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CSR and handling of WEEE in Finland

case Stena Recycling

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Bachelor of Business Administration (BBA)

International Business & Logistics

Thesis

10.5.2017

Author(s) Title Number of Pages Date	Henrik Törnroos CSR and handling of WEEE in Finland - case Stena Recycling 33 pages + 1 appendix 10 May 2017
Degree	Bachelor of Business Administration, BBA
Degree Programme	International Business and Logistics (IBL)
Specialisation option	IBL
Instructor(s)	Marko Korkeakoski, Senior Lecturer
<p>The question of Corporate Social Responsibility is important as the world is increasing its use of electric and electronic devices and the trend is that the life-cycle of these products is getting shorter and shorter. The amount of WEEE / electronic waste generated is growing as also old equipment expires out of date. This Thesis presents some of the most important theories on the subject and links it to the economic theories on social responsibility. It also presents the logistics process of WEEE.</p> <p>Further the ethical side of business is revealed and the discussion is reviewed against the results of an interview with a WEEE handling company. The key findings are that ethical business and environmentally sustainable business tend to contribute positively even in financial terms. However, these measures are on a very long-term base and therefore the interest is not that high to invest heavily in CSR.</p>	
Keywords	WEEE, e-waste, CSR, sustainability, reverse logistics

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A list of abbreviations used in the thesis

CEN	Comité Européen de Normalisation
CENELEC	Comité Européen de Normalisation Electrotechnique
CR	Corporate Responsibility
CSR	Corporate Social Responsibility
EoL	End-of-Life product
ETSI	European Telecommunication Standards Institute
GR	Green Retailing
GRI	Global Reporting Initiative
GSCM	Green Supply Chain Management
IEC	International Electrotechnical Commission
ISO	International Organization for Standardization
ITU	International Telecommunication Union
JTC 1	ISO/IEC Joint Technical Committee 1
RoHS	Restricting the use of hazardous substances in electrical and electronic equipment
SFS	Suomen Standardisoimisliitto SFS ry
SESKO	SESKO ry (National Electrotechnical Standardization Organization)
SCR	Strategical Corporate Responsibility
TBL	Triple Bottom Line
WEEE	Waste of electrical and electronic equipment (eg. e-waste)
3PRLP	Third Party Reverse Logistic Provider

1 Introduction

Many of our problems today in the 21st century are blamed upon old theories on economic growth that wealth is unequally distributed. The truth is never as black and white. Adam Smith is commonly regarded as the first modern economist because of "The Wealth of Nations" in 1776. Prior to that Smith was in fact an educator in moral philosophy. In "The Theory of Moral Sentiments" from 1759 Smith writes:

"How selfish soever man may be supposed, there are evidently some principles in his nature which interest him in the fortune of others and render their happiness necessary to him though he derives nothing from it except the pleasure of seeing it." (Smith A. 1759)

This statement by Smith could well be adopted in the year of 2017 when talking about sustainability. As there is no actual standard to report nor to measure Corporate Social Responsibility (CSR), each company may define their own CSR policy as it is fitting to them. Therefore green & reverse logistics is subject to the direct actions of the company.

The reverse logistics is also affected by standards that the governments set in form of regulations on treatment of waste electric and electronical equipment (WEEE).

As these regulations are based on technical standards or materials and components used in electronics, they do not necessarily take into all aspects of the social, ecological and financial according to the Triple Bottom Line (TBL) principle. TBL refers to an economic model where businesses' actions are evaluated on these three elements presented in Chapter 3. In a growing pace companies have started to report on their actions in terms of responsibilities towards society by producing CSR reports.

A topic such as CSR can be very controversial as there are no exact rules on how companies must act beyond any lawful requirement nor is there a guideline on how a CSR-report must look like. A study on sustainability is seldom straight forward as views from the business perspective tend to be very subjective. This thesis is investigating the relationship between Corporate Social Responsibility, CSR reports and marketing strategy and more so exploring green logistics as a value adding factor when implemented in the supply chain process as part of CSR. The aim is to introduce green logistics principles into the planning phase for companies as part of their CSR policy. By doing so, there might be found a truly sustainable way to define a common ground for business practices.

This subject is relevant as scarcity of resources is already a well-known fact in the 21st century. The emphasis lies on finding sustainable solutions. This involves implementing strategies on both short- and long-term and to establish common guidelines to maintain crucial resources. As cross-disciplinary thinking has already emerged into new academic programmes, so does this thesis combine fields of Logistics, Sustainability and Corporate Responsibility.

1.1 The idea behind the thesis

The idea to the thesis process itself started a few years back year with the idea of relating to both business and logistics. It evolved around the concept of reverse and green logistics and by so into the process of recycling of electronic and electrical waste (WEEE) and the possibilities and potential problems within that field. The thesis has grown on a trial and error basis. As a result of reading through material regarding WEEE which was very technical (engineering articles & publications etc.) or already well covered material on green and reverse logistics (recent thesis subjects), I found myself struggling with how to formulate my own thesis statement. As my intentions with the initial idea already had many elements of understanding corporate culture from and social and ecological point of view the path went further to exploring the possibilities that green logistics could be the key to enhance sustainability as part of Corporate Social Responsibilities (CSR).

In the beginning of the research process the main area of focus was on reverse logistics and WEEE in Finland and how sustainability was taken into consideration. This research has led to further readings on the logistic processes and more specific to which commercial possibilities there are to do business. As a result of this the initial research question was: What is the role of 3PL/4PL companies in electronic waste management in Finland? After presenting the idea and getting valuable feedback I found myself re-thinking the whole perspective. The part that intrigued me as a researcher was not merely the logistics supply chain that resulted in the end into recycling, refurbishment and waste but more so the whole concept of whether ecological thoughts as part of the corporate social responsibilities can be implemented or not. Hence the research question shifted:

How is WEEE logistics organised in Finland and integrated into CSR?

The further reading on Corporate Responsibility (CR) and especially CSR reports got me questioning how much of the output is true commitment to values and how much is just marketing? The thesis is built upon these premises.

The target audience of this thesis can be anyone with an interest in Corporate Responsibility, CSR or sustainability concerning WEEE. The sincere wish is that the outcome would be used as an inspiration for discovering new business opportunities and re-thinking old CR strategies.

1.2 Identifying a research problem

We need to define what is considered as true welfare. It can be something we strive to achieve with building up security in the surroundings we live in. Welfare can also be perceived as country specific and it is subject to changes. To enable and maintain welfare on a long-term basis we must admit certain ways of living are no longer sustainable. In the so called western world we have become dependent on cheap manufactured products, food etc. all bringing conglomerate companies and their shareholders quick profits. Each quarter of a year certain KPI's should be met and the relentless competition on the market driven economy is driving us forward. Or that is at least what marketing divisions of these companies are telling us. The big question is: is it a big hoax? Are CSR reports just a way to outsource responsibility on sustainability to other institutions or are they true efforts to help companies analyse and plan for a better future? The purpose of this thesis is to challenge the existing way of thinking and to argue for a holistic approach: the common social and environmental goals are not to be seen as outputs rather than inputs which enable the company to plan their action as well as their economic policy.

1.3 Research question

The topic of this thesis is: *CSR and handling of WEEE in Finland - case Stena Recycling*. Hence the natural research question arises: *How is WEEE logistics organised in Finland and integrated into CSR?* In order to answer the question some guiding questions will help to conclude it.

Guiding questions:

- What is e-waste / WEEE? What are the regulations and restrictions in handling e-waste?
- What is reverse logistics?
- What is the purpose of CSR?
- How can reverse logistics be integrated into Green logistics process of manufacturers or EEE producers?
- What role has Third Party Reverse Logistics Providers (3PRLP) handling e-waste in Finland?

Keywords in the thesis are: WEEE, e-waste, CSR, sustainability, reverse logistics.

2 Research Method

For this thesis a qualitative research method was chosen. As this method does not progress linearly and requires going back between the research problem, research question, research methods and material collection methods it is suitable to establish a broad knowledge base in the subject. After this base is established and interview performed, some results may be presented and it will proceed to the analysing phase.

The research in this thesis is conducted by the following model, adapted from Kananen (2014):

Research issue

- Research problem
- Research methods:
 - collection of information
 - analyse
- Is it right? Validation
- Reliability of problem / methods

Application on example case

- Material, Interview
- Analyse
- Is it right? Validation
- Reliability of execution / analyse

Result

- Solution
- Is it right? Validation
- Reliability of result / solution

This thesis is a qualitative study. The method of collecting the data is by reading articles on the subject and build on a literature review. New prospects can be found through online discussion, blogs and social media content of the subject but these need validations from primary sources. By doing a thematic interview (Kananen 2014, p.71-77)

there will be an opportunity seek for a deeper understanding in the subject than a quantitative study would result in. When choosing a semi-structured approach that allows follow-up questions or a dialog but still has a clear outline avoids going too specific into details of one company. With this type of approach the theory will not be so separate apart from the empiric part, rather a framework for the thesis. The idea is to enable a discussion of current theory and practice that generate innovative solutions which serve social and ecological sustainability without making it corporate philanthropy.

To begin with, the main terminology used in the thesis needs to be defined. How the topic is generally perceived and what exactly do these terms stand for within the context of this paper. The terminology and concepts will be introduced more deeply in Chapter 3. As a starting point for this thesis was a book on Green Logistics by McKinnon (McKinnon 2012) regarding the supply chains, external impacts of freight transport and the evaluating and internalizing of the environmental costs of logistics. These topic areas are further discussed from a strategic and operational perspective. The book has many recognized contributors and is therefore a good compilation of the field of study through the subtopics. This book is used as a primary source for my further investigations and eventually led to forming a relevant research topic for this thesis.

By taking on a case study method the research question can be answered by comparing evidence from dissimilar sources and analysing them through the praxis. It is imperative that the own reflections can be made using valid arguments and therefore a thorough research presenting several points of view needs to be established. A case company Stena Recycling is interviewed and presented in Chapter 4. The collection of first-hand information through interview is imperative to validate the questions that arise from the literature. An interview with 3PL/3PRLC company providing WEEE logistics service and/or treatment of WEEE is preferred. Secondary sources such as information from literature, laws, CSR reports and so on can be utilised.

A comparative analysis of the interview and literature towards the supply chain is done. This is reflected through global objectives on sustainability from a Finnish perspective. The hypothesis is that the total impact on environmental sustainability is not highly appreciated when it comes to Finnish consumed electronics. The products are mass produced at distant locations and thus logistics has a significant impact on prices even after benefits from economies of scale.

2.1 Scope & limitations of study

The limitations of the study come from the WEEE handling industry itself. There are only a few central companies and organisations that handle WEEE in Finland. In order to search for a wider picture and the entire supply chain of a specific EEE/WEEE product the scope of the study will not be sufficient. As only one WEEE handling company has been interviewed for this study it limits from making specific and comprehensive conclusions. These findings are company specific and for some parts guiding towards practical solutions on sustainability.

2.2 Reliability and Validity

This thesis will combine both theory and praxis. This research includes a primary source, namely an interview with someone in the WEEE reverse logistics business. The outcome can then be referenced against literature and the empiric knowledge gained from the semi-structured thematic interview to validate the outcome. The reliability of the thesis comes from the variable sources used to establish the theory base. The hypothesis is confirmed by comparing literature with answers from a case study and a theory can be formed.

3 The circular economy and ethics of WEEE

Over the past ten years CSR has been covered and criticized from different angles. The theoretical part of this thesis is focused on research for gaps and unresolved issues in the literature. CSR and especially a CSR-report is often seen as a product where a company recognises the impact of its functions on society. A typical way of building CSR reports is a Triple Bottom Line (TBL) model presenting the company's Economic, Social and Environmental agendas. As these three are presented in this order there are certain risks that greenwashing occurs when companies are adding ecological projects in-order to be good corporate citizens. As an example: the manufacturing and supply-chain is often prepared as a one-way pipeline without taking the reverse logistics into account. Company Reporting practises such as the Global Reporting Initiative, that has been adopted by many companies, is based on the Triple Bottom Line principle. (Juutinen & Steiner, 2010)

In a study on green retailing (GR):

...three dimensions have been defined: internal-improvement based GR, external-coordination based GR, and supportive-development based GR with a total of ten practices subsumed under these dimensions. The ten practices are green store operations, green transportation, green procurement, green product design, green packaging, green promotion, green after-sales service, green policy, green research development, and green human resource development. We also find that environmental regulatory pressure, customer pressure, supplier pressure, and competitive pressure as perceived by retailers are positively associated with the extent to which GR is adopted by retailers. In addition, we obtain empirical evidence that GR adoption is positively associated with the financial and environmental performance outcomes of the retailers. (Tang 2012)

These results indicate that there really is a bigger picture behind the concept of green supply chain management. It is a much a financial as an environmental cause to re-think the retailing supply chain processes.

3.1.1 Reverse logistics

Already in 1978 Ginter & Starling mentioned that a reverse channel of distribution can be central for business activities (Ginter & Starling, 1978) The most common procedures

of Reverse Logistics has been defined as return, recondition, refurbish and recycle of products and packaging (Stock 1992). Later on the change in the strategic focus of companies has encouraged activities in return and recycle of products and packaging (Madsen & Ulhoi, 2001).

Reverse logistics is defined by the American Reverse Logistics Executive Council as "The process of planning, implementing, and controlling the efficient, cost effective flow of raw materials, in-process inventory, finished goods and related information from the point of consumption to the point of origin for the purpose of recapturing value or proper disposal" (Rogers & Tibben-Lembke, 1998).

3.1.2 Circular Economy

Pearce & Turner introduced in the early 90's the concept of circular economy. Based upon four economic functions of the environment the circular economy defines the environment as follows.

So long as we dispose of waste in quantities (and qualities) that are commensurate with the environment's assimilative capacity, the circular economic system will function just like a natural system, although, of course, it will still draw down the stocks of any natural resources that do not renew themselves ('exhaustible' resources). The system will therefore still have a finite life determined by the availability of the exhaustible natural resources...

...if we dispose of wastes in such a way that we damage the capability of the natural environment to absorb waste, then the economic function of the environment as waste sink will be impaired. Essentially, we will have converted what could have been a renewable resource into an exhaustible one. The assimilative capacity of the environment is thus a resource which is finite. So long as we keep within its bounds, the environment will assimilate waste and essentially return the waste to the economic system. (Pearce & Turner, 1990)

Andersen (2006) is in his paper introducing the fundamental principles and approaches in environmental economics which are of significance in achieving integrated sustainability science. Relating to Pearce & Turner's definition he argues for the importance and relevance of taking the environment in account when planning economic functions. The same distinctions that a circular economy is beneficial to the entire economy are made in industrial ecology. These benefits are measured through minimised material residuals and thus arises the question of how far a society should go to recycle materials. Even if

there are evident benefits from recycling there is a cut-off point where a net benefit is no longer achieved (Andersen 2006).

New theories are emerging as technology evolves. To challenge the traditional view of thinking some new ideas have emerged when we understand better the causation between material and need and use that knowledge in practical everyday design. As an example of that "*upcycling eliminates the concept of waste*" (McDonough & Braungart 2013) materials can be used for recycling when perceived as technical nutrients or even better returned to earth as biological nutrients.

3.1.3 Green Supply Chain Management

One way to improve environmental performance is using Green supply chain management (GSCM). This approach is more holistic as it tackles several things instead of one specific. The research on GSCM has mainly focused on external factors. In a research (by Testa et. al. 2010) the internal factors of GSCM were studied. In the research the internal factors were defined as: *competitive advantage*, *existing environmental strategic management* (ESM) and *strategic motivations*. Data collected by OECD from over 4000 manufacturing facilities in Europe, North America and Japan was used for analysing on suppliers' environmental performance and on the requirements, that was imposed on suppliers to meet certain environmental criteria. (Testa et al., 2010)

According to Testa the study showed that the internal motivators for companies to introduce GSCM practices were to gain market-leadership in innovation and following example of partners or competitors although the reasons were foremost improving the company's reputation and market image. The challenge seemed also to be that existing environmental policy prevailed over a new long-term investment in GSCM. Management saw GSCM as a valuable tool to improve existing environmental performance, thus failing to realize the true value of GSCM comes from innovation and reputation that gets built over a longer set of times and does not immediately appear as profits. (Testa et al., 2010)

3.1.4 Triple Bottom Line

In 1997 John Elkington presented a concept based on Economic, Social and Environmental Dimensions (Elkington, 1997). He also reasoned seven sustainability drivers or revolutions for the 21st century that were changes in trends.

Table 1. Seven sustainability revolutions (Elkington, 1997)

	Old Paradigm	New Paradigm
1 Markets	Compliance	→ Competition
2 Values	Hard	→ Soft
3 Transparency	Closed	→ Open
4 Life-cycle technology	Product	→ Function
5 Partnerships	Subversion	→ Symbiosis
6 Time	Wider	→ Longer
7 Corporate governance	Exclusive	→ Inclusive

The markets drive the companies towards sustainability (Elkington, 1997). They move from a 'zero impact' business strategy into developing sustainable competitive advantage through a positive impact business strategy. Human and societal values essential when each succeeding generation establish their working environment. According to Elkington, values should be recalled as products of the time and people rather than something that is given. Transparency is the one that has put companies under scrutiny. According to Elkington the Global Reporting Initiative (GRI) that is built on TBL foundation, is one best symbols for this trend of openness. Companies are slowly moving towards sustainable products. As resources are not infinite and decline the new life-cycle technology enables better recycling and disposal of products. This leads to forming of new partnerships between companies and organizations. As stated by Elkington, companies need to rethink their position as new approaches will emerge. E.g. former competitors might form strategical alliances to get competitive advantage over the market. This also involves NGO's and other organizations that all need to seek the best business models and co-op partners. Also the sixth revolution, time, is becoming increasingly valuable. Already twenty years ago Elkington realised the shift in communication methods bending our view on time as a valuable resource. The pace of news flow has grown exponentially since then. Finally, Elkington concludes with the dilemma of a company's responsibility to shareholders versus other stakeholders. He also adds that the question about true

sustainable capitalism are key topics arising for debate from the TBL point of view. (Elkington, 1997)

3.1.5 Third Party Reverse Logistic Provider

When a company do not have either the need or possibility to manage all logistics functions they usually contract another firm to manage the transportation. When it comes to the reverse logistics it is something that is foreseen but the expertise might lack within the company or it is not perceived as a core competence. Therefore, this outbound logistics is easy to outsource to a Third Party Reverse Logistic Provider (3PRLP) that is specialised in providing service. In the end the 3PRLP can also improve the quality of products directly and it can impact the product cost price. (Kannan 2009; Kannan et al. 2015)

3.2 Corporate Responsibility

There are many terms that are quite freely interpreted and used when it comes to Corporate Responsibility (CR). Sustainable development, Corporate responsibility, social responsibility, Corporate Social Responsibility are just a few that may confuse when used in different contexts. By the introduction of the term *'Sustainable development'* in the Brundtland Report in 1987 it was defined as a kind of development that satisfies the needs of today without extracting the same opportunity from future generations. (Juutinen et.al., 2010) In this Thesis Corporate Responsibility is presented as a core function for a company to produce a strategy that emphasizes on sustainable solutions, whereas a company may do many more things to improve its environmental, social or financial sustainability.

3.2.1 Defining CSR

Gottschalk defines CSR to be both how businesses integrate their social and environmental operations and how they interact with their stakeholders (Gottschalk, 2011).

“The Corporate Social Responsibility (CSR) field presents not only a landscape of theories but also a proliferation of approaches, which are controversial, complex and unclear. ...four groups: (1) instrumental theories, in which the corporation is seen as only an instrument for wealth creation, and its social activities are only a means to achieve economic results; (2) political theories, which concern themselves with the power of corporations in society and a responsible use of this power in the political arena; (3) integrative theories, in which the corporation is focused on the satisfaction of social demands; and (4) ethical theories, based on ethical responsibilities of corporations to society.”
Garriga et al. (2004)

This argument is a valid one. The way we tend to understand CSR is based on what has been marketed to us as a simple vision of corporate strategy and the outcome of it. This has made it easier for the companies to hide away any discrepancies and do a nice package that highlights only the best sides of the company. The factors behind are all left outside the equation.

“In practice, each CSR theory presents four dimensions related to profits, political performance, social demands and ethical values. The findings suggest the necessity to develop a new theory on the business and society relationship, which should integrate these four dimensions.”
Garriga et al. (2004)

It is very interesting how CSR thus has become a high profiled subject for companies to proclaim their social achievements. And do these statements hold if the theory is taking a deeper meaning utilising the other dimensions? This remains to be seen. Blowfield and Frynas (2005:503) on the other hand present a model where CSR theories and practices all under one socially responsible umbrella. Firstly, the corporations have responsibility that it on top of the legal obligation. Secondly, they are equally responsible for their supply chain. This includes the partners they work with. As the third section, the corporation is responsible towards the society.

3.2.2 Carroll’s pyramid of CSR

In the early 90’s Carroll introduced the pyramid of Corporate Social Responsibility (Carroll, 1991). In his model of CSR prevailed four levels: economic, legal, ethical and philanthropic. Economic Responsibilities derives from the fact that companies serve the purpose of producing goods and services. First the profit was perceived as the surviving mechanism for the company to be able to produce goods and services, then it evolved

to maximising profits for the company. Thus, profit is the greatest motivation for the business. (Carroll, 1991).

The base of the pyramid is the economic function the company has. Next on top of that comes the legal responsibility. It shows in forms of legal requirements as laws and regulations that dictate the rules under which a company must operate. As these two responsibilities are described as primary they lay the ground for the other levels. The ethical responsibilities follow justice principles without being stipulated in law. It reflects the expectations of different stakeholders and their moral rights. As Carroll already mentioned in the 90's the ethical responsibility has become "*a legitimate CSR component*" (Carroll, 1991). The interaction between legal and ethical responsibilities is constant according to Carroll. This results in increasing legal expectations as businesses fall under scrutiny. The top of the pyramid model consists of Philanthropic Responsibilities. In practical terms this is the way businesses promote welfare and goodwill by participating in different activities. As Carroll concludes the philanthropic contributions are not limited to CSR even if it is included. (Carroll, 1991)

3.2.3 Reasons & motives for engaging in CSR

The first thing that pops in to mind when talking about CSR is a statement from the company. This statement can be found on any modern company's home webpage. It states wide and clear: We care for the world! Companies implement CSR due to pressure from stakeholders (Porter & Kramer, 2006). Also external pressure from for example governments lead to companies pursuing CSR without getting results that lead to long-term benefits (Galbreath, 2010). The social and environmental issues have arisen in the past years. As a result different stakeholders including company shareholders, customers, trade unions and non-governmental organizations (NGOs) are becoming more interested in these areas. (Andersen & Skjoett-Larsen, 2009)

One view on Corporate Responsibility is that too much is expected of firms. The firms' stakeholders (including their consumers) can be seen to be equally if not more responsible as the firm itself. If consumers are willing to pay a premium price for CSR/CR behaviour the firms will adopt. (Werther et.al, 2011:55)

Shareholders having short-term demands are a threat to sustainability when CSR is used to pursue this (Hawkins, 2006). In such a case, CSR that is meant for monitoring and

assessing the company's own behaviour has merely been taken on as a marketing approach without the real value adding content of doing more that is actually legally required.

There are however ways to improve the reliability of CSR. Proper CSR reports can be conducted and validated. Confirming the reliability of the CSR report is according to Juutinen (Juutinen et al, 2010) an independent process of the actual report. This is done to increase the trust of the reader in the contents of the report. As this confirmation is requested by the board or CEO of the company its contents is primarily for internal use. It is although common that the result is being attached as part of the CSR report itself. Juutinen further highlights the difference of a company audit and the confirmation of a CSR process. In the case of an audit that is required by law it follows certain requirements including the certified auditors. In contrary, the confirming of a CSR report has no lawful requirements and is based solely on a contractual base between the company and the assessor. (Juutinen et al, 2010)

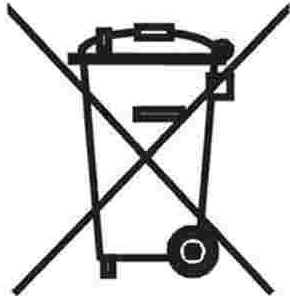
3.2.4 Business Ethics

Ethics and moral are two guidelines that should prevent humans from irresponsible behaviour. Moral is something that we possess individually or as a community. Ethics is the field of study that researches in the behaviour of good and bad. In the field of business ethics the emphasis is on the leadership. This comes down to two separate views: ethical business management (EBM) and ethical leadership. In EBM we can talk about the process from planning all the way into execution, follow-up and re-arranging the working process following ethical guidelines. Ethical leadership focuses on securing that the employees within the company work according to the rules and in ethically correct ways. (Harmaala et.al. 2012)

As part of the CSR it is vital that also marketing should follow good ethical terms. There should be strive to achieve a responsible marketing. According to Harmaala (2012) this can be achieved by relations marketing, using modern marketing methods and ethical marketing.

3.3 Waste of electrical and electronic equipment (WEEE)

Finnish households can bring all discarded electrical and electronic appliances free of charge to collection points.



Kuvio 1. The WEEE label (<http://www.weeregistration.com>)

This label must be used for all electrical and electronic devices that are sold in Europe with reference to Article 11(2) of the WEEE Directive.

Electronic Waste Management is an area that focus on the specific problem of waste of electrical and electronic equipment (WEEE). Hester & Harrison (2009) formulate the environmental problems and take on a technical approach to identify what components are used in the electronic industry and how they become waste as a result of End-of-Life products and components. Especially Goosey (Hester&Harrison 2009) is in his chapter referring heavily to the WEEE. He takes on the legislative directives such as WEEE Directive, RoHS Directive and Producer Responsibility Legislation. Not to undermine the other directives this paper is trying to simplify the aftermath of the problems arising from electronic waste and not go into details concerning waste issues and requirements of disposal methods. It will rather focus on the ethical side and more so, what can be done to minimize the amount of waste in the first place.

There is evidence that recycling Waste Electrical and Electronic Equipment (WEEE or e-waste) has environmental benefits (Bigum et al., 2012; Hischer et al., 2005)

In Europe, most of the End-of-Life products are collected in municipal collection sites and other recycling yards (Friege et al., 2015).

Although important on its own, the reasons for recycling WEEE is more meaningful than mere recycling. The circular economy prefers reuse and remanufacturing over recycling for improved resource recovery (Sauvé et al., 2016)

3.3.1 WEEE Directive

On 14th February 2014, a new directive on handling e-waste became effective in Europe: *"Directive 2012/19/EU of the European Parliament and of the Council of 4 July 2012 on waste electrical and electronic equipment (WEEE)."*

The collection target of 45% of electronic equipment sold that will apply from 2016. From 2019 onwards the Member State may choose to measure and report either a collection target of 65% of equipment sold, or 85% of WEEE generated. The goal of the new Directive is to ensure a more safe and fair environment:

The new collection targets agreed will ensure that around 10 million tons, or roughly 20kg per capita, will be separately collected from 2019 onwards. The new WEEE Directive will give EU Member States the tools to fight illegal export of waste more effectively. Illegal shipments of WEEE disguised as legal shipments of used equipment, in order to circumvent EU waste treatment rules, are a serious problem. The new Directive will force exporters to test and provide documents on the nature of their shipments when the shipments run the risk of being waste. A further improvement is the harmonisation of national registration and reporting requirements under the Directive. Member States' registers for producers of electrical and electronic equipment will now have to be integrated more closely. The Commission will adopt a harmonised format to be used for the supply of information. Administrative burdens are consequently expected to decrease significantly. (http://ec.europa.eu/environment/waste/weee/history_en.htm)

As the European Commission and EU also fights the grey and black markets of WEEE it is vital that all organisations and companies handling EEE do participate with actual and accurate reporting on their own actions.

3.3.2 RoHS Directive

Also referred as the RoHS Directive, *"Directive 2011/65/EU of the European Parliament and of the Council of 8 June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment"* (Directive 2011/65/EU), is one further step in the future of WEEE.

EU legislation restricting the use of hazardous substances in electrical and electronic equipment (RoHS Directive 2002/95/EC) entered into force in February 2003. The legislation requires heavy metals such as lead, mercury, cadmium, and hexavalent chromium and flame retardants such as polybrominated biphenyls (PBB) or polybrominated diphenyl ethers (PBDE) to be substituted by safer alternatives. In December 2008, the European Commission proposed to revise the Directive. The RoHS recast Directive 2011/65/EU became effective on 3 January 2013. (RoHS Directive 2002/95/EC)

With the pressure of increasing stringent restrictions in raw materials used for electronic components the producers need to find new ways of manufacturing devices that meet the criteria.

3.3.3 The Producer Responsibility Principle of the WEEE Directive

The WEEE Directive does not stipulate exactly who should set up the collection infrastructure of WEEE. Regarding the responsibility for collection of WEEE from private households the distributor is obligated to accept WEEE from consumers when they are selling a new product. According to the Directive a Member State may use alternative procedures as long they can prove that it is as convenient for the consumer. The EEE producers are financially responsible for the collection point and there on. It is clearly stated and agreed between all EU Member States that the producers have the responsibility for the collection, treatment, recovery, recycling and disposal of WEEE deposited at collection sites. (Sander et. al. 2007)

The Extended Producer Responsibility (EPR) is a concept that pushes the manufacturer of a product to take responsibility of its entire life-cycle. When adding the responsibility of take-back, recycling and disposal of the product the environmental impact should be smaller. (Lindhqvist 1990; Monier et al, 2014)

3.3.4 WEEE organisations

There are several different producer collectives in Finland. The retail stores all work under the SER collective. SERTY is the association of electric and electronic equipment manufacturers and importers. WEEE Europe is the joint venture organisation that Elker Oy is representing in Finland. Their tasks is to collect WEEE on the manufacturers' behalf

which enables the companies to concentrate on their core businesses. The Helsinki Region Environmental Services Authority (HSY) is the municipal body for waste management issues. HSY has Sortti Stations receiving various waste products.

The National Electrotechnical Standardization Organization (SESKO) represent Finland in the electrotechnical engineering field. It is their responsibility to implement international electrotechnical standards in Finland and enforce them as national SFS standards. SESKO is also a member of IEC and CENELEC.

4 Case interview Stena Recycling

For this paper, a thematic interview was conducted with Stena Recycling. The purpose with the interview is to clarify certain procedures of how WEEE is handled in Finland and to validate or reject the hypothesis of the thesis. Stena Recycling is one of the main actors in the WEEE handling business in Finland. They have operated with recycling for over 75 years now and over 20 years of collecting and handling WEEE.

The interview took place on April 25th, 2017 with Anna-Karoliina Kauppi, Account Manager for WEEE business at Stena Recycling in Finland. She has worked with the company since 2011. Kauppi elaborates that until last year Stena Technoworld operated in Finland. The company solely recycled WEEE. Stena Recycling worked with metal recycling. In 2016, these two companies went through a merger and became one. As a guideline for this interview a thematic approach was used. The interview questions were divided in to four subcategories, leaving also room for conversation and follow-up questions through an open dialogue. The thematic interview base is to be found as Appendix 1.

When asked about the amount and rate that consumers do turn in WEEE to retail stores, Kauppi explains the biggest concern is still the fact that consumers are unaware of their right to bring WEEE to the stores. Most people seem to believe that they are entitled only to bring WEEE when purchasing a new similar item, which is not the case. She continues that from an ecological perspective it would also be important that the awareness could be raised through stronger efforts in marketing and communication to ensure that consumers bring the electric appliances to the nearest selling store instead of using only municipal WEEE returning locations. This is especially important in smaller places where the municipal WEEE returning can be open for a couple of hours every fortnight. The advantages with reverse logistics could also be better achieved as the distribution network for retailers is much wider than the municipal WEEE return facilities.

There is no actual following or registration of the returned WEEE products. As mentioned by Kauppi, all WEEE products that are broken and taken to collection should be intact with all components still existing. This is not always the case but there is no actual follow up for this. It is not perceived essential concerning consumer products. The biggest reason for this is that consumers are trusted to bring the product intact and not utilising the precious metals that could be found in the components. As stated by Kauppi, theft is of a more professional kind if it concerns WEEE. For example, there have been cases

where valuable metal parts of WEEE are pulled out leaving only the plastic shells behind from refrigerators and washing machines that are brought to collection points. From a legal perspective, it becomes a theft as soon as a WEEE product is taken into the collection point. Kauppi continues that it is hard to interfere in these fraud or thievery cases of consumer collection and compares the situation to WEEE retrieval from companies where everything is handled with a direct contract.

Referring to Stena Recycling's WEEE handling for companies, they have different services to offer. As an example, for an office a rolling cage is delivered to a company and when filled with WEEE it is transported to Stena handling for further processing. Also, when it comes to companies' data security plays a crucial part as much of WEEE is IT-equipment that needs to be destroyed. In these cases, the serial numbers are registered and a demolishing certificate can be provided. Usually the type of the client company and the field they operate in dictates what is purposeful service for them. A good example of this as Kauppi mentions is that there are also EEE manufacturers that get a lot of WEEE as residue that never gets into the circulation flow and still needs proper disposal. These companies can contract a handling company directly.

Stena's sorting stations are official stations that are open for public to bring WEEE. However, there is not that great awareness about this possibility. Further Kauppi mentions that also the scarcity of Stena's own collection places around the country makes it easier for consumers to prefer other locations to bring their WEEE. The grouping of WEEE in different subcategories helps the sorting. There are four main WEEE categories: Small, Data, Lamp and Large.

Stena Recycling has their own treatment facility in Uusiniitty, in Pori. There the arriving small WEEE items are taken for a pre-sorting where hazardous waste such as batteries and lightbulbs are removed from products as well as ink-cartridges from printers and so forth. Other WEEE items that are already pre-sorted at the collection points are flowing a separate flow. The bigger WEEE such as washing machines are moved for crushing. Kauppi specifies further that refrigerators are moving in a separate stream and they are shipped to Halmstad in Sweden where Stena has their own specialised treatment facility. Stena does not reuse any of the products brought to them. As soon as items are returned they are to be scrapped. Kauppi does however believe in the reuse and remanufacturing business and sees the potential also in that. The emphasis is still to push manufacturers to produce more sustainable products whether it is by prolonging the life of the product

or remanufacturing through service or upgrading the product. This is a problem that is not resolved in the at the end of product lifecycle. Containers are the most common equipment used at collection points according to Kauppi. In order to make transportation efficient a container provides enough storage space for a sensible cargo amount. It has room for pre-sorting at collection point if required for different type of WEEE. When moving smaller batches such as a roller cage or two it makes no sense to pre-sort the WEEE as it can be done at the handling facility, Kauppi continues.

Stena Recycling has decided to outsource some of their collection. As they only have the one treatment facility in Finland a subcontractor is used to cover the country. It makes sense logistically, she adds. Then the WEEE can be treated on more locations without having to move it along the entire length of the country.

Dividing household B2C (business to consumer) and company B2B (business to business) electronics can be quite challenging. A refrigerator that could be found both at home or in an office is a product that is hard to categorize. Then there a freeze boxes at a grocery store that a clearly for business use only.

The clearer division in the product categories of WEEE following the new 2012 Directive has not yet been applied in corporate culture. As Kauppi is referring to this new directive making the clearer definitions it actually has a transitional time until in August 14th, 2018.

Stena has only one WEEE treating facility in Finland. It is situated in Pori. To cover the rest of Finland they have decided to use subcontractors. When dealing with WEEE collection from retail stores Kauppi emphasizes the producer responsibility. It is up to SER recycling collective to organise the collection of WEEE from the stores and the collective is ultimately the one paying for the transportation and handling costs. The stores mainly focus on communication as they inform consumers about the possibilities to turn in WEEE to the stores. There can of course be exceptions. For instance, Stena has a contract with retailer Tokmanni to provide all logistics and equipment for their WEEE. When the retail stores have collection units that get full they call Stena customer service and get replacing units. Stena then takes the WEEE to their nearest sorting station or WEEE treatment facility.

When talking about retailers of EEE, Kauppi mentions Tokmanni as one client of theirs. As a distributor of EEE Tokmanni and other retailers has a responsibility to also receive WEEE returning from consumers. They are lawfully obligated to organize the collection in some way at their stores.

As a WEEE handling company Stena, and likes, do not bare the legal responsibility of the actual WEEE collection. These responsibilities are on the producer collectives. For retailers in Finland it's SER recycling, as mentioned in Chapter 3. Other companies such as Kuusakoski and Tramel work also in the handling business of WEEE.

A brief conclusion on the relationship between circular economy and WEEE is that real sustainability cannot be achieved with collection and recycling WEEE. It requires also improvement from the manufacturer and a change in attitudes towards longer lasting products. Kauppi further elaborate on possible development ideas. For instance, the reuse of EEE could be better utilised. It is hard to measure when a EEE has become waste. As Kauppi mentions, for example a phone that is passed on from a parent to a child can be perceived as the reuse of a product. It applies also when people bring redundant EEE to *Kierrätyskeskus*, a non-profit company that serves as a municipal recycling centre and refurbishes products for re-selling at affordable prices. The same idea applies when a private person is selling a product online, e.g. e-bay etc. This trend of ownership changing and thus prolonging the lifecycle of the product instead of abandoning it as waste is crucial from an ecological point of view.

5 Results

As it has been stated before Corporate Responsibility is a challenging topic as the definition is not precise. Therefore, the way the term is portrayed in this thesis also defines the outcome as much as the actual research question. In simple terms, we can ask if the research question is answered or not. The answer would be both yes and no.

The question of how reverse logistics of e-waste (WEEE) is organised in Finland got answered and validated in the case interview. It follows certain procedures according to the law. It is also done by private companies and the actual responsible parts for organising WEEE collection are the producers in the EEE business.

The connection to CSR was on the other hand not that straight forward to make. There is plenty of evidence of theories in the subject and different forms that indicate some activity is CSR issues, such as CSR reports as an example. However, the latter question could not be answered by a handling company alone.

5.1 The guiding questions

The definition of e-waste or WEEE is a clearly stipulated in the law. Each subgroup of WEEE has certain procedures that is required by the treatment facility. Most important is the EU Directive on WEEE that determines the minimum requirement. As established from the interview with Kauppi the new Directive, even if applied already has its transitional time until next year which gives more room for the handlers and e.g. manufacturers and producers whom bare the financial burden.

The reverse logistics is defined in literature and there was consensus on that term when starting the interview with Kauppi that validated the use of the term regarding WEEE in Finland. CSR as perceived in the context of this thesis, is a sustainable solution on the social impacts of a company. It steers the company to act better also in terms of financial and environmental causes. In that way, CSR is a comprehensive approach to a sustainable business strategy. The role of the 3PRLP is essential when it comes to the actual handling process of the WEEE products. What is important to remember is that Stena clearly took a stand from not reuse or refurbish the products. Once they have received the WEEE and classified it as scrap they go to be demolished. This leaves a question open whether other WEEE handling companies treat also WEEE in the same way or do

they have any value in doing more with the products. The 3PRLP are in these terms powerful actors when it comes to collecting, sorting and treatment the WEEE.

The producers and manufacturers have signed a free ticket for the logistics providers organize their business for their own purpose. It can be argued that what would happen if the greener logistic principles were emphasized by the responsible parties. As long as the contractual agreement exist between the producer (collectives) and 3PRLP company there is a certain Status Quo in keeping the smaller minimum restrictions and recycling the WEEE as scrap thus also keeping the cost of the reverse logistics down.

5.2 The material flow of WEEE

The mapping of the supply chain and the material flow of the EEE becoming WEEE from a cradle-to-grave perspective:

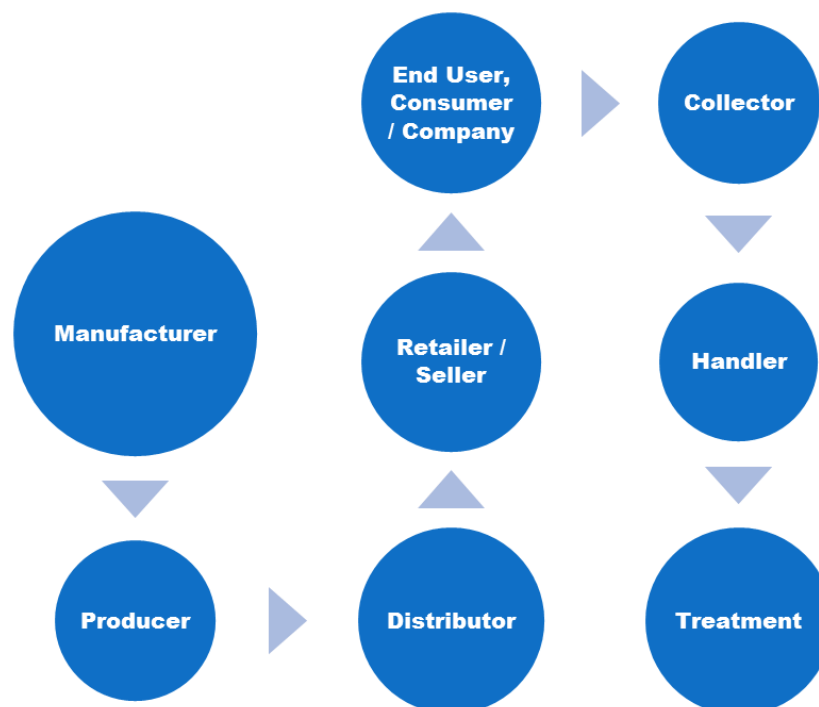


Figure 1 The EEE and WEEE flow

This is the traditional way that manufacturers start from. In this model sourcing of raw material are excluded. If the perspective changes towards cradle-to-cradle the manufacturer and treatment facility may become one and the same. As an example Stena's facility in Halmstad breaks down material for recycling.

5.3 Analysis

Let us take closer look at the result from the research. A question that has bewildered in this research process is if 'green functions' can be outsourced or not. When the Producer Responsibility was presented in the literature and then again it occurred during the interview with Stena there needs to be a short clarification. The supply chain was as simple as straight forward with each party handling their own territory. Below is a chart indicating the Producer being the one who bears the responsibility from the early stage to the end-of-life for the product. As mentioned earlier the financial aspect always is the core of any company, we can only assume that the costs for this responsibility is included in the selling price of the product.

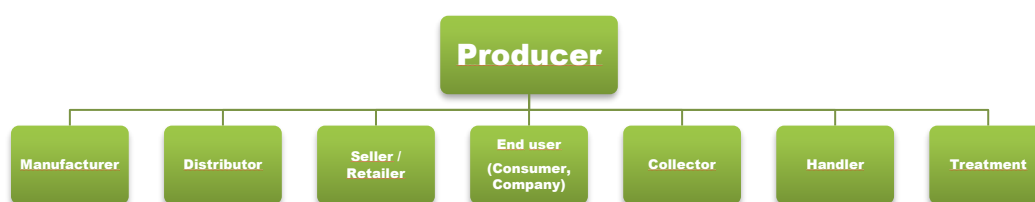


Figure 2 The Producer Responsibility

The Producer Responsibility (Figure 2) is a cradle-to-cradle principle from registering a manufactured EEE product to WEEE treatment.

5.3.1 CSR vs. Ethical business and WEEE

As presented in Chapter 3 CSR should be a part of business strategy. It is a matter of the company's own interest that it is willing to work on its social and environmental aspects. The long-term value is the driving force of CSR. There needs to be a consensus that it is a part of the company's business strategy and hence an attribute that brings value to the company instead of just another expense.

There is after all a relationship between social responsibility and profitability. There is plenty of evidence showing that social responsibility, including business ethics, is associated with increased profits. According to a study Maignan (Maignan 1997) social responsibility contributes to employee commitment and customer loyalty –vital concerns of any firm trying to increase profits. As this new data is revealed it seems that the willingness to emphasize CSR policies are growing. One part of to achieve sustainability is ethical trading (Hawkins, 2006).

With a reference to the interview with Stena Recycling: including WEEE collection into deliveries to stores is also one way to secure unnecessary transportation from empty hauling of trucks. A broader planning of transportations services is also beneficial to both a retailer and a transportation company when the economies of scale leaves less empty transportation. If also considering all traffic that consumers need to drive between home and a remote municipal returning facility the ecological net value is much more if short distances to retailers and back are preferred and haulers move larger quantities of WEEE.

As mentioned earlier the 2012 Directive of WEEE is still in its transitional period of being applied. In practice this means that companies start applying the stricter rules only after that time if they are not truly committed to a CSR behaviour of doing more that is required by law.

5.3.2 Manufacturing and CSR

One thing to keep in mind is that any electronic product that is built for a purpose to serve mankind has no value in its own. The value comes from the way we perceive whether it has a function or not and furthermore how it can replace a manual labour

with efficiency. Some consumer products don't even have an argument of helping in any way. It can be a gimmick that simply fills our inner desire to own that product. Some products bring a fulfilment of having a social status and this serves our feelings to belong into a specific group of individuals.

5.3.3 Communication

The channels of communication and the tools a company uses to communicate outside of the company can vary depending on the target group. There is a need for direct and indirect communication. Some information is simple to spread through informal and oral channels and others may require more specific terms such as written letters or even correspondence.

The organisation should be able to reflect its values through these channels. Therefore, the personnel is key to any successful communication outside of the company. This also affects the CSR policy. What good is a beautiful phrase as the company slogan if it does not reflect the true values of the company if the employees do not share that very same vision? It would be a false statement. That is of course why marketing has become such a valuable tool. The company may sell any dream to the consumer, as the usefulness of the product becomes secondary.

5.3.4 TBL compared to Carroll's pyramid of CSR

When comparing TBL with the CSR pyramid one has to focus on the distinction of these two models:

1. TBL is the ground for company made CSR reports
2. Carroll's pyramid that how the company's interests should be perceived

I would argue that Carroll's model is good but badly outdated. We simply cannot look at the company as a pyramid. The values of the 21st Century should be embedded in the company strategy. These have become less linear and emerged into each other. And by doing so the changes are happening throughout the company structure. The ethical responsibilities should be perceived as opportunities to improve also the other steps. The

TBL model is useful, but limited to the company's own interest to do well. As financial performance is subject to social wellbeing, so is social wellbeing part of the environment. Thus the environmental impact cannot be neglected by short-term financial decisions.

5.3.5 Possibilities with environmentally focused CSR

A manufacturing company should be risk averse and acknowledge the desire of the end customers. Buyer behaviour is related to this and therefore there might be a need to research how willing people are to pay for ethically sustainable products. From the traditional product oriented perspective it is the manufacturer that steers what products are offered. Hence the ethical (and moral) should also be embedded to them. As the debate usually turns into manufacturers producing inferior products as people want affordable products. There should not be a conflict of interest. The product can be ethically produced. By having a longer lifecycle a product will generate less waste as the volumes don't need to be so high. This can result in better turnover if the price can be held higher. If CSR is used to design supply chain using green logistics there are positive impacts such as:

- 1) Efficient product life cycle, (sustainability, efficiency),
- 2) More recycling (less end waste)
- 3) Local production VS economy of scale (cheaper production costs versus unnecessary transport).

5.3.6 Problems with CSR

As mentioned earlier the greatest challenges with environmentally focused CSR is money. During a recession, this tends to be even worse. Companies are looking for growth and when there is none the first things that are usually cut of are high expenses such as employees, marketing and CSR functions. When a business starts to struggle, and takes on a short-term vision of survival all long-term goals are neglected as not important. This can be argued to be a proof of poor management instead of maximising profits to survive. After the recession is over those companies that have stayed truly committed to their social responsibilities may be much stronger competitors.

One distinguished problem with CSR is the possibility of greenwashing. This refers to sending a message that of being more ecological than what is the case. The same principle could be applied on CSR, and in such should be implemented throughout the company and be visible in all its actions and processes. A good CSR policy is audited and transparent.

5.3.7 Own reflections on CSR

It is always a significant risk to tackle an ethical subject. How can we ensure ourselves that we talk about true statements based of facts and knowledge and not making up assumptions? Consumers can be targeted into smaller groups, segments and studied via surveys, focus groups and so on. This still doesn't make ethics a precise science as it is not measurable. We can make generalisations of our findings and statements used in marketing tend to lean on this kind of information. For example: "85% of our customers are extremely happy with their product". This statement only shows that in some group of respondents many are happy with their product. It does not contain any valuable information to the customer whether they have had any problems or how they perceive the word happy. It might be that there were only two options in the survey: happy or unhappy with the product.

There should always be room for improvement. The challenge of producing environmentally sustainable products that are easier to recycle as an example. Also ideas of CSR being accepted as a strategic planning tool for manufacturers to reuse raw-materials from a circular economy. There might be potential new business opportunities arising with e-waste.

5.4 Self-critique

The challenges with the thesis was to get respondents for the interviews. It seems that companies strongly market on accepting WEEE themselves and CSR is increasingly becoming of importance to show-case transparency in environmental efforts. The willingness to respond was not good and especially when time was of the essence the few that showed interest did not return. It would have been beneficial to start off with one interview earlier on to understand what pitfalls there might be regarding the subject. This

would have clarified the new direction which the thesis had to develop and left more time to find more suitable references. As this process went further it kept on living in new directions the focus was hard to maintain on the research question. The fear of this being a challenge became a reality as avoidance and unwillingness to participate in the research was obvious.

6 Conclusion

The research questions of the thesis is: *How is WEEE logistics organised in Finland and integrated into CSR?* The question is of importance as the world is increasing its use of electric and electronic devices and the trend is that the life-cycle of these products is getting shorter and shorter. The amount of WEEE generated is growing as also old equipment expires out of date. When talking about Corporate Social Responsibility the reverse logistics processes are often neglected. The focus in CSR reports seems to be – *'what is produced today'* and not as much on *'what can be done differently'*? The key findings are that ethical business and environmentally sustainable business tend to contribute positively even in financial terms. However, these measures are on a very long-term base and therefore the interest is not that high to invest heavily in CSR.

An interesting idea for further development of this thesis would be a study measuring the total costs of a specific products lifecycle. It would be helpful using True Cost Economics and evaluating cradle-to-cradle principles to measure the lifespan of a specific product, its components and the raw material used in it, not forgetting transportation and other contributing factors such as electricity and water used. Also as this thesis only touched the subject from a WEEE handlers it would be useful to get manufacturers, producer communities and retailers also in this equation.

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Interview questions for Stena Recycling

STENA yrityksenä/liiketoiminta

- Mitä yrityksenne (kierrätysyksikkö) tekee?
 - o Stena Recycling
 - o Stena Metall
 - o Stena Technoworld
- Kuvaile yrityksenne SER kierrätystoimintaa...

- Mitä SER palveluita voitte tarjota yrityksille Suomessa?
 - o yhteistyö asiakkaan kanssa
 - o vai integroitu toiminta?
 - o täysin ulkoistettu toiminta, 3PRVLP paluulogsitiikan palveluita
 - Kumman vastuulla SER jäte silloin?
- Paljonko suomalaisten kotitalouksien SER jätteitä päätyy teille?
 - o jälleenmyyjien/kierrätyspisteiden kautta palutuneena
 - o muualta?

Paluulogistiikka

- Miten SER tuotteet saapuvat teille (Suomessa)?
 - o Kuvaile teidän logistinen toimitusketju/jakelumalli
 - o eri tuotteilla/tuoteryhmillä eri jakelukanavia?
 - o Minne tuotteet päätyvät?
 - o Miten valvotaan teillä?
- Onko yhteistyötä tuottajayhteisöjen (Elker, Serty rooli)
 - o SER tuotteiden rekisteröintiä/seurantaa
- Kulkeeko kauttanne vain SER romua vai saatteko myös ehjiä tuotteita hävitettäväksi?
- Miten SER:stä eroteltavia raaka-aineita voidaan hyödyntää?
 - o Esimerkkejä

Yritysvastuu

- Yritysvastuu(CSR) raportit noudattavat TBL linjaa: taloudellinen, sosiaalinen ja ympäristö.
 - o osataanko ympäristövastuuta arvioida tarpeeksi?
 - o näkyykö se SER tuotteissa?
- Miten yritysten strateginen yritys vastuu vaikuttaa Stenan toimintaan?
 - o onko kilpailuetua/parantaako edellytyksiä toimia?
 - o paluulogistiikan suomia etuja?
- Hyödyntävätkö yritykset paluulogistiikkaa tarpeeksi?
 - o noudetaanko SER samalla kun muuta jätettä?

- onko valmiiksi lajittelua?
- muita mahdollisuuksia edistää kestävää kehitystä liiketoiminnan kautta?

Ekologinen jalanjälki

- Miten tarpeettomia kuljetuksia voidaan vähentää
 - esim. esilajittelu?
- Miten yritys voi vähentää ympäristökuormitustaan SER lajittelun kautta?
 - valmistaja
 - jälleenmyyjä
 - mikä on kuluttajan rooli? kotitaloudet?
-
- Miten paluulogistiikkaa voisi paremmin hyödyntää myös valmistajien näkökulmasta?
 - esim. kiertotalous (circular economy)
 - Miten Stena voi kehittyä?
- Mitä haasteita SER kierrättämisessä on kestäväen kehityksen kannalta?
- Muita kehitysmahdollisuuksia?
- Miltä tulevaisuus näyttää?