TOWARDS MORE CIRCULAR ECONOMY AND SUSTAINABLE CONSUMPTION
— THE PRACTICE OF SECOND HAND CLOTHING CONSUMPTION IN SWEDEN

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**Abstract**

The rapid increase in clothing consumption over the last decades has meant a significant burden on the environment. Some examples of this are the high consumption of natural resources and land, increasing amounts of carbon emissions, excessive use of toxic chemicals, polluting air, land and water and increasing amounts of waste. The average clothing consumption in Europe is far higher than the world average, especially in Nordic countries including Sweden. Adopting and encouraging more circular economies is a part of the European commission’s strategy to achieve sustainable consumption of resources and protection for environment.

The purpose of this Research is to study the possibilities of improving the practice of second hand clothes consumption in Sweden and make it more effective towards the goal of sustainable consumption and circular economies. In order to achieve this goal, it is necessary to understand the challenges and find abilities for improvement in the value chain of used clothes in Sweden, with focus on the reverse logistics system of used clothes (collection and sorting processes) as well as the market of second hand clothes.

In order to achieve the purpose of the study, the conceptual framework has been formulated upon studying relevant literature and results of previous studies. Value chains of three charity organizations have been studied and empirical data have been collected through semi-structured interviews with participants from these three organizations. The empirical findings have been interpreted in relation to the conceptual framework and the results of previous studies, in order to answer the research questions.

The results of the study showed potential for improvement and development in the reverse logistics system (collections and sorting processes) of used clothes, as well as in the Swedish market of second hand clothes. However, benefiting of this potential requires collaboration between all stakeholders in the value chain of used clothes, including individuals (either in a position of donors or consumers), interested businesses (nonprofit or commercial organizations), government, municipalities, politicians and finally the private sector in clothing industry.

**Keywords:** Circular economy, Reverse logistics (RL), RL network, collection of used clothes, Sorting, Product value-recovery, Reuse, Second hand clothes and second hand market in Sweden.
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1 Introduction

In the introduction chapter, the author presents the topic and purpose of the research. It starts with presenting the wide context or background of the topic, including contemporary environmental issues, the concepts of sustainable development and circular economy, environmental impacts of textile and clothing industry, clothing consumption in Europe and Sweden. Then, it is narrowed down to guide to the research problem, purpose, research questions, delimitations and limitations of the study.

1.1 Planetary Boundaries and Climate Change

Keeping a safe state of our human development on Earth requires controlling our activities not to exceed the boundaries of the nine critical ecosystems on the planet, which are known as the nine planetary boundaries. These planetary boundaries are climate change, depletion of stratospheric ozone, land use change, freshwater use, rate of biological diversity loss, ocean acidification, amounts of nitrogen and phosphorus inputs to the biosphere and oceans, air pollution from aerosol loading and chemical pollution (Rockström, 2010). These nine planetary boundaries are combined responsible of maintaining stability of the climate system. Therefore, focusing only on emissions reduction is not sufficient to deal with risks of climate change, rather than that, an integration between these nine planetary boundaries (ecosystems) are required to effectively deal with the threat of climate change (Rockström, 2010).

In April 2016 at UN headquarter in New York; a global treaty to limit climate change was signed by governments’ representatives of 171 countries. This event indicates that almost the whole world realized how serious the threat of climate change is and the necessity of collective global actions to prevent it. “UN Secretary-General Ban Ki-moon said the planet was experiencing record temperatures; we are in a race against time. I urge all countries to join the agreement at the national level” (BBC News, 2016).

The ultimate goal of the UN framework convention on climate change is to stabilize concentration of greenhouse gases in the atmosphere and tackle all risks of anthropogenic interference that results in disrupting the climate system. While working on achieving this goal, biological diversity and food production should be maintained in addition to causing no conflicts with other goals of sustainable development (Swedish protection environmental agency, 2015).

According to the synthesis report (SYR) released by the Intergovernmental panel on climate change (IPCC, 2014), the earth has witnessed unprecedented climate change since the 1950s until today. It is observed that human activities in all continents and oceans are collectively responsible for the growing change on climate system. IPCC has confidence now that human activities are the main reason for the present problem of global warming and its severe impacts on people and all other living organisms on Earth. The SYR indicated the means and solutions to limit climate change and prevent its risks, while maintaining the continuity of economic and social development. The goal of keeping temperature increase below 2°C, relative to pre-industrial levels, demands an immediate shift from the current state of thinking and doing business (IPCC, 2014).
1.2 Sustainable development

Integration of environmental sustainability with economic growth is the main objective of economies today. Converting environmental challenges into economic opportunities, while fulfilling consumers’ needs, is the challenge towards achieving sustainable development (European commission, 2015). “Sustainable Development stands for meeting the needs of present generations without jeopardizing the ability of future generations to meet their own needs – in other words, a better quality of life for everyone, now and for generations to come” (European commission, 2015).

Sustainable development is a global concern that not only requires serious decisions on political and economic level, but it also requires engagement of the society as a whole. This means that individuals should also consider the principles of sustainable development in their everyday decisions. Sustainable development demands new ways of thinking in consumption and production patterns at political, economic and social levels (European commission, 2015).

The EU countries announced the EU first strategy for sustainable development during the Gothenburg summit in June 2001. The general objective of this strategy is to achieve a sustainable consumption of resources and protection for environment, while maintaining development and prosperity of the society. In this strategy, seven challenges had been determined to be dealt with until 2010, on which environmental issues were prevailing. Climate change and clean energy, sustainable consumption and production were on the top of these environmental challenges (European commission, 2015).

1.3 Circular economy

A transition to more circular economy and to a system that closes the loop is needed to improve resource efficiency, lower the negative environmental impacts and achieve more sustainable and competitive economy. As per the definition given by Preston (2012) “A ‘circular economy’ (CE) is an approach that would transform the function of resources in the economy. Waste from factories would become a valuable input to another process – and products could be repaired, reused or upgraded instead of thrown away”.

According to The European commission (2015), circular economy will contribute to creating more business opportunities and more local jobs, thus reducing unemployment rates in EU countries. The circular economy can be a solution for the lack of resources and volatile prices and therefore lead to more secure and sustainable economies. Furthermore, a lot of environmental benefits will be gained out of it, such as reducing rates of carbon emissions and decreasing the amount of pollution in air, soil and water, and therefore contributing to solve the problems of climate change and biodiversity.

Elaboration of the concept ‘circular economy’ and its principles and practices will be presented in appendix 2.
1.4 Environmental Impacts of Textile Industry

The different kinds of textile products have different levels of harmful impacts on the environment over their lifecycle. But what makes the impact of textile products significant, is the wide range of use, specifically the use of clothing as one of the basic needs of life. The impacts of the textile industry can be seen in the large amount of outputs that hugely contribute to the pollution of land, sea and air. It is argued that environmental impacts of textile industry are originated from the large amount of inputs that textile products require during their lifecycle. These inputs have been concluded in the following points (Muthu, 2014, p.5):

- Lands required for agriculture of fibers, building production facilities and disposal places.
- Huge amount of freshwater that is consumed in agriculture, manufacturing processes and laundering of clothing in the use stage.
- Large amount of energy that comes from non-renewable sources.
- Large amounts of toxic chemicals used in production processes, as well as large amount of pesticides and fertilizers used for agriculture.
- Large amounts of plastics and paper used for packaging purposes.
- Technical/non-biodegradable materials used for machines and maintenance.

1.5 Clothing Consumption in the EU

In 2013, the waste generation in the EU was around 2.5 billion tons, of which 1.6 billion were not recycled or reused. The EU realized that this huge amount of unused waste indicates loss to European economy, especially when a big amount of the unused waste has a potential to be transformed into resources. In other words, a lot of environmental and social benefits can be gained out of waste, if more efficient waste management is implemented (European commission, 2015).

The rapid increase of clothing consumption and short product lifecycle results in a significant increase of waste. For example The UK have witnessed 60% increase in clothing selling within 1995-2005, while this significant increase in clothing consumption was accompanied with a huge increase in textiles waste (Ekström, K.M. & Salomonson, N. 2014). Fletcher (2014, p.140) argued that the significant increase of clothing consumption in the first decades of the twenty first century is linked to psychological factors and consumers’ desire to create an identity through changing of fashion.

The figures in recent European commission study shows that the average clothing consumption by weight for individuals in Europe is twice as much as the consumption of household textiles, and the total consumption of both of them is around 19.1 kg per citizen/year (Fletcher, 2014, p.11). According to Netter (2013) clothing consumption in Nordic countries is far higher than the world average and it has increased extremely over the past decade. This increase in consumption and disposal of clothing is not only problematic in terms of waste management, but it also increases the burden on the environment along the garment’s life-cycle.
1.6 Clothing Consumption and Textiles Flow in Sweden

According to Ekström, K.M. & Salomonson, N. (2014) clothing and shoes consumption in Sweden has increased by 53% during the first decade in 2000s. According to Carlsson, et al., (2015) the average consumption of textiles and clothing in Sweden is approx. 15 kg per person/year (9kg is clothing). Only 3 kg is collected for the purpose of reuse, 8 kg is thrown away as garbage and the rest 4 kg is being either stored in consumers’ wardrobes or end up in recycling stations.

According to Tojo, N., et al., (2012) and as shown in the figure below (textile flow in Sweden in 2010), collected used clothes and textiles in Sweden act around 20% (26,000 tons) of total clothing and textiles consumption (around 132,000 tons). Only 12% (3,000 tons) of the collected used clothes and textiles are reused as second hand in Sweden, while the rest goes either for export to other countries (19,000 tons) or for recycling and incineration (4,000 tons).

A Swedish study shows that 62% of usable clothes that consumers no longer want to use end up in the garbage. Another study showed that 21% of used clothes in Sweden are disposed because they become obsolete or just because people are tired of them. This low rate of reuse and recycle of disposed clothes in Sweden can be originated from the lack of national system for collecting used clothes (Ekström, K.M. & Salomonson, N. 2014).

Figure 1: Textile flow in Sweden in 2010 (Tojo, N., et al., 2012)
1.7 Problematization

The start point of this research was studying the concept of circular economy and how the applications of this concept can tackle the problem of increasing clothing consumption and its negative impacts on environment. Despite of the fact that Sweden is known as one of the most environmental conscious countries in the world, the average clothing consumption per capita per year is still far higher than the world average.

The figures mentioned above indicate that only 20% of textiles and clothing consumption in Sweden is being collected, which is considered low rate relative to other countries in the EU. According to Humana People to People (2013) the proportion of collected used clothes of the total amounts of discarded clothes in Germany is 66%, Belgium 65%, Denmark 58%, France 48% and Austria 40%.

Within the recent decades and specifically in the rise of fast fashion trend in the market, a lot of clothes are discarded while they could be wearable for much longer time. The collected used clothes in Nordic countries in general and in Sweden in particular are of relatively high quality and a big percentage of it can be reused for the same purpose, namely as clothing. However, only between 10-20% of the collected used clothes is being reused in the Swedish market and the rest is being exported or reused for other purposes.

What is mentioned above encompasses two problems. First, there is a gap between the amount of collected used clothes and the total consumption of clothing in Sweden. This gap indicates a lack of an efficient reverse logistics system, which results in losing potential value of potential quantities of used clothes that could be collected in Sweden. The second problem is the gap between total amount of the collected used clothes in Sweden and the quantities of used clothes that are reused as second hand. However, this is contradicting with the high environmental consciousness among the Swedish consumers and their tendency to be more sustainable in their consumption. It also indicates a need for studying the market of second hand clothes in Sweden and finding possibilities to improve commercialization of used clothes in this market and encourage more consumption of second hand clothes among the Swedish consumers.

1.8 Research purpose

The purpose of this Research is to study the possibilities of improving the practice of second hand clothes consumption in Sweden and make it more effective towards the goal of sustainable consumption and circular economies. In order to achieve this purpose, it is necessary to understand the challenges and find abilities for improvement in the value chain of used clothes in Sweden, with focus on the reverse logistics system of used clothes (collection, sorting processes) as well as the market of second hand clothes.

1.9 Research question

- What are the challenges and possibilities for improvement in the reverse logistics system of used clothes in Sweden from charity organizations’ perspective?
- What are the challenges and possibilities for improvement in the Swedish market of second hand clothes from charity organizations’ perspective?
1.10 Delimitation and Limitations

The study is delimited to the practice of reuse clothes as second hand. However, other applications for the practice ‘Reuse’ in clothing area, such as repair, redesign/restyling, rental and sharing, will be discussed within the context of how these applications can contribute to improve the Swedish market of second hand clothes. Studying the value chain of second hand clothes in Sweden in this thesis was done from the perspective of three charity organizations, considering that 90% of the market of used clothes in Sweden is dominated by charity organizations.

This study is limited to the Swedish value chain of used clothes. Studying the Swedish market of second hand clothes in this thesis was limited to businesses’ perspective. Yet consumers’ perspective is also needed to be studied, in order to include all aspects for the evaluation of the second hand market in Sweden.
2 Literature Review

This chapter is divided into two parts. In the first part, the author presents the conceptual framework for the research subject in light of the concepts of reverse logistics (RL), RL network, product value-recovery options and commercialization of second hand clothes. In the second part, the author presents the RL network of used clothes in Sweden and the results of previous researches related to the subject of this study.

2.1 Reverse Logistics (RL)

The term “Reverse logistics” refers to all operations and activities included in moving products and materials from their typical final destination for the purpose of reuse, recapture value and disposal (Özkır, V. & Başlıgıl, H. 2012;2011). Among these operations and activities are “product returns, source reduction, recycling, materials substitution, reuse of materials, waste disposal, refurbishing, repair and remanufacturing” (Stock, J.R. 1999). The description for the concept of “reverse logistics” can be traced back to the early 1980th , starting from the descriptions given by Lambert and Stock in 1981, Murphy in 1986 and others (Rogers, D.S. & Tibben-Lembke, R. 2001). According to Rubio, S. & Jiménez-Parra, B. (2014) several definitions have been given for the concept of RL; however the definition proposed by the European Working Group on RL can be one of the most comprehensive definitions. The Research group defined RL as “the process of planning, implementing and controlling backward flows of raw materials, in process inventory, packaging and finished goods, from a manufacturing, distribution or use point, to a point of recovery or point of proper disposal” (Rubio, S. & Jiménez-Parra, B. 2014).

It is also worth to mention other terms and concepts that have been used in this area and have direct relation with the concept of reverse logistics, such as closed-loop supply chain, reverse supply chain, product recovery management and waste management.

Reverse logistics activities start from the point of material and products returns within the supply chain. There are many reasons for products and material returns in the supply chain. Among these reasons are manufacturing returns, commercial returns, product recalls, warranty returns, service returns, end-of-use returns and end-of-life returns. The importance of reverse logistics can be seen in recapturing or creating value out of these returns within the supply chain. Poor management for the returns leads to economic loss, increase of returns inventory and a many negative impacts on the environment (Beh, L., et al., 2016).

Rubio, S. & Jiménez-Parra, B. (2014) have also highlighted many reasons for companies to implement an efficient reverse logistics system, and they divided the most important reasons into three categories. First, economic reasons, which can be demonstrated in the reduction of disposal costs, decreasing consumption of raw materials, thus decreasing the volatility of raw material prices and capturing value of the returns. Secondly, Social reasons which are mainly related to consumers increasing environmental awareness and their demands for companies to behave in environmental responsible way. Thirdly, legal reasons that can be seen in governmental legislations for companies in terms of waste management and reduction of carbon emissions.
According to Beh, L., et al., (2016) every logistics system must include the following functions: gatekeeping, collection, sortation and disposition. Gatekeeping is concerned with the selection of products to enter the reverse logistics system. Collection is concerned with the activities for accumulation of products. Sortation is the process of categorizing products to be used for predetermined purposes, while disposition means deciding the final destination for products. Within the same context Rubio, S. & Jiménez-Parra, B. (2014) described three basic activities for the reverse logistics network, including collection of end of used (EoU) products, Inspection and classification, finally recovery process.

Collection of EoU products is considered the starting point for the RL system and there are three main channels where this process is being done through, namely, manufacturer or remanufacturer, network of distributors and retailers, or through third-party logistics providers. Inspection and classification is a crucial process in the RL system, as products condition and the way of value recovery are being determined. Finally recovery process, which is considered a key process in the RL network as products value are being recovered through one of the following alternatives, Reuse, Remanufacturing, Recycling (Rubio, S. & Jiménez-Parra, B. 2014).

2.2 Reverse Logistics Activities

This section shows the implications within the three main activities mentioned above for the reverse logistics system of used clothes.

2.2.1 Collection of (EoU) Products

According to Ekström, K.M. & Salomonson, N. (2014) Increasing the volume of collected used clothes is considered decisive in terms of the commercial viability of collection process. They identified many factors that should be considered in terms of increasing the amounts of collected used clothes. Among these factors is consumers awareness of the environmental impacts of clothing consumption and the benefits gained when these used clothes is reused or recycled instead of ending up as garbage. Another important factor is finding logistical solutions to increase consumer accessibility to the collection points of used clothes, and also to reduce traveling time and cost spent by consumers to dispose their used clothes. A third factor is the importance of having national system and regulations that organize the disposal and collection of used clothes and to clarify ownership and responsibility of the discarded clothes.

According to Tojo, N., et al., (2012), the density of population in places where used clothes is being collected, and proximity to charity organizations stores and sorting centers, are directly correlated with the commercial viability of collection process. These factors justify the uneven distribution of collection points for used clothes across the country, especially when collection process is being done by voluntary actors such as charity organizations. It is also important to stress on the need for regulated collaborations between municipalities and collectors of used clothes in order to facilitate collections points in the areas that can’t financially cover collection activities (Tojo, N., et al., 2012).
The lack of regulations for collection of used clothes and who is responsible for granting permission for collecting organizations, opens the door for illegal collection of used clothes, moreover, it leads to lack of transparency in the flow of used clothes (Palm, D., et al., 2014).

The increasing competition and prices in the market of used clothes in Nordic countries resulted in increasing collection activities of used clothes by the different actors in this market. While this can be a supporting factor for improving the market of used clothes, it was also associated with expanding illegal collection activities of used clothes, either by the unauthorized collectors or through stealing donated clothes directly from the containers (Palm, D., et al., 2014).

2.2.2 Sorting of collected used clothes

In European countries in general, there are some factors that determine whether the collected used clothes will be sorted into fractions and resold in the market at higher values, or packed in bales and sold as bales of textiles at lower values. Among these factors are volumes of collected used clothes, labor and logistics costs, risks of investing in sorting facilities and market prices for used/sorted clothes (Palm, D., et al., 2014).

According to Ekström, K.M. & Salomonson, N. (2014) the high cost of used clothes sorting process is considered one of the main obstacles in the RL network in the developed countries such as Sweden. Increasing consumers’ knowledge about discarded clothes quality and what could be reused and what could be recycled could be an effective factor for cost reduction of sorting process.

Four systems for sorting process have been described by Palm, D., et al., (2014), namely, manual system, semi-automated sorting, RFID sorting and NIR sorting. More automated sorting systems are not seen as alternatives for manual sorting of used clothes, due to the difficulty to distinguish reusable textiles from non-reusable textiles. The lack of collection system that could separate dry/clean reusable textiles from textile wastes, results in increasing contaminations of collected clothes and increasing the cost of recovering good conditions of used clothes (Palm, D., et al., 2014).

When the purpose of sorting process of used clothes is to select the reusable items that can be resold in the market, familiarity with market demands is an important factor in increasing the efficiency of sorting process (Tojo, N., et al., 2012).

2.2.3 Product value-recovery options

According to Thierry, M., et al., (1995) product value recovery options can be organized into three categories. First category is the direct reuse, which includes the options reuse and resale. Second category is product recovery, including repair, refurbishing, remanufacturing, Recycling and cannibalization. The third category is waste management options, including Incineration and landfill. In the following, explanations are given for each of these options mentioned above, with focus on the reuse option as it is the main subject of this research. Moreover, the applications for some of these options for used clothing will be discussed whenever needed within the context of this paper topic.
Reuse means using products multiple times or at least more than once, thus prolonging their life and getting the highest possible utilization of their values (Zhijun and Nailing, 2007). Reuse can be also defined as the use of original functions of products, for example used clothes is reused to serve the same function as clothing (Ekström, K.M. & Salomonson, N. 2014). Thierry, M., et al., (1995) referred to the option reuse as that used products will be reused or resold to serve the original purpose of them and without any value-adding process.

The applications of the option reuse for used clothing can be seen in three main practices, namely reuse as second hand, rental and sharing. Reused as second hand, applies for used clothes that are still in good conditions and have potential to be reused for longer time. Second hand clothes can either be sold in second hand shops or donated by individuals among networks of families and friends, or donated to charity organizations. In addition to the economic benefits that both sellers and consumers obtain from trading second hand clothes, there are many environmental benefits that are being gained out of this practice (Fletcher, 2014, p.119).

A study conducted by Farrant, Olsen and Wangel (2010) shows, based on a questionnaire survey conducted on consumers of second-hand shops in Sweden and Estonia, that buying 100 pieces of used garments would save purchases of 60 new garments (as per survey participants in Sweden). The same study also showed that replacing new purchases of clothes with reusing the old ones have many positive impacts on environment. Among these impacts are reduction of energy consumption, reduction of human toxicity and decreasing the global warming. They also argued that the environmental impact of collection, processing and transportation of used clothing is minor when it is compared with environmental impact of producing virgin clothing.
In rental or sharing of clothing, consumers buy or share utilization of clothes instead of having ownership of them. The main difference between renting and sharing is that in sharing, utilization of garment is shared in non-profit networks, while in renting, utilization is shared in exchange of money (Niinimäki & Hassi, 2011).

Rental and sharing require that products are of high quality, durability and timeless designs, in order to last for longer time and overcome the problem of psychological obsolescence. They should also be accompanied with upgrade and repairing services so as to extend products lifespan as long as possible. Rental and sharing system supports the approach of changing from goods sales thinking to goods utilization thinking, thus achieving highest possible usage of products, reducing use of resource, in addition to decreasing the amounts of waste (Niinimäki & Hassi, 2011).

- **Repair**

Repair is a process that aims to fix broken parts in the product, in order to retrieve product function and make it available for reuse. The qualities of repaired products are usually less than the quality of new products (Thierry, M., et al., 1995). According to Fletcher, (2014) repairing of used clothes means to mend the damage that made it out of function, and to restore previous condition of clothes to be applicable for reuse.

There are different techniques for repairing broken garments such as replacing collars and cuffs, patching trousers and jackets and replacing zippers and buttons. Repairing broken clothes were common for generations either in the industry or as a household task. In the past, when clothes used to be of high value and cost, repairing was considered an economic efficient solution to keep the value of clothes and make them last for longer time. Nowadays, in the developed world, repairing is not motivated by economic aspects any more, but rather it is motivated by emotional, moral and environmental awareness factors (Fletcher, 2014). According to Tojo, N., et al., (2012) even though the consumers in the developed countries show increasing tendency to collect and buy used clothes, they don’t show the same tendency to repair and recover their own clothes when they break. And their decision to repair or mend broken garments is, by and large, depending on the value of the garment itself.

Repairing and reconditioning clothes have many environmental benefits and saves a lot of resources relative to production of new clothing. However, this practice has less environmental benefits than the practice of reuse as second hand, because it requires some material and energy for garment restoration process (Fletcher, 2014, p.120).

- **Refurbishing**

Refurbishing is a process that is being done on module level (parts of the product) for the purpose of increasing product quality to a specific level. This process includes inspection of modules and decide either they will be repaired, replaced or upgraded (Thierry, M., et al., 1995). Refurbish for used clothes is considered the one of the three categories (presented in next section) of redesign process, which were described by Carlsson, et al., (2014).
- **Redesign**

To redesign product means to design new characteristics of it and make it new and different than its original design. Redesign for used clothes means upgrading and adding value to the garment, so it is given a new life. There are many techniques that designers can use to redesign and add value to used clothes, including restyling, reshaping, embellishing and over printing (Fletcher, 2014, p.120).

Three categories have been defined by Carlsson, et al., (2014) for redesign process of used clothes. The first, and the lowest category, is refurbished. It means refreshing and making a very little change to the product such as relabeling and adding new hangtags. The second category is Re-couple, this category is considered in a higher level than refurbish because of its potential commercial value. Re-couple means doing a simple change that adds value to the garment and without changing the original construction of the garment. Examples for these changes can be adding print oran embroidery, adding new panels using sewing technique or changing the color of the garment. The third, and the highest level of redesign process, is Re-construct; this process requires making fundamentals change in the construction of the garment in order to make a new/unique product through more advanced design and making process.

- **Remanufacturing**

Remanufacturing is a process that is being done on part level. It aims to increase product parts and material quality up to the standard quality of new products, as these parts and materials will be incorporated into new products (Thierry, M., et al., 1995).

- **Cannibalization**

Cannibalization is a product recovery process where used products are being disassembled and inspected to use only few parts of it in other product recovery processes, namely, repairing, refurbish and remanufacture. The remaining parts of the product usually end up as waste and go either for incineration or landfill (Thierry, M., et al., 1995).

- **Recycling**

Recycling means management of materials waste and recovering their original form as raw materials, so they can be reused in production and manufacturing processes (Zhijun and Nailing, 2007).
2.3 Commercialization of second hand clothes

According to Rubio, S. & Jiménez-Parra, B. (2014) there is a need for more studies on the market of recovered or used products in terms of, marketing issues, consumers attitudes and acceptance for used products and the possibilities for developing this market.

In the developed countries such as Sweden, Denmark and Finland, the trade of second hand clothes for commercial profit is being done through three main channels, namely; Commercial second-hand stores; charity organizations’ second hand stores and internet website. However, Charity organization is considered the biggest actor in second hand clothing markets in these countries (Tojo, N., et al., 2012).

The market of second hand clothes and vintage has been significantly increasing in Sweden over the recent decade either through the selling of second hand cloth in physical shops or through the internet (Ekström, K.M. & Salomonson, N. 2014). Among the reasons for this increase over the recent decade are; the increase of social acceptance of using second hand products; using second hand and vintage became a trend in the developed countries; low prices of second hand clothes; offering unique items and also for the environmental concerns (Ekström, K.M. & Salomonson, N. 2014; Tojo, N., et al., 2012).

According to Yan, R., Bae, S.Y. & Xu, H. (2015), prices of second hand clothes is no longer the only driver for the consumers of second hand clothes. Environmental consciousness and seeking style uniqueness in vintage and second hand clothes have also become motivations for consumers over the recent decades, especially among young consumers.

The fast fashion is considered one of the obstacles for the second hand clothing markets in the developed countries such as Sweden, not only because of the low quality of fast fashion products that makes them of less value to be reused, but also because of their low prices and increasing competition with the items being sold in the second hand market (Ekström, K.M. & Salomonson, N. 2014; Tojo, N., et al., 2012). According to Thierry, M., et al., (1995) consumers’ acceptance for used items depends mainly on the differences in cost and quality between used items and new/virgin items.

Visual merchandising and selection of the assortments in second hand stores are very important factors to attract more consumers and expands the market of second hand clothes. The display of second hand clothes in the stores should be arranged in a way that makes it easier for the consumers to navigate and reach the items they are out for. The selection of the assortment in second hand clothes stores should be more focusing on fulfilling the demand of targeted customers (Tojo, N., et al., 2012).

Other factors should be considered in marketing and promoting of second hand clothes, such as cleanliness of the stores; ensuring consumers clean products; providing information regarding environmental benefits of using second hand clothes. These factors help in increasing consumers’ motivation to buy and use second hand clothes (Yan, R., Bae, S.Y. & Xu, H. 2015).

Increasing political interests in Nordic countries to improve the value chain of used clothes is considered one of the driver for developing this market, although this increase of interests are not associated yet with legislative changes that could results in actual improvements in this market (Palm, D., et al., 2014).
2.4 Used Clothes Network in Sweden

This section shows the network of used clothes in Sweden, including collection, sorting and post-sorting destinations, in addition to the challenges in this network according to previous studies.

2.4.1 Collection of used clothes

According to Carlsson, et al., (2015) the average clothing and textiles consumption per capita in Sweden is around 15 kg. Only 3 kg are being collected for the purpose of reuse and recycle, 8 kg are thrown away as garbage and the rest 4 kg are either kept at consumers wardrobes or ending up in recycling stations. According to the figures mentioned by Palm, D., et al., (2014), the sales of clothing and household textiles in Sweden in 2011 amounts to 132,000 tons (95,000 clothing and 37,000 household textiles). Only 29,000 tons (around 20% of the total sales) tons were collected for the purpose of reuse and recycle and these 29,000 tons are broken down as the following: 7,500 tons are reused in Sweden; 19,000 tons are exported to other countries; around 800 tons are stolen from containers and 2,000 are incinerated in Sweden.

Collections of used clothes in Sweden are dominated by charity organizations, which represent around 90% of the market. Most of the charity organizations in Sweden are members in the nonprofit organization Ideal second hand, which, in 2011, took responsibility of collecting 25,781 tons of used textiles (Palm, D., et al., 2014). The rest of collected used clothes are handled by second hand retailers and fashion retailer, who recently started collecting used clothes at their stores. An example for these fashion retailers is the giant retailer H&M in cooperation with the international recycling company I: collect (Carlsson, et al., 2015).

Collection of clothes in Sweden is being done through different channels, including Container/box collection, in store collections and recycling stations. Container/box collection is dominated by charity organization such as Red Cross and Stadsmissionen. While in store collection is done by second hand retailers and some charity organizations such Myrorna and Emmaus, in addition to some fashion retailers such as H&M, Kapphal and other retailers that only collect used clothes of their brands (I.e. Filippa K and Nudie Jeans). Finally recycling stations, where collecting of used clothes is managed by municipalities and charity organizations in Sweden (Carlsson, et al., 2015). The figure below shows the Swedish network of used clothes collection, sorting and destinations after sorting process.

![Figure 3: Mapping of used clothing network in Sweden (Carlsson, et al., 2015)]
One of the barriers that stand against more efficient collection of used clothes in Sweden is that this process is almost completely left for voluntary actors such as charity organizations. This leads to unfair geographic distributions for used clothes collection points across the country, as charity organizations only cover dense population areas to ensure collecting sufficient volumes that affords commercial viability of the collection process (Tojo, N., et al., 2012).

Standard official regulations for setting containers for collecting used clothes and the responsibility of granting permission for setting containers are missing in Sweden. This lack of governmental regulations is not only resulting in inefficient collection of used clothes, but also it increases illegal activities in this operation (Palm, D., et al., 2014). Moreover, some municipalities show no interest in separated collection of used textiles as it affects the quantities of dry waste that they send for incinerations (Tojo, N., et al., 2012).

Palm, D., et al., (2014) have explained other challenges for collection process of used clothes in Sweden. One of these challenges is the stealing from containers that is being done by organized leagues and mounted up to 4% of total amount of used clothes left in containers. Another challenge is the decreasing quality of collected used clothes through the traditional collecting channels, recently and relative to previous years. Increasing trade of used clothes, which are of higher qualities and higher value, by consumers through the internet is believed to be one of the reasons for this. A third challenge is the increasing competitions in the market of used clothes, as clothing retailers and even municipalities are showing interest in the value that could be acquired out of collecting used clothes. A fourth challenge is the lack of knowledge among big organizations such as hotels and hospitals, which have big amounts of textiles waste, about what could be reused and what could be recycled or incinerated. This problem results in wasting a lot of amounts of used textiles that have potential to be reused.

Carlsson, et al., (2014) have also reported some problems in the collection phase of used clothes in Sweden. These problems are concluded in the following quoted points: “a. Multiple collection points (such as in-street collection bins, recycling centers, collection in Individual 2nd hand shops and charities, recent in-store collections made by I: Collect, Kiki etc.). - b. Lack of strategic collection (such as optimal placement of bins, separate bins for clean and Usable items and clean and worn/ragged items, easier accessibility through strategic location at municipal recycling centers and near residential areas). - c. Lack of national rules/routines for clothing discarded by consumers. - d. Lack of decision support systems for consumers to take well-informed reuse/recycling Decisions” (Carlsson, et al., 2014).

It is also worth to mention that some activities and ideas have developed by Swedish companies in order to improve collection process of used clothes. One of these ideas is The “Circle App” that has been developed by a Swedish company in collaboration with some charity organizations and fashion retailers. This mobile app helps the owners of used clothes to find the nearest collection point for used clothes and motivating donors by rewarding points which they can benefit in future purchases at charity organizations shops and fashion retailers. Another idea is the “Rag bag” that has been developed by the Swedish fashion company “Uniforms for the Dedicated”. This Idea makes the process of donating used clothes through postal service easier for the owners of used clothes (Carlsson, et al., 2015).
## 2.4.2 Sorting of used clothes

Sorting of collected used clothes in Sweden is being done in two ways. Some charity organizations (i.e. Swedish Red Cross) conduct fully sorting process in-house, and others are only doing partial sorting in-house. The latter conduct initial sorting for collected used clothes for the purpose of dividing them into three categories, namely, Reuse in Sweden, Export to other countries (such as the Netherlands and Germany) for more advanced sorting and finally for recycling (Palm, D., et al., 2014). According to Carlsson, et al., (2015) Collected used clothes by charity organizations and retailers are being sorted at their own facilities for the purpose of sorting out the top quality items out of the used clothes, which can be sold and reused as second hand clothes in Sweden. While the rest amount are either being exported or ending up in recycling stations.

Used clothes sorting in Sweden is being done manually and that’s why it requires trained labors that have good knowledge of the second hand market in Sweden, in order to be able to determine what can be reused in Sweden and which items will be sellable in the second hand market (Palm, D., et al., 2014; Tojo, N., et al., 2012). Sorting process is done through two phases, namely initial and fine, then sorted clothes are categorized into different items after section, category, season and price. The amounts of exported used clothes by charity organizations and retailers range between 53 to 73% of the collected used clothes (Carlsson, et al., 2015).

Challenges/problems in the sorting process of collected used clothes in Sweden were reported by Carlsson, et al., (2014) as concluded in the following quoted points:

-a. High labor cost for manual presorting activities- b. Ownership of collected material- c. Misalignment of incentives and interests of all possible collectors (charities, fashion companies, I: Co etc.)- d. Lack of a functioning collection system which separates textiles from being mixed with other wastes- e. Costly process of detecting material type etc. for effective sorting (for example, use of infrared radiation for spectrophotometry, etc. can be done but is very expensive)- f. Highly fragmented structure (of sorting activities) creating a lack of critical mass/volume for sorting” (Carlsson, et al., 2014).

In light of the above mentioned problems in sorting process of used clothes, following study conducted by (Carlsson, et al., 2015) to examine the feasibility of establishing second-tier sorting facility at the national or regional level in Sweden. The study findings reported that the current conditions don’t support the idea in terms of commercial viability.
3 Methodology

In this chapter, the author explains the research methods (supported by motivations) used in this study in order to fulfill the research purpose and answer the research questions. Elaboration of data collection and data analysis processes is presented, in addition to evaluation of research method according to research trustworthiness criteria, including credibility, transferability, dependability and conformability.

3.1 Research Strategy/Approach/Design

Research strategy means a general direction or approach that a researcher follows to conduct a social research (Bryman, 2012, P.35). The research strategy chosen to conduct this research is a qualitative strategy. The main motivation for choosing qualitative strategy in this study is that the topic of second hand clothes consumption is, by and large, influenced by related social actors, such as businesses and consumers of second hand clothes. Therefore, flexibility in learning, interpretation and analyzing the views of the participants in this study was required. Another motivation is that there were not many studies that exactly address the same research topic, which is why a qualitative strategy was found suitable and reasonable in exploring and understanding the area of the research topic.

According to Bryman (2012, P.380) qualitative research is a research strategy that usually emphasizes words rather than numbers or quantifications in data collection and data analysis processes. This research strategy is likely to be associated with constructionism as an ontological position of a social phenomenon and interpretivism as an epistemological view of how to study a social phenomenon. A qualitative research serves better the needs of a researcher when the research purpose is to understand the social world through the eyes of research participants. Therefore, it is sensitive to how the participants understand and interpret a social topic.

The research approach describes the relationship between research and theories. The research approach in this study tends to be deductive, since the data collection and data analysis processes are guided by the established conceptual framework related to the domain of the research topic. The concepts that guided the research were; reverse logistics, collection of used clothes, sorting process, product value-recovery, clothes reuse, second hand market and commercialization of second hand clothes. Moreover, the findings and results of the empirical data are interpreted in light of their implications to the conceptual framework and results of previous studies presented in the literature review.

Research design is a framework for data collection and data analysis processes (Bryman, 2012). A multiple case study is the research design chosen for this research, since the aim of this research is to study a specific topic (case), which is the practice of second hand clothes consumption in Sweden, and examine it on the three selected charity organizations (units of analysis). According to Bryman (2012, p.66) Case study usually entails an intensive and detailed analysis of a single case and it is often used in qualitative research.
3.2 Method of Data Collection

In order to achieve the research purpose and answer research questions, primary and secondary data has been collected. The secondary data was gathered from different sources including books, E-Journal articles, E-books, websites and annual reports for the participating companies in the study. The reason for studying secondary data was to get familiar with and understand relative subjects to the research topic and collect information about the participating companies and their value chains.

The primary data was gathered throughout semi-structured interviews with representatives of the participating companies/organizations. A semi-structured interview is a common method for data collection in qualitative researches, which aim to give deep understanding of a topic and getting the researcher involved in the context of the research. According to Bryman (2012, p.470) qualitative interviews are used when the researcher wants to have deep understanding and detailed answers of a topic. In qualitative interviews, there is much interest in interviewees’ view points; therefore the researcher should keep an open mind and a flexible approach while trying to understand what is needed during the interview.

The conceptual framework as well as Research questions were considered while forming questions in the interview guide (attached in Appendix 1). The interview guide was divided into themes and each theme was followed by guiding questions. The Interview questions were with an open-ended nature, so as to encourage the interviewees to elaborate and give detailed answers. To a great extent, all the participants were asked the same questions; however there was some flexibility in following the same questions order, and also in the way of presenting the questions, depending on the interview context. Following questions, which were not included in the interview guide, were asked whenever needed to get more explanation for specific parts or aspects of the answers.

3.2.1 Sampling approach

The Sampling approach chosen for this study can be defined as a purposive sampling. Purposive sampling is a type of non-probability sampling, and researchers use it when they select cases or participants (organizations or people) based on predefined criteria (Bryman, 2012, p.418). The participating companies/organizations were selected based on the relevance of their activities to the research topic. The Knowledge of the interviewees was considered in selection process, in order to ensure getting detailed and deep answers for research questions.

Since the second hand clothing market in Sweden is dominated by charity organizations, three charity organizations were selected to participate in the study. The Author had collected all needed information about the value chains of all three participants before selecting individuals within these organizations to conduct the semi-structured interviews with. Figure 1 shows information about the participating companies, the interviews and the interviewees.
<table>
<thead>
<tr>
<th>Interviewee name</th>
<th>Company</th>
<th>Position</th>
<th>Interview date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marie Malm</td>
<td>Stockholms Stadsmission</td>
<td>Fund raising officer of second hand dept.</td>
<td>2016-05-02</td>
</tr>
<tr>
<td>Marie Lönnqvist</td>
<td>Humana Sverige</td>
<td>Secretary General</td>
<td>2016-05-04</td>
</tr>
<tr>
<td>-Mats Svanström</td>
<td>Pingstmissionens-Utvecklingssambete (PMU)</td>
<td>-Head of business development</td>
<td>2016-05-15</td>
</tr>
<tr>
<td>-Runar Granlöf</td>
<td></td>
<td>-Second hand stores developer</td>
<td></td>
</tr>
</tbody>
</table>

Figure 4: Participating organizations and interviews details

3.2.2 Pre-Interview Preparations and Information Confidentiality

- The purpose of the research and all themes included in the interview guide were sent to the participants in advance and with reasonable time before the interviews.
- The interviewees were guaranteed that their opinions will not be identifiable while presenting the results and findings. Thus, quotations and summaries of the interviews will be referred to as i.e. Charity organization 1 (CO1), CO2 or CO3 without indicating either the charity organization name or the name of the interviewee.
- A request for audio recording for the interviews was sent to each participant in advance and their confirmations of acceptance were obtained before the interviews.
- Confirmations to publish names of the organizations and the interviewees were obtained from all the participants.

3.3 Data analysis

Thematic analysis was the approach chosen to analyze the data that has been collected during the interviews. Identifications of the main themes were done before the analysis process and according to the questions in the interview guide. However, both the interview questions and the main themes were guided by the conceptual framework and the research questions. These themes were mainly addressing: challenges and abilities in collection and sorting processes of used clothes; the market and marketing of second hand clothes in Sweden.

The second step was listening several times for the recorded interviews and breaking down the interviewees answers into several parts. These parts were labeled with phrases and the important ones (either because they were repeated more than once; have relation with the preconceived ideas in the conceptual framework or results of previous researches; or the author found them of importance to the research topic) were collected together under categories (sub-themes) according to their relations or connections to each other. These sub-themes were attributed to the main themes and both of them were presented in combined findings and results, in order not to be identifiable as promised to representatives of the participating companies.

Finally, these findings and results were interpreted in light of their implications to the conceptual framework and the results of previous researches, and presented in the discussion chapter.
3.4 Evaluation of the Research Method

The quality of research method has been evaluated according to the four criteria of trustworthiness defined by Guba and Lincoln in Bryman (2012) ‘Social research method’. These criteria are credibility, transferability, dependability and conformability.

Credibility refers to the relation between researcher’s observations and respondent’s viewpoints during research study (Bryman, 2012). ‘Respondent validation technique’ has been used In order to increase the credibility of this research. The findings and results have been sent to the participants in this study for their review and comments, in order to ensure that the results were presenting good reflections to their opinion.

Transferability indicates to what degree the research findings and results can be generalized to other social contexts than the context of the research (Bryman, 2012). According to this definition, the transferability of this research can be considered as low, since the findings and results of this research is limited to the Swedish value chain of second hand clothes. Moreover, the focus of this research was mainly to investigate the practice of second hand clothes consumption within Sweden.
It is also worth to mention that qualitative researches in general tend to be associated to limited degree of transferability, since the findings are completely dependent on variables of the research social context. “Qualitative findings tend to be oriented to the contextual uniqueness and significance of the aspect of the social World being studied” (Bryman, 2012, P.392)

Dependability is equivalent to reliability in quantitative research, and it refers to how well a research process is explained and whether the results can be repeatable (Bryman, 2012). According to this description of dependability, this research can be considered of high degree of dependability, since the research method is well explained and all information regarding participants, interview contexts, and Interview guide are provided, in addition to all recordings of the interviews were saved. Referencing system and saving the literatures, which were studied in this research, also contribute to increasing dependability of this research.

Conformability refers to the degree of objectivity while conducting a research and whether personal values either for practitioners or respondents are interfering in research findings and results, taking into consideration that a complete objectivity is impractical in social research (Bryman, 2012, p.392). The author of this research has considered the parameter of objectivity during the whole research process and tried as much as possible to avoid interference of personal values in the results. Furthermore, the research reviews and oppositions which have been received from other students during writing this research, in addition to receiving comments from the supervisor contributed in improving the conformability of this study.
4 Introduction to the Participating Organizations

In this chapter, the author introduces the participating companies in this research and explains how they operate in Sweden through demonstrating their value chains. Almost all information in this chapter is derived from the companies’ official websites and annual reports.

4.1 Pingstmissionens Utvecklingssamarbete (PMU)

PMU is the international development cooperation and humanitarian assistance section of the Swedish Pentecostal Alliance of Independent Churches. PMU is a Swedish charity organization that was founded by the Pentecostal organization in 1965 and funded by the Swedish International Development Cooperation Agency (Sida), (PMU, 2012).

PMU is working within the area of social development and human rights and they manage a lot of projects in many developing countries all over the world. These projects support the organization’s goals of establishing democratic values, promoting human rights and gender equality, just distribution of resources and a sustainable use of natural resources (PMU, 2012).

PMU runs and cooperate with around 60 second hand shops in Sweden. PMU concept for second hand shops is called assistance center (biståndcenter). The aim of this concept is to have a standardized management system for all second hand shops. Second hand shops are considered a key source for fundraising, which PMU use to finance its social and environmental programs internationally. PMU is working on developing second hand shops in order to increase the profitability of every shop of which will contribute to increasing funds for the humanitarian projects (PMU, 2012).

4.1.1 PMU’s Value Chain for Second Hand Clothes

Collection of used clothing: PMU has two channels for collecting used clothes; one channel is receiving used clothes from donors at the second hand shops, and the other channel is through container collections. However, most of the collected used clothes are received from donors directly at the stores, and also many of PMU containers are located near to the second hand shops (PMU, 2012).

Sorting of collected used clothes: After collecting used clothes at second hand shops, an initial sorting process takes place at the shops, in order to sort out only the clothes that can be reused and sold in the shops. Sorting at the stores is mainly done by volunteers or practical trainees. The rest of the used clothes are being transported to PMU sorting centers for another sorting process in order to determine their destinations, which could be exporting to other countries, used for recycling or incineration and energy recovery.

Sales of second hand clothes in Sweden: PMU sales of the donated used clothes take place in their 60 contract second hand shops, which are spread all over the country. The second
hand shops are considered one of the main channels that PMU use to communicate their social and environmental values (PMU, 2012).

4.2 Stockholms Stadsmission

Stockholms Stadsmission is a non-profit organization and they do many social activities within Stockholms city and near areas. Stockholms Stadsmission’s goal is to create a sustainable society for all, by supporting those who are in need and giving them chances for development. The organization’s activities include children, youth, adults, families and elderly people who need help to have better life. This is being done through three business areas including social activities, social enterprises and school activities (Stockholms Stadsmission, 2016).

The business of second hand shops is a part of Stockholms Stadsmission social enterprises. In second hand shops, products and services are being sold by employees, volunteers and practical trainees. Second hand and vintage clothes are being sold in some of the second hand shops. Stockholms Stadsmission also produces clothes with its own brand label under a concept that is called ‘remake products’. The idea of remake products is to use available resources to design and produce new products based on durability and sustainability (Stockholms Stadsmission, 2016).

4.2.1 Stockholms Stadsmission’s Value Chain for Second Hand Clothes

**Collection of used clothing:** Stockholms Stadsmissions second hand shops are considered the main channel for collection of used clothes. Pick-up service is also offered to collect bigger amounts of used clothes either from donor companies or private persons (Stockholms Stadsmission, 2016).

**Sorting of collected clothing:** The collected used clothes in Stockholms Stadsmission’s second hand shops are being transported to its sorting center. The sorting center has a production area for sorting, quality inspection and packaging of used textiles and clothes. Sorting and preparation processes are being done mainly by individuals who are either volunteers or practical trainees under supervision of individuals of Stockholm Stadsmission’s staff (Stockholms Stadsmission, 2016).

After sorting and preparation processes, the used clothes are to be categorized based on their conditions and then sent to different destinations as mentioned in the following (Stockholms Stadsmission, 2016):

- Stockholms Stadsmission’s second hand shops.
- Distributed on those who are in need of clothing within the organization’s social activities.
- Exported to other countries either to be reused as second hand or for recycling purpose.
- Remake-products which are being sold under Stockholms Stadsmission brand label in its remake stores in Stockholm city.
- Incineration and energy recovery.
Sales of second hand clothes: Stockholms Stadsmission runs many second hand shops in Stockholm and near areas, where they sell used clothes of which are in good conditions and can be reused in Sweden. Stockholms Stadsmission has also adopted the concept of “remake in a new design”, which allow them to produce new products with new designs under its brand label. The concept of Remake is based on sustainability and longevity. With this concept, used clothes and material of used clothes are being used to produce products with better quality and unique designs. In other words, the idea of remake is based on adding value and giving new life for used clothes instead of ending up as waste (Stockholms Stadsmission, 2016). Remake products are being sold in two of Stockholms Stadsmission second hand shops, where also repairing service is being offered to consumers. Around 2.5 tons per year out of the collected clothes is being used for remake products (Stockholms Stadsmission, 2016).

![Figure 5: Stockholms Stadsmission "Remak products"

4.3 Humana Sverige

Humana Sverige is an independent/non-profit organization that is engaged in supporting sustainable development projects internationally. Humana Sverige is a member of the international network of Humana People to People, which includes 32 independent organizations in 43 countries. Humana People to People works mainly in sustainability and social development areas and manages more than 800 projects that benefits more than 13 million people in Asia, Africa and Americas (Humana Sverige, 2016).

In order to finance the social projects, Humana Sverige works with collection and sales of used cloth, textiles, shoes and accessories in Sweden. Part of the collected clothes is being sold in their four second hand shops in Sweden and the rest is being donated or sold to traders of used clothing. The concept of second hand shops is based on selling modern and durable clothes. The profit of second hand clothes business goes to supporting the different social projects in Angola, Malawi and Zimbabwe (Humana Sverige, 2016).
4.3.1 Humana Sverige’s Value Chain for Second Hand Clothes

Collection of used clothing: There are different channels through which Humana Sverige manages their collection of used clothes in Sweden. These channels are container collection, Pick-up service, shop collection and corporates donations. Humana Sverige collects approximately 3 000 tons/year of used clothes in Sweden (Humana Second Hand, 2016). Container collection is the main channel for collecting used clothes for Humana Sverige, and it has around 1 900 containers, which are spread all over Sweden. Shop collection takes place in Humana Sverige second hand shops in Stockholm, Lund and Malmö, and it is considered an effective way to communicate sustainability values with consumers. Humana Sverige also offers pick-up services in the cities where they have central collection centers, which are located in Stockholm, Gothenborg and Malmö (Humana Sverige, 2016).

Sorting of collected clothes and destinations after sorting: All collected used clothes by Humana Sverige are being transported to near sorting centers in Europe which belong to the international network of Humana People to People. In 2013, 3198 tons of used clothes has been collected and transported to sorting centers in Bulgaria and Lithuania. After sorting out a small amount of used clothes which had no value to be reused, the rest landed in different destinations as the following (Humana Sverige, 2013):

- 30% of the collected clothes were sold in second hand shops in Europe, including 40 tons sold in Humana Second hand shops in Sweden.
- 30% of the collected clothes were sold to used-clothes traders or donated within the network of Humana People to People in Africa.
- 30% of collected clothes landed in recycling industry.
- 7% of the collected clothes were sold in second hand markets outside of Europe.
- 3% of the collected clothes were used for energy recovery.

Sales of second hand clothes in Sweden: Humana Sverige manages its sales of second hand clothes in Sweden through its 4 shops in Stockholm, Lund and Malmö. The concept of the second hand shops is to sell fashionable and durable second hand clothes, which can compete with and become alternative for new/virgin clothing. The collections of used clothes, which are being sold in the second hand shops, come from Humana sorting centers in Bulgaria and Lithuania. These collections are categorized after seasons, and they usually of high quality and contain clothes of world class brands (Humana Second Hand, 2016). In 2013, 40 tons out of the collected used clothes were sold in Humana second hand shops in Sweden (Humana Sverige, 2013).
5 Findings and Results

In this chapter, the author presents combined outcome of the semi-structured interviews conducted with the respondents in this study, as well as studying the collected secondary data. The results are categorized into themes and sub-themes, which are mainly addressing; the Challenges and abilities in collection and sorting processes of used clothes; Evaluation of the Swedish market of second hand clothes; the challenges and possibilities for improving the Swedish market of second hand clothes.

5.1 Collection and sorting of used clothes in Sweden

In this section, the author presents the results regarding the challenges and abilities in collection and sorting processes of used clothes in Sweden.

5.1.1 Collection of used Clothing - challenges:

The three participating organization in this study, use different channels for collection of used clothes. The main and most important channels include container/box collection, in-store collection and pick-up service. They mentioned many challenges that need to be dealt with in this phase, in order to improve this part of the value chain of second hand clothing. These challenges can be organized into the following points:

**Increasing competition of used clothes collection:** One of challenges is the increasing competition of collecting used clothes in Sweden over the past five years, and after realizing the value of used clothes by the competitors in this Market. Charity organizations, which are considered the major player in this market, together with second hand clothes retailers, have relatively expanded their activities of collecting used garments. Major new/virgin clothing retailers have recently joined this market by facilitating in-store collection of used and old clothes. They motivate their customers to bring old clothes, by offering vouchers and discounts for new purchases.

According to CO2 (Charity organization 2): “The main challenge with collection of used clothes today is the competition. Private companies have realized how much money they can gain out of collecting second hand clothes. If we compare this with how it was five years ago, we were alone at the summit. In addition to that, other big competitors who work exact the same way as we do, i.e. Stadsmission and Myrorna.”

According to CO3: “Another challenge is that private companies such as HM and Kapphal give you money in form of vouchers when you give them used clothes, and if this trend will continue then it will not be anything of good used clothes left for us. And we don’t really know how they handle these collected used clothes, since they don’t have facilities to sell used clothes at their stores.”

“Another problem in this area is that the competitors destroy it for each other by moving away each other container and rip off the information to keep off the competitors.” Said CO2.

**Containers/boxes collection:** One of the challenges in container collection process is the quality of used clothes. Because of the difficulty of controlling what should be thrown in containers. Torn and smelly garments, in addition to, other types of trash are sometimes
thrown in the containers transferring dirt and bad smell to other clothes, of which used to be in a good condition. This problem causes decrease in quality and value of the collected clothes inside the container in general, and increases the cost of sorting and laundering, in order to recover the good condition of these clothes.

According to CO1: “The quality of clothes collected in containers is not as good as the quality of clothes received in our second hand shops. Many people throw their garbage and household waste in the containers and the clothes becomes smelly.”

According to CO3: “Another challenge is with quality of used clothes we collect, I would say that only 20% of the collected clothes could be sold in local market in Sweden and 60-70% is exported to other markets outside of Sweden for more refinement process and the rest 10% is handled as a waste.”

Another challenge in container collection process is the increasing incidents of stealing directly from containers by those who work illegally in this market, and for the purpose of exporting these stolen clothes to used clothes traders in other second hand markets outside of Sweden.

According to CO3: “One of our biggest problems as well is stealing from our containers, and normally the purpose of stealing is to transport these clothes overseas.”

Transportation cost of pick-up service: Some of the charity organizations (COs) offer pick-up service to those who don’t have access to or not able to go to the containers and shops to leave their used clothes. The main challenge in this process is that the amount of clothes that need to be picked up has to be reasonable, in order to cover transportation and other costs. For this reason, these COs cannot afford pick-up service for individual donors who are willing to give small quantities of used clothes, thus losing a potential amount of used clothes that could otherwise be collected.

“In general, the fact is, if we are going to pick up used clothes, it has to be of quite a high value and large amount, in order to cover up the cost we have for transportation. For example if we are going to sell a pair of Jeans from HM for 60 kr, so picking up only one bag, that have few pairs of jeans, will not be cost efficient.” said CO1.

According to CO3: When it comes to collection of used clothes, the main challenge is to use environmental friendly and cost efficient ways of transportation. We currently receive most of the donated clothes at our stores or in containers very near to our stores.

Lack of information among consumers: one of the challenges in the collection process is that consumers or donors lack the information of; places of the nearest collection points of used clothes; which items should be or should not be left in the containers, and the condition of used clothes that will be thrown in the containers/boxes.

According to CO1: “We have to find a way to ensure that people will not through their household waste in these boxes or containers” I think also that spreading knowledge among consumers about environmental aspects and social aspects of donating their used clothes will help them to understand how important is to donate and reuse the old clothes.

5.1.2 Collection of used Clothing - abilities:

Infrastructure for used clothes collection: In order to make used clothes collection process easier and more efficient, two actions should be taken in parallel. First, increasing number of collection points for used clothes by increasing number of containers/boxes and expanding the network of shop collection. Secondly, supporting the expansion of physical infrastructure
with a collective information platform where individuals (donors) can find all required information regarding collection points and transportation of used clothes of which they wish to give or dispose.

According to CO1: we have to make it easy for people to give their clothes, and at the same time we have to find transport solutions that give lower transport cost as well as better for the environment. It can be using bikes to pick up the clothes or to have collection points in near neighborhood where people can drop their clothes. I think that the way that the big retailers, like H&M, do to motivate people to give their clothes by giving them vouchers and discounts for future purchase is good and encouraging for consumers to give their used clothes.

**Pre-collection sorting:** Providing donors/owners of used clothes with all required information that allow them to sort used clothes based on quality and category factors before they give them away. This will help in reducing time, steps, and cost of the sorting process of used clothes after they have been collected.

According to CO1: “Sorting process has to be very efficient. It helps a lot when donators do presorting for clothes before they give it to us.”

### 5.1.3 Sorting of collected used clothes – challenges

The three charity organizations apply initial sorting for collected used clothes. This process takes place either at their shops, in near facilities to their shops where used clothes are being collected, or they are being transported to their sorting centers. They mentioned some challenges that stand against applying more advanced sorting in Sweden, of which will be shown in the following:

**High Labor cost:** It is well known that sorting of used clothes is a process that mainly depends on manpower factor. There is no technology yet that could offer alternatives to human sense of quality, fashion and categories of used clothes. Because of the high living standard in Sweden, labor cost is relatively high. Thus, the cost of the sorting process increases the overall cost of handling second hand clothes, and make them even higher than their commercial value.

According to CO1: “We think all the time how the clothes we sell is going to meet customer expectations, and without too much handling from us to avoid increasing the costs. Of course, that is not the case for the expensive garment that we sell for example for 200 or 300 kr.”

According to CO2: the challenge for sorting in Sweden is the cost and knowledge, and that’s why we outsource this process from our specialized partner in the network in the near countries such as Lithuania and Bulgaria. “We have well trained staff there, who knows exactly what the market needs in Sweden. To be honest, there is no reason to do this process in Sweden, it is very expensive.”

According to CO3: “We can’t pay for professional people to do this job because that will bring high cost to the process and affect the main purpose of our work which is generating funds for our development and social work in other countries”

**Lack of knowledge and skills:** For charity organizations, sorting and preparation processes are mostly done by either volunteers or practical trainees, who usually spend a short period of time (3-6 months) at training places. Sorting process of used clothes is by and large a subjective process, in other words, it depends mainly on the judgment of those who are doing the sorting. Volunteers and practical trainees lack the knowledge and skills that allow an efficient sorting and correct judgments of the clothes being sorted. For this reason, some
quantities of used clothes, which have potential to fulfill requirements of the Swedish market of second hand clothes, are being lost. According to CO3: it is challenge for us as charity organization that we don’t have professional people doing the sorting process. We mostly work with people, who are in training or in learning situation, and they lack the experience of handling and sorting used clothes. In addition to that, those trainees work for short period of time, between 6 and 12 weeks, so we have to receive new people and repeat learning process frequently over quite short period of time. “So it’s the main challenge for us to work with volunteers who lack the knowledge of the brands and quality of clothes.”

According to CO1: “We are a social agency that accepts that people come here to do work training. We try to get people who have interest to fashion or have some knowledge in selling vintage clothing so that they have good look to the brands, the quality and trends, then could decide if these clothes can be popular or appealing somewhere.”

Scrap or used clothes that have no value: Mixing used clothes that are in a good condition with other clothes that has no value (cannot be reused or recycled) in the collection process, increases time and procedures for the sorting process, thus it increases the overall cost for this process.

According to CO1: “One of the challenges is that when you sort the garment, you have to be careful not to have many steps during the sorting process for the cheap garments that for example is going to be sold for 20 kr/pce. Sometimes we are forced to sell these cheap garments per kilogram.”

5.1.4 Sorting of collected used clothes – abilities

Increasing labor skills: Arranging professional trainings for those who are engaged in sorting process of used clothes in order to gain the required competence and sense of quality and fashion. This will result in increasing the efficiency of sorting process, thus sorting out higher amount of used clothes that could be sold in the second hand market in Sweden.

Outsourcing sorting process: Outsourcing of processes that mainly depend on manual work is always considered an efficient financial solution for those countries that have high labor cost, as it is the case in Sweden. It is an advantage for Sweden that near countries in Baltic and Eastern Europe have higher skills and competence in sorting process of used clothes, in addition to the lower labor cost in these countries. It would be an effective solution for those who operate in the Swedish market of second hand clothes to outsource sorting processes, on condition that sorted clothes will be transported back and sold as second hand in Sweden.

According to CO2: “We see that outsourcing sorting process from big sorting centers in Eastern Europe is an effective solution and we believe that we should continue in this.”

5.2 The Swedish market of second hand clothes

In this section, the author presents the results regarding evaluation for the market of second hand clothes in Sweden (product and consumer motivations), In addition to, the challenges and possibilities for improving this market.
5.2.1 Evaluation of the Second Hand Clothes in Sweden

**Prices:** Generally, the prices of second hand clothes in the Swedish market are considered reasonable relative to their value. The used clothes that have labels of fast fashion brands is usually sold at relatively low prices, unlike vintage clothes which became more and more popular specially among young generations. Vintage clothes are considered of high value due to the uniqueness of its fashion and style, thus it is worth to be sold at higher prices. According to CO1: Vintage clothes in Sweden are very popular and you can take a very good price for them. If we sell vintage clothes from the sixties or seventies, or clothes for brands like Loui vuitton or Chanel, of course they will have more value. But when it comes to second hand clothing of low price brands like HM or Mango, then they will be definitely much cheaper than their normal prices. “In General, I think that the prices of second hand clothes are appreciated by the second hand consumers here in Sweden.”

According to CO3: “In one sense, second hand clothes in Sweden are highly valuable relative to their prices. They are sold at quarter or less of their original price as it was new.” A lot of customers are there to find vintage and valuable clothes and the good thing with the second hand market that you can find this high quality clothes without spending a lot of money that otherwise you would spend to buy new.

**Quality:** The second hand clothes being sold in Sweden are considered of high quality. One of the reasons that make second hand clothes in Sweden of high quality is that a lot of used clothes are thrown away even though they still could be used for much longer time. In other words, used clothes are thrown away, not because they are used a lot, but rather consumers find them outdated, especially with the growing trend of fast fashion. According to Co1: “I think that the second hand clothes being sold in the market in Sweden are of good quality because they normally are not used for long time.”

According to CO2: “Regarding the quality of collected used clothes, as I know, In Norway, Germany and Sweden, it is between 70-80% percent of the collected items that could be resold in second hand shops. We just sell second hand clothes of very high quality in order to put our self in a place of the modern sustainable consumption.”

Many of the Swedish consumers consider second hand clothes healthy to wear, especially for children, because they have been washed several times before disposal, thus lose a lot of its harmful chemicals during these washes. According to CO3: “Another important point for the consumers that they buy clothes that have been washed several times so most of the dangerous chemicals are gone. That is something appreciated especially by the parents when they buy second hand clothes for their kids.”

**Fashion and style:** Most of the used clothes being sold in the second hand market in Sweden are still keeping their modern features and they have the potential to compete with new/virgin clothing, which are being sold in the retailing market. The reason for this is the high frequency of clothes disposal among Swedish consumers. In other words, the used clothes are usually used for a very short time before disposal, thus they still have some time until they become obsolete or out of fashion. For vintage clothes, it is a growing trend among Swedish young generations to buy vintage clothes because of their uniqueness in terms of fashion and style, the thing that gives it an advantage over virgin clothing being sold in the make-to-wear market.
According to CO1: In Sweden, I think that second hand clothes can compete with the new fashionable clothes. “In many fashion magazines, you can see mix up new clothes with vintage clothes and second hand clothes in their collections.”

According to CO3: “Recently we had fashion show in one of our second hand store, and I have seen before many fashion shows and some of them were even in Paris. And I can say that this fashion show that we had was really competitive, you could not tell that the clothes in this show was second hand as they were very fashionable.” We think there is no problem for us to compete with new clothes stores in terms of the degree of fashion.

5.2.2 Consumers motivations from businesses perspective

As per the participants’ perspective, Swedish consumers have different motivations to use second hand clothing. These motivations are price, fashion and style, social and environmental awareness and human ecology of second hand clothes. These motivations differ from one consumer group to another. In other words, some groups have only one or two of these motivations to use second hand clothes, while other groups have a combination of all these motivations, but with different priorities.

**Price:** Price is considered the most important factor for the biggest consumer group of second hand clothes in Sweden, to make a purchase decision. The consumers in this market segment consider buying branded clothes in good conditions at low prices relative to its prices as new, is the biggest advantage of using second hand clothes.

According to CO1: I think that the price is the main motivation for the consumers of second hand clothes. “We sell many clothes that have holes or stains and even though the consumers still buy them just because they think they are very cheap. You know every one like to bargain and get things in lower prices.”

According to Co3: We work with many different kinds of customer however I think price always attracts people to be able to afford to buy. “You would not go for quality or fashion if the price is very high.” We have other groups of customers who prioritize fashion and environment sustainability and would pay any price for second hand clothes. But I still think that price the most important factor that attracts the largest group of people in this market.

“Most of the people here in Sweden say they want to buy ecologic food but only 4% of the consumers who do it. The price and pocket which decide”

**Fashion and style:** The consumer group, who consider fashion and style as the main motivation to buy second hand or old/vintage clothes, is growing in a significant way in the Swedish market of second hand clothes. The majority among this market segment are from younger generations, who are looking for different style through wearing unique and fashionable clothing.

According to CO1: People in Sweden became more and more conscious about the environment and they also look for having a unique style. “For example, mixing shoes from the fifties with new clothes coming from this year collection of MaxMara.”

According to CO2: We work with famous designers because we think we should be the modern sustainable alternative for the consumers. “I would say that most of our consumers care most about fashion when they buy second hand clothes. The reason for that is we select unique items to sell in our shops and at cheap prices relatively. Most of our consumers are young people who are looking for unique outfits.”
Social and environmental awareness: Swedish consumers became more and more aware of social and environmental impacts of high clothing consumption. Sustainable consumption and ecological behavior have become a trend and life style for many people in Sweden. For this consumer group, social and environmental benefits are the main motivations for them to use second hand clothes. However, their awareness of the social benefits of second hand clothes consumption is relatively higher than their awareness of the environmental benefits. This market segment is growing rapidly, especially among young generations, and it has potential for expanding the second hand clothes market.

According to CO1: I think there are four different aspects that are considered by those who buy secondhand clothes in Sweden. First, they want to buy nice clothes for a cheap price. Second, they want to have a unique style. Third, they want to contribute to the social benefits that we as NGO afford to people who have difficult situations in life. And lastly, they want to have a life style where they can take care of the environment while using second hand clothes. According to CO2: “The Swedish consumers are well aware of the social and environmental impacts of using used clothes. They have a lot of demands and ask a lot of questions in this regard and we think that is a motivation for us to do better. It is such big trends now in Sweden that people are so well aware of the environment change.” According to CO3: Even though the Swedish consumers through away have the amount of their clothes, I think that a lot of people are aware of the environmental benefits of buying secondhand clothes.

Human ecology: Many of the second hand clothes consumers in Sweden consider wearing used clothes is healthier and less harmful to the skin than wearing new clothes, because used clothes are being washed several times before disposal and most of the chemicals come off during washing. This motivation is growing among consumers of second hand clothes, especially among parents who are looking for safe and healthy clothes for their children to wear. According to CO3: “Another growing group of consumers is families with kids who are aware of the risk of clothes chemicals, and would prefer buying second hand clothes just for this reason.”

5.2.3 The Market of second hand clothes - challenges

The following section shows the results regarding the challenges to improve marketing and promotion of second hand clothes in Sweden.

Low prices of new/virgin clothes: with the rise of fast fashion trend in the recent decades and the aggressive competition between fast fashion retailers, the consumers are offered variety of new clothes at very low prices and relatively good quality. The low prices of new clothes has a negative impact on the second hand market, as it forces second hand shops to cut down the prices of used clothes in order to survive in this market. It was also mentioned that these low prices clothes of fast fashion brands lose their commercial value to be sold as used clothes in the second hand market, as consumers find them cheap and obsolete, even though they are still in a good condition to be reused. For this reason, charity organizations find it more profitable to export these clothes to second hand clothes markets outside of Sweden.
According to CO2: “The cost to sell an item in second hand clothes is pretty much the same as the cost to buy a new item from H&M. It is better for us to expand our market and sell our second hand clothes in other countries such as Lithuania, Latvia and Bulgaria. It is quite hard to sell in Sweden when lots of the collected items are from for example HM and Ahlens which are not of high quality to be resold as second hand. We can’t not make money out of cheap items that is why we are selective about the items we sell in our shops here in Sweden, in order to keep our niche market.”

According to CO3: “There are too many poor quality clothes as new in the market and that’s a challenge for the second hand market to resell them at suitable prices. The cheap and poor quality clothes have less benefit for the second hand market.”

**Limited marketing budget:** The fact that most of the second hand clothes have to be sold at low prices, forces COs to spend less on marketing and promotion activities. This is considered a hinder against expanding this market and reaching out other consumer segments.

According to CO1: “One of the challenges that we don’t have the same marketing as H&M. we have to be careful all the time and try to find cheap solutions for our promotions of clothes.”

According to CO2: “We can’t put in too much money in marketing campaign and public relation activities. If we target a broader market, the competition will be tough for us, that is why we have to make our niche market.”

**Interior and visual merchandising:** Limited spending on interiors and visual merchandising in most of second hand shops in Sweden makes it difficult to attract more consumers; moreover it affects the sales to the current second hand consumers as well.

According to CO1: “Fortunately, we have some good deals with some PR agencies and other companies that give us things that we can use for marketing purposes such as holders and other visual merchandising tools. But it is not easy to keep visual merchandising in our stores as professional as the normal commercial stores.”

According to CO3: “We have the same challenge as we have for sorting that we don’t have professional people, it is volunteers who take care of marketing and visual merchandising activities at the shop. In many of our shops, it’s only the manager who may have some experience in those areas.”

**Collection depth and width:** A typical problem for second hand clothing shops is to control width and depth of the collections they offer to their consumers. It is obviously the nature of used clothes collection process which does not allow second hand clothes shops to offer consumers a variety of clothes categories, models, colors and sizes.

**Legal restrictions:** The legislations for charity organizations, which are the major players in second hand market of used clothes, put limits for their second hand shops, in terms of the profit they are allowed to make and products and services they offer to their consumers. These restrictions add more challenges for charity organizations to contribute in expanding the second hand market of used clothes and to address requirements of other potential market segments within Sweden.
According to CO3: There are different reasons that limit the possibilities of offering other services such as repair or redesign in our second hand shops. One of these reasons is that we are a nonprofit organization and we cannot involve ourselves in much business activities as we don’t pay VAT. "We are not allowed to sell new clothes and we are not allowed to sell services to others. You might have heard about the ongoing discussion last year where the EU was threatening to enforce 25% VAT on all second hand stores and we managed to stop that, otherwise everyone would shut down their stores."

5.2.4 The Market of Second Hand Clothes - Possibilities

Support from government and political parties: The state as well as political parties should do more efforts to support the second hand market of used clothes at municipality level. They should use their facilities and capabilities in raising people awareness of the social and environmental benefits of second hand clothing consumption and the importance of this practice in achieving the goal of sustainable consumption. This could help charity organizations to overcome marketing challenges.

According to CO1: I think it can help if we speak to politicians and build network with the government and municipalities, who can go out to different areas and telling people how important it is to reuse and recycle used clothes instead of throwing them in garbage. “We have to collaborate with the government, retailers, other NGOs and also schools and research institutes to raise consumer consciousness about using second hand clothes.”

According to CO2: “Putting more efforts in public relation is very important for expanding the market of second hand clothes. The Nordic minister council has made a code of conduct because they have seen that there was a problem within the private actors in collecting used clothes in Sweden and unserious business is going on. Such as lying to the public by claiming they are non-profit organization while they are not. So being a part of such code of conduct helps in gaining consumers’ trust in our activities in this Market.”

Potential market segments: In order to expand the second hand market of used clothes in Sweden, charity organizations should focus on reaching out new consumers groups and fulfilling their needs. They should also focus on expanding current market segments that have potential to grow fast, such as consumer groups who are looking for having different style and fashion, or those who are willing to have sustainable and ecological life style. These consumer groups are usually not sensitive to prices and appreciate the value of products that fulfill their needs.

Integration or collaboration with other businesses: Integrating other services such as repair services, rental, redesign and restyle with the traditional business model of COs second hand shops, can help in increasing the value of second hand clothing, attracting more consumers to second hand shops and encouraging them to increase their consumption of second hand clothes.

For charity organization, the state legislations put limits to the profit they make and the services they offer, so that collaboration with other commercial businesses, which can offer these services, could be a substitute of such integration and solution to overcome the restrictions made by legislations.
According to CO1: “We have our own brand for the “Remade” of used clothes, which comes with new clothes design that help making used clothes appealing to consumers.” We have also the concept of DIY (Do it yourself) where we give our customer a bag of used clothes and explain to them how remake new design out of these old clothes. “It can also help if we can have collaboration with repairing shops where our customers can repair the old clothes they buy from us at a proper cost. I think we have already started to offer repair service in our stores for the “Remake concept”.

According to CO2: “We think that offering other service in the second hand market such as repairing and restyling is brilliant ideas but the only obstacle to do this is to make it profitable. We tried to do remake for like ten years ago and it was not successful at all.”

According to CO3: There are good opportunities for cooperation between social companies and private companies to afford services such as repairing and renting second hand clothes. But for us to offer such services, I don’t think that it will profitable now, may be in the future.

**More flexible legislations:** As the charity organizations are considered the major player in the second hand clothing market in Sweden, more flexible legislations is required, in order to allow them to increase the value of the products they sell and offer more services in their second hand shops. This will help them to attract new consumer groups other than the current ones.

**Online shopping:** developing and expanding the idea of online shopping for COs in Sweden may help in reaching out those consumers who don’t have access to physical second hand shops. It can also be an effective alternative for second hand shops that have limited budgets for marketing activities and visual merchandising.
6 Discussion/Analysis

In this chapter, the author presents interpretation for the empirical findings in relation to the research questions and their implications to the literature studied (conceptual framework and results of previous studies).

6.1 Reverse logistics system for used clothes

In this section, the findings regarding collection and sorting processes of used clothes in Sweden are discussed in light of their implications to the literature studied and in relation to the first research question (What are the challenges and possibilities for improvement in the reverse logistics system of used clothes in Sweden from charity organizations’ perspective?).

6.1.1 Collection of used clothes – Challenges and abilities

The findings show some challenges in the process of collection of used clothes in Sweden. The reported challenges in this study support most of the results reported in previous studies in the studied literature.

The main challenge observed in the findings is the need to increase the volumes of collected used clothes, in order to cope with the increasing competition over the recent years and also to increase economies of scale for this process. For charity organizations, it is necessary that increasing the volumes of used clothes they collect to be accompanied with more efficient collection system, in order to ensure commercial viability of this process.

In the studied literature, three factors have been identified by Ekström, K.M. & Salomonson, N. (2014) to improve the volume of collected used clothes and efficiency of collection process. One of these factors is to find logistical solutions to increase consumers’ accessibility to collection points of used clothes. This is in line with what the findings reported regarding the actual need of expanding the physical infrastructure for collection of used clothes and supporting this physical expansion by technological solutions, in order to provide donors of used clothes with all needed information regarding the network of used clothes collection. One example for these technological solutions can be an expansion for an idea such as the “Circle App” to cover the network of all infrastructures of all parties involved in used clothes collection process. Another idea such as the “Rag bag” can also be a cost effective solution to reach out donors of used clothes, who are located in lower population density areas and don’t have facilities for used clothes collection in their neighborhood. Within the same context, Tojo, N., et al., (2012) stressed on the need for regulated collaborations between municipalities and collectors of used clothes in order to facilitate collections points in the areas that can’t financially cover collection activities. As shown in the findings, collaboration between all stakeholders involved in this process is necessary for increasing the volumes of collected used clothes and the efficiency of collection process. One example for this collaboration is the collaboration between charity organizations in second hand market and businesses in new clothes retailing market, in order to expand the infrastructure of used
clothes collection and also to raise consumers’ awareness of the environmental benefits of reusing and recycling of used clothes.

Another challenge presented in the findings is the increasing incidents of stealing clothes from containers by those who work illegally in this market. Palm, D., et al., (2014) mentioned two reasons for the rise of this problem in Nordic countries. One reason is the increasing value for used clothes these countries, while the other reason is the lack of regulations for collection of used clothes and who is responsible for granting permission for collecting organizations. Ekström, K.M. & Salomonson, N. (2014) have also highlighted the importance of having national system and regulations that organize the disposal and collection of used clothes and to clarify ownership and responsibility of the discarded clothes.

6.1.2 Sorting of used clothes – Challenges and abilities

The findings in this study support most of results reported by previous studies regarding sorting process of collected used clothes in Sweden. It also confirms that dealing with the challenges in sorting stage is considered crucial for the improvement of the whole reverse logistics system of used clothes.

The main challenge in this stage is the high labor cost and lack of technological solutions to provide alternatives for manual work being done by humans. The findings showed that providing the donors of used clothes with needed information for pre-collection sorting would help in decreasing time and cost of the initial sorting process being done at the charity organization. According to Ekström, K.M. & Salomonson, N. (2014) increasing consumers’ knowledge about the quality discarded clothes and what could be reused and what could be recycled, will be an effective factor for cost reduction in sorting process. The findings also showed that outsourcing sorting process from near countries to Sweden, of which have higher labor skills and lower labor cost, would be an effective solution for charity organizations, on condition that sorted clothes will be transported back and sold in Sweden.

The findings also showed that the lack of knowledge and skills among those who work with the first layer or initial sorting in charity organizations is considered an obstacle to do this process efficiently. As indicated by Tojo, N., et al., (2012) when the purpose of sorting process of used clothes is to select the reusable items that can be resold in the market, familiarity with market demands is an important factor in increasing the efficiency of sorting process. The participants in this study find that arranging professional trainings for those who are engaged in this process is necessary, however the fact that most of the volunteers and practitioners stay at work for short time make it difficult for them to arrange such trainings considering cost and benefit aspects.

Mixing scraps and dirty clothes, which have no value, with other reusable used clothes in collection process, is another challenge reported in the findings to have more efficient sorting process. Palm, D., et al., (2014) found that the reason for this problem is the lack of collection system that could separate dry/clean reusable textiles from textile wastes, thus resulting in increasing contaminations of collected. The findings showed that increasing awareness of used clothes donors with pre-collection sorting process could be part of the solution for this problem.
6.2 The Swedish market of second hand clothes

In this section, the author discusses the empirical findings regarding; the evaluation for products and consumers motivation in the Swedish market of second hand clothes from businesses’ perspective; challenges and possibilities for improvement in this market. It also presents implications of these findings to the studied literature and how they address the second research question (What are the challenges and possibilities for improvement in the Swedish market of second hand clothes from Charity organizations’ perspective?).

6.2.1 Evaluation for product and consumers’ motivations

Regarding the used clothes being sold in the Swedish market of second hand clothes, the findings showed that they have potential to fulfill demands for consumers from different market segments in Sweden. One reason for this is the relatively high quality of second hand clothes considering that they are usually used for a very short time before disposal. Another reason is the ability of second hand clothes to compete with new/virgin clothing in terms of fashion and style, especially for vintage clothes, and with exception of lower prices clothes offered by fast fashion brands. A third reason is that the prices of second hand clothes in Sweden are considered so reasonable relative to their value. These findings are in line with what was mentioned by Ekström, K.M. & Salomonson, N. (2014); Tojo, N., et al., (2012) regarding the reasons for increasing sales of second hand clothes in Sweden over the recent decade. Among the reasons they mentioned are; the increasing social acceptance of using second hand products; using second hand and vintage became a trend in the developed countries; low prices of second hand clothes; offering unique items and environmental concerns.

As the participants’ view, prices are still considered the first motivation for the biggest consumer group of second hand clothes in Sweden. However, other consumer groups in this market showed a significant growth over the recent decade. Among these consumer groups are; those who are motivated by fashion and style and those who are motivated by sustainability aspects. These two groups are increasing rapidly, especially among young generations, who appreciate fashion and sustainability values rather than prices. This supports the conclusion indicated by Yan, R., Bae, S.Y. & Xu, H. (2015), that prices of second hand clothes is no longer the only driver for the consumers of second hand clothes. Environmental consciousness and seeking style uniqueness in vintage and second hand clothes have also become motivations for consumers over the recent decades, especially among young consumers. The findings showed also another growing group in this market, which includes families who are motivated by human ecology factor and willing to buy healthier and less harmful clothes to the skin, especially for their children.

6.2.2 Marketing of second hand clothes – challenges and possibilities

As indicated in the studied literature and supported by the findings in this study, the low prices of new clothes produced by fast fashion brands has some negative impacts on the second hand market in Sweden. One of these impacts is forcing down the prices of second hand clothes as consumers are offered variety of new clothes at very low prices and relatively good quality. According to Thierry, M., et al., (1995) consumers’ acceptance for used items depends mainly on the differences in cost and quality between used items and new/virgin items.
The findings showed that the fact that most of the second hand clothes are sold at low prices is considered one of the main challenges for charity organizations to expand their markets. This challenge puts limitations for their budgets for marketing and promotion activities and limits their spending on interior and visual merchandising. However, these factors have been described by Tojo, N., et al., (2012), as important factors to attract more consumers and expand the market of second hand clothes.

For charity organizations in Sweden, legislations are also considered an obstacle for marketing and sales of used clothes, because they put limitations for profits and restrictions on the services of which charity organizations are allowed to offer to consumers. This is in line with the conclusion made by Palm, D., et al., (2014), that the increasing political interests in Nordic countries to improve the value chain of used clothes is not reflected by legislative changes that could results in actual improvements in this market.

As the participants’ view, the concept of online shopping and the concept of integrating other services, such as repair, remake and rental in the traditional business model of second hand shops, can contribute in improving the market of second hand clothes. Expanding the application of these concepts will help charity organizations to address the requirements of other consumer groups and attract new market segments other than the current ones. However the latter concept requires more flexible legislations for charity organizations, in order to be able to offer more services and products to their consumers. The findings also showed other possibilities for the COs to develop their markets such as; focusing on market segments that are growing rapidly or have potentials to grow; collaboration with other businesses, government and political parties.
7 Conclusion

In this chapter, the author presents the conclusion drawn from the findings and discussion in this study. It also includes the research purpose and how the study answers the research questions. The last two sections in this chapter show the contribution of this study to the relevant research area and recommended subjects for future research.

The rapid increase of clothing consumption over the recent decades has contributed significantly on increasing the burden on environment as a result of; the high consumption of natural resources and land; increasing amounts of carbon emissions; excessive use of toxic chemicals; polluting air, land and water; and increasing amounts of waste. Clothing consumption in Europe is far higher than the world average of clothing consumption, especially in Nordic countries including Sweden. Adopting and encouraging more circular economies is a part of the European commission’s strategy to achieve sustainable consumption of resources and protection for environment.

The purpose of this Research was to study the possibilities for improving the practice of second hand clothes consumption in Sweden and make it more effective towards the goal of sustainable consumption and circular economies. In order to achieve this goal, it is necessary to understand the challenges and find abilities for improvement in the value chain of used clothes in Sweden, with focus on the reverse logistics system of used clothes (collection, sorting and preparations) as well as the market of second hand clothes.

In order to achieve the purpose of the study, relevant literatures have been studied in order to build conceptual framework and learn the results of previous studies. Value chains of three charity organizations have been studied and Semi-structured interviews have been conducted with participants within these three organizations. The empirical findings have been interpreted in relation to the research questions and their implications to the conceptual framework and the results of previous studies.

Many challenges have been demonstrated in this study over the different stages in the value chain of second hand clothes in Sweden, including collection of used clothes, sorting process and the market of second hand clothes. The main conclusion in this study is that dealing with these challenges requires collective actions from and cooperation between all involved parties in this value chain, including businesses of second hand clothes, contributors and consumers of used clothes, governmental authorities, municipalities, politicians and private sector.

The empirical findings regarding the reverse logistics system of used clothes (collection and sorting processes) confirm the utility of conceptual framework and the results of previous researches; however some of the challenges were shown in this study from different angle. The study demonstrated some possibilities for improvement in the reverse logistics system of used clothes in Sweden. For example, Expanding the infrastructure of used clothes collection through multiple channels and developing a collective platform, where used clothes owners can find all required information, could contribute tremendously in increasing the amount and quality of collected used clothes.
Increasing labor skills and collaboration of used clothes owners by doing pre-collection sorting are crucial for improving sorting process and cost reduction. Outsourcing sorting process from near countries to Sweden, of which have higher labor skills and lower labor cost, would be an effective solution for charity organizations, on condition that sorted clothes will be transported back and sold in Sweden.

The empirical findings regarding the Swedish market of second hand clothes are in line with the conceptual framework. According to the participants’ evaluation, second hand clothes in Sweden have potential to compete with new/virgin clothing being sold in retailing market. One reason for this is that collected used clothes in Sweden are of relatively good condition and high quality. Another reason is that the prices of second hand clothes in Sweden are considered so reasonable relative to their value and their degree of fashion and style.

As per COs’ perspective, Swedish consumers have different motivations to use second hand clothes, including reasonable prices, style and fashion, social and environmental consciousness. Price comes as first motivation for the biggest consumer group of second hand clothes. However, other consumer groups, who are concerned most of sustainability aspects, fashion and style, are growing fast in this market in Sweden, especially among young generations.

This study have also demonstrated marketing challenges that charity organizations face in Sweden, as well as the abilities for improvement in the Swedish market of second hand clothes. Among these abilities, is integrating services such as repair, redesign and rental into the traditional business model of second hand clothes shops. Another one is enacting more flexible legislations for charity organizations, of which could help them in attracting other consumer groups and expanding the market of second hand clothes. A third one is the Collaboration of municipalities, politicians and private sector in raising consumers’ awareness of the benefits of second hand clothes consumption. This could help businesses in the second hand market to overcome the problem of limited budgets being spent on marketing activities. Last but not least, expanding the idea of online shopping in second hand clothing stores could help in solving the problem of limited budget for visual merchandising and reach out consumers who don’t have access to second hand shops in near areas.

7.1 Contribution

One part of the contribution of this study can be seen in supporting the conceptual framework and confirming the results of previous researches, through demonstration of the challenges and possibilities to improve collection and sorting processes of used clothes in Sweden, while presenting some of them from different angle. However, the main contribution of this research was studying the Swedish market of second hand clothes from Charity organizations perspective, considering that not many academic studies have addressed this exact topic in this specific context. In this study, evaluation for second hand clothes in the Swedish market, consumer motivations and marketing issues that charity organization face have been elaborated, in addition to presenting and discussing ideas and practical solutions to improve the Swedish market of second hand clothes.
7.2 Future Research

According to the results of this study, Future research should put more focus on studying the market of second hand clothes from consumers’ perspective. For example social acceptance of using second hand clothes in Sweden and consumers attitudes towards replacing purchases of new clothes with purchases of second hand clothes. It is also proposed that future researches study the possibilities of integrating the resources of near countries to Sweden into the Swedish reverse logistics system of used clothes, considering the advantage that these countries have in terms of lower labor cost and higher competences in sorting and preparation processes of used clothes. Another subject to recommend for further research is the implications of replacing purchases of new clothes with second hand clothes to the Swedish retailing market of new clothes.
8 List of references


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9 Appendices

Appendix 1: Interview Guide

- Challenges for improvements and development within the value chain of second hand clothing in Sweden. (Used clothes Collection, sorting and preparations, Marketing and sales).

  - What are the challenges/problems in collection and transportation process of used clothes in Sweden? How does your company/organization deal with these challenges?
  - What are the challenges in sorting and preparations processes of used clothes in Sweden? How does your company/organization deal with these challenges?
  - What are the challenges in marketing and promotion of second-hand clothes in Sweden? How does your company/organization deal with these challenges?

- Evaluation of second hand clothes in the Swedish market?(Price, quality, fashion)

  - How do you evaluate the prices of second-hand clothes relative to their value?
  - How do you evaluate the quality of second-hand clothes being sold in the Swedish market?
  - How do you evaluate the degree of fashion and style of second-hand clothes in Sweden relative to new/virgin clothing?

- Swedish Consumer motivations to use second hand clothes.

  - What are the motivations for the Swedish consumers of second hand clothes?

  - How important are the following parameters (price, quality, fashion, sustainability) to the different consumer groups of second hand clothes in Sweden?

- Improving the practice of second hand clothing consumption in Sweden

  - How can the different processes within the value chain of second hand clothes in Sweden be improved? (Used clothes collection, sorting and preparation, marketing and promotion)

- Integrating other practices or services such as online shopping, clothes rental, Repair and redesign/restyling with the traditional business model of second-hand shops.

  - What are the possibilities of integration between the traditional business model of second-hand shops and other business ideas such as online shopping, clothes rental, Repair and redesign/restyling?

  - How far can this integration contribute to the development of the practice second hand clothes consumption in Sweden?
Appendix 2: Circular Economy

The concept of ‘Circular Economy’ has a close relation to the thinking of transition from the traditional economic system “take, make, dispose”, which is also known as linear economy, to more sustainable economic systems. In the economic model (take, make, dispose), materials are being extracted from nature to make products, which are planned to be used for a certain amount of time and eventually thrown away, back to the nature, when they become either out of their useful function or simply are outdated or obsolete. This model of linear economy leads to an excessive use of finite resources (materials and energy) and causes enormous amounts of waste and pollution to the environment (Ellen MacArthur Foundation, n.d).

Before giving a definition for the term circular economy, it is worth to mention that the concept of circular economy is not originated from one source and is not defined in a specific date, but rather it is a result of combination of modern economic systems and industrial processes of which have been developed by different schools of thoughts, such as cradle to cradle, bio mimicry, industrial ecology and regenerative design (Ellen MacArthur Foundation, n.d.).

According to the definition given by Ellen MacArthur Foundation (n.d.), “A circular economy is restorative and regenerative by design and aims to keep products, components, and materials at their highest utility and value at all times. The concept distinguishes between technical and biological cycles”. According to this definition for circular economy, materials are divided into two categories, namely, biodegradable and non-biodegradable. Biodegradable materials go through biological cycles where material should end up in environment as a nutrient, safely and with no harmful impacts. Non-biodegradable materials, such as metals, go through technical cycles where materials should be recovered, recycled and reused. Figure 4 shows these two categories of cycles in the circular economy model, as well as the three principles of circular economy concept.

According to Ellen MacArthur Foundation (n.d.) circular economy comprises three principles, which each of them addresses some of the cotemporary challenges for industrial economies. The first principle is to preserve and enhance natural capital by controlling finite stocks and balancing renewable resource flows. The second principle is to optimize resource yields by circulating products, components, and materials at the highest utility at all times in both technical and biological cycles. The third principle is to foster system effectiveness by revealing and designing out negative externalities.

The main challenges that the concept of circular economy addresses can be concluded in the following; nonrenewable sources of energy; finite nature of raw materials; prices volatility and uncertainty of raw material, and finally the negative impacts on environment (Coara Commercial Asset Recycling, n.d.).

The goal of circular economy is to tackle these challenges by relying on renewable energy sources; increasing longevity of raw material; designing products to last for long time; designing products to be reused either in its end use form or as components or as raw materials; minimizing use of toxic chemicals and lastly eliminating the concept of waste and all forms of pollutions (Coara Commercial Asset Recycling, n.d.).
The “Three R Principle”

Xuan, Baotong and Hua (2011) described the circular economy as a new sustainable growth mode that aims to achieve effectiveness of resources use by keeping circulation of material flow through what is called the “three R principle”, including Reduce, Reuse and Recycle. These “3Rs” are also known as waste management strategies.

According to the definitions given by Zhijun and Nailing (2007) these three R, reduce, reuse and recycle can be described as the following:

**Reduce**: It means fulfilling requirements of production and consumption while being efficient in the use of raw materials and energy, in addition to reducing pollution in every stage during product lifecycle.

**Reuse**: It means using products multiple times or at least more than once, thus prolonging their materials life and getting the highest possible utilization of their values.

**Recycle**: It means management of materials waste and recovering their original form as raw materials so they can be reused in production and manufacturing processes.
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