimension in sustainability in-depth.
7. References


**Internet**


**Interviewees**

Hans Larsson, Technical Manager Telecom, Habia Cable, interviewed 2014-04-08, during 90 minutes.

David Feng, Cable Design Engineer, Habia Cable, interviewed 2014-05-05, during 45 minutes.
8. Appendix

**First Interviewee:** Hans Larsson, Technical Manager Telecom in Habia Cable (face-to-face interview from 13:00-14:30 on April 8\textsuperscript{th}, 2014 at Elementvägen, Söderfors, and e-mail interview for further questions)

**Second Interviewee:** David Feng, Design Engineer in Habia Cable (phone interview on from 14:00-14:45 on May 5\textsuperscript{th}, 2014, and e-mail interview for further questions)

**Interview Questions:**

1. What is the initial motivation for Habia Cable to implement Corporate Social Responsibility (CSR) strategy? How do you define the concept of Sustainability in your company?

2. How does Habia Cable put Sustainability into SCM (Environmental, Social, and Economic)? Is the concept of Sustainable SCM (SSCM) to be regarded as a strategic business by your company?

3. Could you give us some examples how does Habia Cable practice the Sustainable SCM (SSCM) within the two perspectives of Environmental impact and Social dimension?

4. What is the connection between Economic issues and Sustainable SCM (SSCM)/Corporate Social Responsibility (CSR) for Habia Cable? Is there some positive/negative influences based on this connection?

5. In general, how does Habia Cable practice Corporate Social Responsibility (CSR) in daily operations?

6. What tangible (costs saving ...) and intangible (facilitate innovation, motivate employees, and increase employee’s loyalty ...) benefits does Habia Cable get from Sustainable SCM (SSCM)? Some examples?

7. What are the key success factors for implementing a Strategic Sustainable SCM (SSCM) in Habia Cable?