

Scooter logistics from a Cradle-to-Cradle perspective

Elaborating the concept of leasing for Eco-movement's
new LiFePO₄-powered electric scooter

Master Thesis Project

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Preface

This Master Thesis Project is in one respect performed for the study of Systems Engineering, Policy Analysis and Management at the faculty Technology, Policy and Management of Delft University of Technology. On the other hand for the company Eco-movement.

The idea of the study was proposed by ir. Steven Blom, co-founder of Eco-movement. Eco-movement was investigating the possibilities of developing a new electric scooter themselves. Until then they only imported electric scooters from China, Italy and Austria. The new electric scooter had to be produced and operated according to the Cradle-to-Cradle body of thought. This C2C body of thought is described by William McDonough and Michael Braungart in their book “Cradle-to-Cradle; remaking the way we make things” (2002).

Companies can be awarded with a C2C certification on four mounting levels: basic, silver, gold or platinum. Eco-movement strives for a C2C gold certification for their new electric scooter. This level can be described along the lines of five criteria. The typifying requirement of this gold certification is the description of return strategies for the product components, in this case the components of the electric scooter. A current available return strategy, which fits the C2C philosophy and is a common used concept in the transport industry, is leasing.

The concept of leasing, as a means for the return strategy of the new electric scooter, will be the main focus of this Thesis. Different leasing concepts will be elaborated using the Reverse Logistics Framework of De Brito (2003). This study will be performed in four passenger mobility industries which already adopted the concept of leasing. The data gained by this elaboration will function as the formal basis of this Thesis. Eventually, recommendations on the possible contribution of the concept of leasing for the new Eco-movement electric scooter operating-strategy will be discussed.

Acknowledgements

“Science is good furniture for one’s upper chamber, if there is common sense below”.

Oliver Wendell Holmes (1809-1894)

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Finally, I would like to thank my parents, brother, girlfriend and friends. Considering this Thesis as my masterpiece, which took a long time to accomplish, it has always been challenging to work on. Because of this, I was maybe too enthusiastic to finalize my Thesis and it sometimes resulted in neglecting my social obligations. Thank you all for your morale support and for having confidence in me throughout my whole study period.

Floris Peters

Amsterdam, August 18th 2009

Summary

Problem description

Current modes of transport cause increasing problems like traffic jams, noise and emissions. These modalities are also often made of non-renewable materials and resources. This is a heavy burden on the environment. Eco-movement wants to challenge these problems by creating awareness and stimulate people to use sustainable eco-friendly transportation.

Eco-movement's first act, on these problems, was the introduction of the electric scooter in the Netherlands in 2006. These electric scooters had 45% less impact on the environment in comparison to the original fuel-powered scooters. The goal of Eco-movement was to set the electric scooter as a common alternative for cars and conventional fuel-powered scooters. Although this goal partly has been achieved, the main problem with the presented electric scooters is that they do not match the standards of quality Eco-movement wants to offer their customer. Eco-movement wants to offer their customer a high quality, high energy efficient electric scooter according to the newest ideas on production and most innovative techniques. They created the possibility to develop and produce this electric scooter themselves. Their aim is to develop, produce and execute the new electric scooter according to the Cradle-to-Cradle body of thought. The principle idea of C2C can be summarized in two credos, defined by the founders of C2C, Michael Braungart and William McDonough:

Waste equals food; the concept of waste should be abandoned. No part, effluent or by-product should be harmful, useless or costly.

Less bad is no good; polluting less is still polluting, poor working conditions are unethical and compensating is having done something wrong. Do not try to do things right, but try to do the right thing.

To express the degree of 'C2C-ness', the electric scooter can be certified at four mounting levels. Eco-movement strives for the second highest level: C2C gold certification. To pursue this gold certification Eco-movement will have to accomplish the following five requirements:

1. No X-list materials like PVC, cadmium and lead can be used
2. The factory will be 50% self-sufficient in energy
3. 65% of the materials used in the product have to be recyclable
4. There is a third party checking corporate social responsibility
5. Strategies for the product components-return have to be described

The focus of this Thesis is on the last requirement: 'the description of component-return strategies'. One of the most common used strategies in the transport industry, which fits this fifth C2C requirement of product and component-return, is the concept of leasing.

Leasing is a process by which a firm or person can obtain the use of a certain fixed asset, like an electric scooter, or a service, for which it must pay a series of contractual, periodic payments. The lessee is the receiver of the service or the asset under the lease contract, and the lessor is the owner of the asset.

For the past seven months, research has been carried out on the concept of leasing. By means of this research the main leasing forms (conceptual and in practice) were distinguished, differences and similarities were discussed, and finally the concept of leasing was matched (where possible) with the Eco-movement business and C2C goals and expectations. By performing a (primarily) web based literature review, and several interviews within four passenger mobility industries, a wide variety of leasing concepts and company property structures could be distinguished. What features of these concepts and property structures could be suitable for the new Eco-movement electric scooter were still unclear. These concepts were therefore elaborated extensively within the performed research. The tool which is used to examine and describe these current available leasing concepts is the RLF of De Brito. The framework is part of the reverse logistics field of research. This field of research is defined as follows:

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 recovery or point of proper disposal.

The RLF of De Brito consists of the following five dimensions:

1. Why receiving? The forces driving companies and institutions towards reverse logistics.
2. Why returning? The reasons why products are returned by the customer.
3. What is being returned? Returned product characteristics and product types.
4. How are products recovered? Recovery processes and recovery options.
5. Who is doing the recovery? The involved actors and their roles.

It is in particular the specification of these five dimensions which make the RLF a very workable tool in elaborating the different features of the distinguished leasing concepts.

Research objective and research question

By examining these five reverse logistics dimensions, concentrated on a comprehensive number of contemporary leasing cases, recommendations could be made for the new Eco-movement electric scooter leasing strategy.

The objectives of the research are translated into one main research question:

How can the concept of leasing contribute to the - C2C gold certification criteria and Eco-movement business goals and expectations - regarding their new LiFePO₄-powered scooter?

Research

In order to specify and answer this main research question six successive steps were taken.

(Step 1 – 3 describe the concept of leasing in general.)

1: The currently available conceptual forms of leasing were distinguished by literature review (for a significant part web-based) and several expert interviews. By this literature review and expert interviewing it can be stated that all of the different leasing concept configurations found, are based on two main forms: *financial lease* and *operational lease*. The most salient difference between these two main forms of leasing is that the subject of lease, in case of operational lease, will return to the lessor after the lease contract.

2: In order to describe the leasing concepts in practice, several experts were interviewed in four different passenger mobility industries. These interviews were for a significant part based on the leasing knowledge gained within the first step. These leasing concepts in practice were matched and compared on the five dimensions of the RLF of De Brito.

3: The most salient similarities and differences between these leasing concepts were defined and can be presented as follows:

Presenting the concept of leasing, by the different discussed companies, is generally driven by the prospect of direct and/or indirect economic gain. The corporate citizenship driving force thereby mainly applies to the subject of lease, like the electric scooter. Presenting the concept of leasing itself, can (in general) not be characterized by the corporate citizenship driving force.

The return reasons do not significantly differ between the discussed leasing companies. They consist mainly of service, warranty and end-of-use (end-of-lease) returns, triggered by the lessor, the lessee or a 3rd party involved. This is depending on the way in which the lessor defines the company's responsibilities and structure.

The returned product characteristics are strongly depending on the used lease contract terms and the variety of brands offered by the lessor. These features can have a significant effect on the deterioration, use-pattern and composition of the subject of lease.

It appears, throughout the interviews, that the way in which products are recovered and which actors are involved in this recovery, strongly differs between the discussed companies. First, the recovery options and processes: not only the product characteristics and reasons for returning the products, but also the company's driving forces are of significant influence on the recovery options and processes. Second, the involved actors and roles played by these actors, depend on the way in which the economic driving force is constructed and presented by the lessor. It is therefore important to comprehensively consider and discuss the lease company's structure and responsibilities.

(Step 4 – 6 describe the Eco-movement leasing strategy development.)

4: In advance of discussing a possible future 'Eco-movement lease company' and 'responsibility structure', a SWOT analysis was constructed for Eco-movement in its current and possible future business environment. This first SWOT analysis did not involve the concept of leasing, while this could hamper the creativity of strategies constructed, but solely distinguished the Eco-movement business components for the strategy triad.

5: After constructing this 'basis' SWOT analysis, the objectives and requirements from the Eco-movement business, and the C2C body of thought, were matched with the discussed leasing concept features found. These leasing concept features were elaborated and discussed, by means of an in-house interview at Eco-movement. This elaboration, the perceived Eco-movement responsibilities and goals, is used as 'control' for constructing the strategy triad.

6: Before presenting this strategy triad, an extended (lease concept including) second SWOT analysis was carried out, distinguishing the main Eco-movement leasing components for the strategy triad.

Finally, from this lease extended SWOT analysis, the 'basis' (first) SWOT analysis and the in-house Eco-movement interview, different strategy recommendations can be formulated for the new Eco-movement electric scooter regarding the concept of leasing:

Recommendations for Eco-movement

At this moment Eco-movement is lacking the in-house knowledge about operating the concept of leasing in practice, they do not have a supporting liquidity rate to pre-finance the lease scooters and the market is still at an immature level, resulting in a high product unfamiliarity throughout the group of potential customers, causing a potential purchase and lease hesitation of electric scooters. If Eco-movement wants to present the concept of leasing within the following two years, they will have to cooperate with an established lease company.

The most important component of this strategy is the persuasive attitude towards the established lease company, in order to present Eco-movement as the crucial mediator between lessor and the electric scooter importers. Eco-movement already has the supporting network of electric scooter importers and possesses a significant amount of electric transport knowledge, which the established lease company could be lacking. The established lease company conversely has the leasing knowledge and a big supporting group of current car lessees, which Eco-movement is lacking. They could by cooperating complete each other on the concept of electric scooter lease.

The main drawback of this mediator role, played by Eco-movement, can be the loss of control over in-house activities and intended C2C goals. If Eco-movement wants to strive for the C2C gold certification, they will have to arrange this directly with the established lease company. Eco-movement will in this case not only have to convince the established lease company of the advantages of the concept of cooperative electric scooter lease, they will also have to enthuse the established lease company for striving for this C2C gold certification.

If Eco-movement decides not to cooperate with an established lease company, or this potential lease company does not want to cooperate, both for any given reason, Eco-movement will not be able to present the concept of leasing in the present situation. The Eco-movement goal of striving for a C2C gold certification for their new electric scooter should therefore be altered. First they will have to proceed in developing a mature market and a financially independent electric scooter company. Before this is achieved, Eco-movement should not aim at goals which are too revolutionary, in respect to the still developing market in which they operate. The concept of leasing will therefore be the service, which will contribute to a clean and sensible society, introduced in the *distant* future, while the electric scooter will be the product, which will contribute to a clean and sensible society, introduced in the *near* future.

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Abbreviations and glossary

Abbreviations:

C2C	Cradle-to-Cradle
EB-Lease	Electric Bikes Lease b.v.
EPEA	Environmental Protection and Encouragement Agency
LSP	Logistics Service Provider
MBDC	McDonough Braungart Design Chemistry, LLC
MIA	Milieu Investerings Aftrek (environmental friendly investment tax deduction)
OEM	Original Equipment Manufacturer
PPP	Public Private Partnership
RLF	Reverse Logistics Framework
Vamil	willekeurige Afschrijving MILieu-investeren (arbitrary depreciation environmental friendly investment)

Glossary

Actor/stakeholder	A person or organization that has an interest in the system and/or may have the power to make changes to that system directly or indirectly. Actors are concerned about or affected by the outcomes of the system, since they have something to win or lose; their interest is at stake when the values of certain factors in the system change.
Critical mass	Critical mass refers to the physical concept of the same name: the critical mass is the minimum amount of nuclear material, which is required for maintaining nuclear fission. Below a certain 'amount' of mass it is very energy consuming to create this nuclear fission, above this 'amount' of mass the nuclear fission produces enough energy to keep itself going and it is even intensifying: the chain reaction. Within this Thesis the intended chain reaction is concerning the Eco-movement electric scooter sales.
Ecological footprint	A measure of human demand on the Earth's ecosystems. It compares human demand with planet Earth's ecological capacity to regenerate what has been taken. It represents the amount of biologically productive land and sea area needed to regenerate the resources a human population consumes, and to absorb and render harmless the corresponding waste.
Fleet management	The management of a company's vehicle fleet. Fleet (vehicle) management can include a range of functions, such as vehicle financing, vehicle maintenance, repair and fuel management. These functions can be dealt with by either an in-house fleet management department or an outsourced fleet management provider.
Kilometrage	The approximate number of kilometres, which a lessee will yearly cover, is determining the lease contract rate. The higher the number of kilometres, the higher the risk, and the higher the lease contract rate.
MIA/Vamil	The MIA regulation offers the entrepreneur who is investing in environmental friendly products, like the electric scooter, extra tax deduction options. Vamil is offering a liquidity and interest advantage for these investments in environmental friendly products.
Problem owner	A person or organization that perceives the current or projected future state of the system as problematic. Problem owners can make changes to the system by implementing policies.
Strategy	A strategy is the translation of an organisation's mission into aims, and provides ideas on how these aims can be pursued.

System	Those aspects and parts of the total world that are most relevant for the stated problem and that are able to be directly affected by strategies implemented by the problem owner.
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1 Introduction

Current modes of transport (e.g. cars, motors, scooters etc.) cause increasing problems like traffic jams, noise and emissions. They are also often made of non-renewable materials and resources. A heavy burden on the environment. Eco-movement wants to challenge these problems by creating awareness and stimulating people to use sustainable transportation and move eco-friendly (eco-movement.com).

**Innovate and motivate others to share the responsibility
for a healthy environment, now and in the future**
eco-mo>ement

Eco-movement's first act on these problems was the introduction of the electric scooter in the Netherlands in 2006. A comparing study showed that electric scooters, produced and used in China, had 45% less impact on the environment than combustion engine scooters ([Kang-ning and Lin 2002](#)). In the Netherlands this advantage can even be greater because of the energy mix used in this country: 20-25% of coal ([energieraad1.nl](#)) compared to 75% coal in China ([energieraad2.nl](#)). Eco-movement imported electric scooters from China, Italy and Austria and sold them on the Dutch market. The goal was to set the electric scooter as a common alternative for cars or conventional scooters. Partly this goal has been achieved. The market for electric bicycles is booming ([BOVAG.nl](#)) and the market for eco-friendly products is widening ([green2.nl](#)). Still the electric scooters currently being sold do not match the standards of quality Eco-movement wants to offer the customer. These scooters are not designed to be electric scooters, but are fuel-scooters with an electromotor and batteries. There is no standard, every individual scooter is produced differently and most of them break down often. Eco-movement wants to offer people a high quality, high energy efficient, electric scooter according to the newest ideas on production and most innovative techniques. The current imported scooters do not match these requirements. Therefore Eco-movement created the possibility to develop and produce this new high quality scooter themselves. One of the main challenges Eco-movement has set for the production of this new scooter is the requirement to produce and operate the scooter from a Cradle-to-Cradle perspective. The principle idea of C2C can be summarized in two credos ([Braungart and McDonough 2002](#)) :

- 1) *Waste equals food*; the concept of waste should be abandoned. No part, effluent or by-product should be harmful, useless or costly.
- 2) *Less bad is no good*; polluting less is still polluting, poor working conditions are unethical and compensating is having done something wrong. Do not try to do things right, but try to do the right thing.

To express the degree of 'C2C-ness', the scooter can be C2C certified at four mounting levels: the 'basic, silver, gold or platinum' level (Appendix I). Eco-movement strives for a C2C gold certification. In order to accomplish this certification, Eco-movement will have to meet 5 C2C gold criteria. One of these criteria is the requirement to describe return strategies for the different scooter components. A return concept, which is already adopted in several passenger mobility

industries, and which fits this C2C requirement of component return, is leasing. The focus of the Thesis will therefore be on leasing. This focus results in the following main research question:

How can the concept of leasing contribute to the - C2C gold certification criteria and Eco-movement business goals and expectations - regarding their new LiFePO₄-powered scooter?

Before elaborating on this main research question, the C2C body of thought according to Braungart and McDonough (2002) will be briefly discussed in the following paragraph. This paragraph is followed by a more specific elaboration on the C2C gold certification criteria and concept of leasing.

1.1 Cradle-to-Cradle design assignment

The industrial framework that dominates our lives now is fairly primitive. It is conceived around a one-way manufacturing flow – what is known as the ‘cradle-to-grave’ lifecycle. The cradle to grave flow relies on brute force, including fossil fuels and large amounts of powerful chemicals. It seeks universal design solutions (‘one size fits all’), overwhelming and ignoring natural and cultural diversity. And it produces massive amounts of waste – something that in nature does not even exist. Consider looking at the industrial revolution of the 19th century and its aftermath as a kind of retroactive design assignment, focusing on some of its unintended, questionable effects. The assignment might sound like this: *Design a system of production that:*

- Puts billions of pounds of toxic material into the air, water and soil every year
- Produces some materials so dangerous they will require constant vigilance by future generations
- Results in gigantic amounts of waste
- Puts valuable materials in holes all over the planet, where they can never be retrieved
- Requires thousands of complex regulations to keep people and natural systems from being poisoned too quickly
- Measures productivity by how few people are working
- Creates prosperity by digging up or cutting down natural resources and then burying or burning them
- Erodes the diversity of species and cultural practices

Even though none of these things happened intentionally it can be stated that this assignment is a limited and depressing one for industries to perpetuate – and it is obviously resulting in a much less enjoyable world.

Braungart and McDonough (2002) propose a new ‘cradle-to-cradle’ design assignment where people and industries set out to create the following:

- Buildings that, like trees, are net energy exporters, produce more energy than they consume, accrue and store solar energy and purify their own waste water and release it slowly in a purer form
- Factory effluent water that is cleaner than the influent
- Products that, when their useful life is over, do not become useless waste, but can be tossed onto the ground to decompose and become food for plants and animals, rebuilding soil; or, alternately, return to industrial cycles to supply high quality raw materials for new products

- Billions, even trillions of dollars worth of materials accrues for human and natural purposes each year
- A world of abundance, not one of limits, pollution and waste

Braungart and McDonough (2002) suggest that we can help the world prosper through consuming rather than deplete and pollute it. To do so, we need two cycles of materials: a technical cycle metabolising technical nutrients (inorganic materials like the scooter batteries) and a biological cycle metabolising biological nutrients (biodegradable materials like bamboo). These materials of both cycles meet in the product and after the products' useful life they will be retrieved and returned to their cycles. If we design for disassembly, we can retrieve the nutrients (rather than waste) because there are no 'monstrous' hybrids, comprising either of technical and biological nutrients that can not be separated, or of valuable minerals trapped in low quality bulk. So the materials will not be eternally reused at the same quality or less, what can be called recycling, but the quality of the materials can be improved through design for disassembly and use, which is called upcycling (see Figure 1.1 upper right quality/time graph).

Alongside these products of consumption, designed for safe and complete return to their cycles, there will also be products of service, used by the customer, but owned by the manufacturer who maintains ownership of his valuable materials. This will be dealt with in more detail in paragraph 1.3 and 1.4.

1.2 Cradle-to-Cradle gold certification

As stated in the introduction the target certificate for the new electric scooter is C2C gold. Basic is no more than what is required by law for cars and although there is no recycling legislation around scooters, this is not ambitious enough for Eco-movement. They want to realize a product according to the gold certification criteria. This gold certification can be described along the following five requirements (MBDC.com):

1) No X-list materials like PVC, cadmium and lead can be used

The X-list is a list of chemicals that may not be in the product and when involved in production, they may not end up in the waste. An X-list has been ushered by the Dutch Ministry of Social Matters and Labour (SZW) in January 2008 (CradletoCradle.nl).

The current imported scooters¹ use silicium-gel lead batteries or (closed) lead acid battery packs. They all use X-list materials. In which way they do or don't end up in the waste is unclear. The main impact of the electric scooter, after electricity consumption, is caused by these batteries.² Companies which manufacture the lead acid and silicium-gel lead batteries are currently being forced to innovate due to competition with other types of batteries. One of these new battery types is the Lithium Iron Phosphate (LiFePO₄) battery (Metaefficient.com). A life cycle assessment of batteries used in electric vehicles shows that these Lithium Iron batteries are the most sustainable of the ones compared and available (Van Autenboer, Van den Bossche et al. 2006). Besides, they are resistant to thermal runaway, they have a high energy density, low mass and a very long lifetime. Still one of the main disadvantages of the LiFePO₄ battery in comparison to the lead acid batteries is the high purchase price of the LiFePO₄ battery. The price of an electric scooter with the LiFePO₄ battery will be around twice the price of the silicium-gel and the closed lead battery pack scooter (elektrischescooterwinkel.nl). The prototype which Eco-movement is developing will nevertheless use the LiFePO₄ batteries. Quality is more important to Eco-movement than a low price. Since the battery has such a high impact on the vehicle

¹ Eco-movement sells the brands *Novox*, *EVT*, *Eco-lectric* and *Qwic* at elektrischescooterwinkel.nl (March 2009)

² Appendix II, table II.2 shows the Life Cycle Energy and Emissions of a Chinese electric scooter.

performance, saving money on it by incremental design would severely affect its value for the customer.

2) The factory will be 50% self-sufficient in energy

The current electric scooters are produced outside the Netherlands and it is therefore difficult to check whether the factory is running according to the C2C philosophy. Eco-movement is currently investigating the opportunities for producing the new electric scooters themselves instead of importing them from China, Italy or Austria. Plans have been made to cover the roof of the factory with solar panels etc. This research however is still in its infancy and will not be discussed any deeper in the proposed research.

3) 65% of the materials used in the product have to be recyclable

Material use plays a significant role in the C2C philosophy. A student team from Delft University of Technology, faculty Industrial Design, is designing a possible prototype of the new electric scooter (eco-mover.com). They also performed a material analysis. They proposed a list of possible materials, for the different components of the scooter (Appendix II, table II.1), which fit in the C2C specifications. The LiFePO₄ batteries used in the prototype will not be fully recyclable. These components require return strategies to be developed. This will be discussed under the fifth point.

4) There is a third party checking corporate social responsibility

Like the second point on self-sufficiency, this feature is still in its infancy and therefore of little relevance for the proposed research. In short: Eco-movement will have to arrange publicly available corporate ethics and labour statements which are adopted across the entire company and checked by a third party. This will not be discussed any deeper in the proposed research.

5) Strategies for the product components-return have to be described

As the first point already depicted, the main impact of the electric scooter, after electricity consumption, is caused by the batteries³. This impact can be of an environmental kind, but also of a technical kind since the battery has such a high impact on the scooter performance (elektrischescooterwinkel.nl). According to the C2C philosophy a return strategy for (amongst other things) this battery component has to be described, since no X-list materials may end up in the waste. This return can be divided into the two C2C cycles: the *technical cycle* of materials and the *biological cycle* of materials (see also paragraph 1.1). The materials meet in the product, and after the product's useful life, the materials are returned to their cycles for either technical reuse or biodegradation. In the current situation this return isn't specified at all. What happens with the battery after its useful life⁴ is unclear. What happens with the other scooter components is also unclear. For the new electric scooter this component-return strategy into both C2C cycles has to be described.

³ All batteries, even the LiFePO₄ (although it is the most sustainable battery available and suitable), consist of X-list materials.

⁴ The standard silicium-gel lead battery has a lifespan of around 600 recharge cycles (range \pm 90 km/cycle)

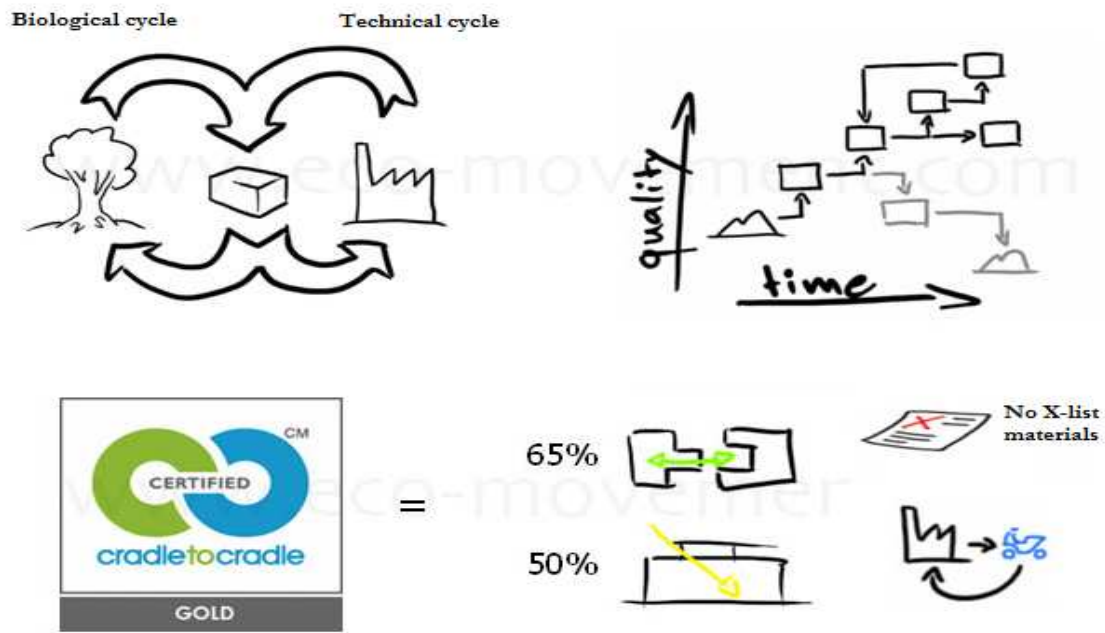


Figure 1.1: C2C gold certification requirements
(compiled by author on eco-mover.com)

The focus of this Thesis will be on the last requirement: *the description of component-return strategies*. In what way can Eco-movement organize this component-return for their new electric scooter? The next paragraph will discuss one of the most common used strategies for product and component return in the transport industry: the concept of leasing.

1.3 The concept of leasing

One of the current available component-return strategies which fits the C2C requirement, the fifth point discussed in the previous paragraph (EPEA 2008), is leasing (supplychainlogistics-consulting.co.uk). Leasing can be defined as follows (Dasgupta, Siddarth et al. 2007):

“Leasing is a process by which a firm or person can obtain the use of a certain fixed asset, like an electric scooter, or a service, for which it must pay a series of contractual, periodic payments. The lessee is the receiver of the service or the asset under the lease contract, and the lessor is the owner of the asset.”

Braungart and McDonough (2002) describe this in their book as the concept of a *product of service*. Instead of assuming that all products are to be bought, owned and disposed by consumers, products containing valuable technical nutrients – cars, scooters, televisions, computers, for example – would be reconceived as *services* people want to enjoy. Customers would effectively purchase the service of such a product for a defined user period. When they finish with the product, or are simply ready to upgrade to a newer version, the manufacturer replaces it, taken the old model back, breaking it down and using its complex materials as ‘food’ for new products (Braungart and McDonough 2002).

This *product of service* concept can also be recognized in nowadays business thinking. Providing service solutions to customer needs, instead of selling products is becoming more and

more noticeable (Mont, Dalhammar et al. 2006). Leasing can accommodate the product return requirement of the C2C gold certification, as visualized in Figure 1.2 below.

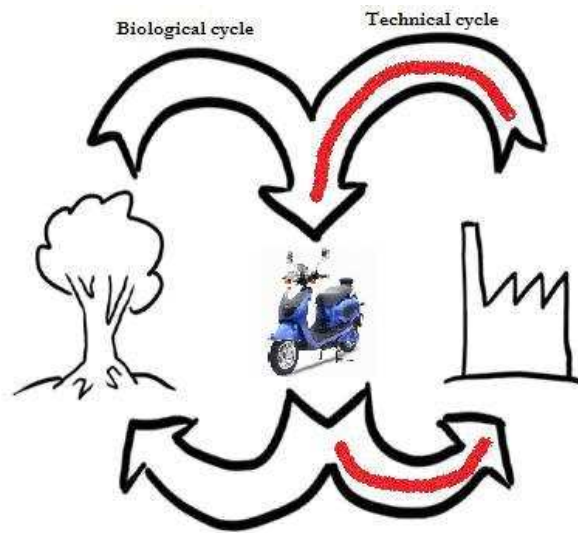


Figure 1.2: Technical nutrients return into their technical cycle

If we want to develop a return strategy for the new electric scooter of Eco-movement the opportunity of leasing has to be examined comprehensively. The focus of this Thesis will therefore be on the concept of leasing. Leasing fits the C2C requirement of product component return, and it could be a sufficient way to deal with the high purchase price of the LiFePO₄ powered scooter. As will be discussed in chapter 3 and chapter 4, a wide variety of leasing concepts and company property structures is available. What features of these concepts and property structures could be suitable for the new Eco-movement electric scooter is still unclear. These concepts must therefore be elaborated from both the Eco-movement business and the C2C perspective.

1.4 Reverse Logistics

A tool to examine the current available leasing concepts is the Reverse Logistics Framework of De Brito (2003). The framework is in principle developed for structuring the reverse logistics field of research. Reverse logistics is defined by the European Working Group on Reverse Logistics as follows (De Brito and Dekker 2004):

“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 recovery or point of proper disposal.”

Reverse logistics is part of the supply chain research field. The fine tuning of these supply chains traditionally focused on the *forward* logistics from raw material to the end user. Today an increasing flow of products is going back in the chain, and companies have to manage these *backward* logistics as well. The establishment of these reverse logistics networks is gaining significant importance. For example social responsibility and green legislations are forcing companies to take back their used, end-of-life or end-of-lease products to minimize wastes and conserve resources (Mutha and Pokharel 2008). Reverse logistics practices are now in the

position of being an asset, instead of being a liability (Aghazadeh 2008). When a consumer wants to get rid of the product, this does not automatically mean that the product is valueless. In this case the C2C gold requirement of product-component return can be seen as the driving force for this so-called take back.

The managing of backward logistics in this Thesis will be the concept of leasing. A wide variety of these leasing concepts is available, but what features could be applicable to the Eco-movement scooter case is unclear. The RLF of De Brito (2003) will be used as a tool to examine these concepts. Paragraph 2.2 will discuss this framework, which can be found in Appendix IV, more deeply. This paragraph will briefly mention its main features: the five basic dimensions as defined by De Brito (2003):

These five dimensions are:

- 1) Why receiving? The forces driving companies and institutions towards reverse logistics.
- 2) Why returning? The reasons why products are returned by the customer.
- 3) What is being returned? Product characteristics and product types.
- 4) How are products recovered? Processes and recovery options.
- 5) Who is doing the recovery? The actors and their roles.

It is in particular the specification of these five dimensions which makes the RLF of De Brito (2003) a very workable tool in elaborating the different features of the leasing concepts (Kumar and Putnam 2008). It will generate an extensive enunciation of the research area by focussing on the *Why receiving? Why returning? What is being returned? How are products recovered?* and *Who is doing the recovery?* dimensions. Both the C2C and Eco-movement business perspectives will be discussed clearly. By examining these five reverse logistics dimensions, concentrated on a comprehensive number of contemporary leasing cases, recommendations could be made for the new Eco-movement electric scooter leasing strategy.

1.5 Leasing & Reverse Logistics: problem statement

The exploration and analysis of the problem area in this chapter has lead to the following problem statement:

“Eco-movement strives for a C2C gold certification for the new electric scooter which they will produce themselves. This C2C gold certification requires scooter component return strategies to be described. In the current situation these return strategies of the scooter components are unclear or do not exist at all. One of the main scooter components is the battery. For the new scooter this will be a LiFePO₄ battery. This battery has a high positive impact on the vehicle performance. But it can also have a high (negative) impact on the purchase price and the environment when ending up in the waste. Return strategy elaboration, for the scooter and its valuable components, will therefore be of essential value for pursuing both the C2C and the Eco-movement business objectives. A promising return strategy for the new electric scooter is leasing. Leasing fits the C2C philosophy and can also be a commercial way to deal with the high purchase price of the scooter. The most common example of such a leasing concept is the standard car lease contract (auto-leasen.nl). Currently companies in the electric scooter industry also offer opportunities to lease an electric scooter. For example IOScooter (IOScooter.nl) and Scooterplan (scooterleaseplan.nl) are already offering corporate lease contracts for electric scooters. BOKA Scooter Rentals also offers private lease contracts, but these are contracts for conventional fuel-

powered scooters (scooterrentals.nl). Eco-movement does not offer any lease contract at all, not corporate nor private. A comprehensive examination of present-day lease concepts along the five dimensions of the RLF of De Brito (2003) can be a suitable base for return (lease) strategy recommendations for Eco-movement's new C2C gold certified electric scooter."

1.6 Research perspectives

This research has been carried out from three perspectives:

1. it serves the purpose of the management of Eco-movement;
2. it serves the qualification of the usability of the RLF of De Brito (2003) on a leasing case;
3. it deals with the wider relevance of the C2C philosophy for Eco-movement, and other passenger mobility industries.

Eco-movement strives for the C2C gold certification, which requires return strategies to be described. This can be seen as the environmental consciousness perspective. On the other hand the purchase price of the LiFePO₄ powered scooter will be twice as high as the price of the currently sold electric scooters (silicium-gel and lead acid). This price can play a significant role while the new electric scooter has to compete with the conventional fuel-powered scooters, and the current available electric scooters. Investigating leasing concepts can therefore also be seen as an economic/commercial goal. Both serve the purpose of the Eco-movement management.

The second perspective deals with the qualification of the usability of the RLF of De Brito (2003) on a leasing case. This can be seen as the scientific research perspective.

The third perspective serves the identification of the possible contribution of the C2C body of thought and certification for the new Eco-movement electric scooter, and for other passenger mobility industries.

1.7 Research questions

The objectives of the research are translated into one main research question:

How can the concept of leasing contribute to the - C2C gold certification criteria and Eco-movement business goals and expectations - regarding their new LiFePO₄-powered scooter?

In order to specify and answer this main research question the following four sub-questions will be addressed ([Verschuren and Doorewaard 2007](#)):

- 1) **What leasing concepts can be distinguished in the current passenger mobility industries?**
 - a. *In the current electric bicycle industry?*
 - b. *In the current automobile industry?*
 - c. *In the current fuel-powered scooter industry?*
 - d. *In the current electric scooter industry?*
- 2) **What similarities and differences can be distinguished between the current passenger mobility industries' leasing concepts?**

- 3) Which leasing concept features could, in principle, match the Eco-movement objectives regarding C2C gold certification and competitiveness?
- 4) What recommendations can be made for the new Eco-movement electric scooter regarding the concept of leasing?

1.8 Thesis outline

The required theory and methodology for answering the research questions is described in chapter 2. From chapter 3 on the Master Thesis is divided in three main parts. Part I elaborates on the concept of leasing in the different passenger mobility industries. Part II deals with the concept of leasing from an Eco-movement point of view. Part III is an epilogue. An overview of the Thesis' outline is shown in Figure 1.3.

Part I: The concept of leasing in general

Chapter 3 elaborates on the current available concepts of leasing in practice. What forms of leasing are available and which leasing company property structures are common will be discussed, focussing on four different passenger mobility industries: the electric bicycle industry, the automobile industry, the fuel-powered scooter industry and the electric scooter industry. These concepts will be discussed along the five dimensions of the RLF of De Brito (2003). A comprehensive overview of the differences and similarities of these concepts will eventually be presented in chapter 4. This overview will be used in Part II. Part I deals with question 1 & 2.

Part II: The Eco-movement strategy

The information gathered in Part I will be used in chapter 5. This chapter will elaborate on the lease strategy possibilities from the Eco-movement point of view. First a SWOT analysis will be constructed for Eco-movement in its business environment. Second, the objectives and requirements from the Eco-movement business, and the C2C body of thought, will be matched with the discussed leasing concept features found in chapter 3. This will be done by means of an in-house Eco-movement interview. Finally, an extension on the SWOT analysis will be performed, including the concept of leasing. With the info gained from these two SWOT analyses and the in-house Eco-movement interview, the leasing strategy triad for Eco-movement will be constructed and discussed. Part II deals with question 3 & 4.

Finally, chapter 6 will conclude Part I & Part II, and recommendations on further research will be indicated.

The epilogue can be seen as Part III of the Thesis. After presenting the recommendations for Eco-movement a more general view on the Thesis will be given: the so-called helicopter view.

First a reflection on the (MBDC) C2C 'openness' to contributing participants in the Netherlands will be given. Second, a brief reflection will be presented about the perverse and naïve optimism regarding the new eco-effective way of thinking. Third, the RLF of De Brito (2003) will be reflected upon, focussing on its perceived usability in this particular Master Thesis research area, and what implications this could have for the usability of the RLF in other research disciplines. Finally the relevance of C2C certification for the customer in the present electric scooter market will be discussed.

The C2C, eco-effectiveness and RLF reflections will broaden the usability of the research results presented in this Master Thesis.

Figure 1.3 below, presents the outline of this Thesis.

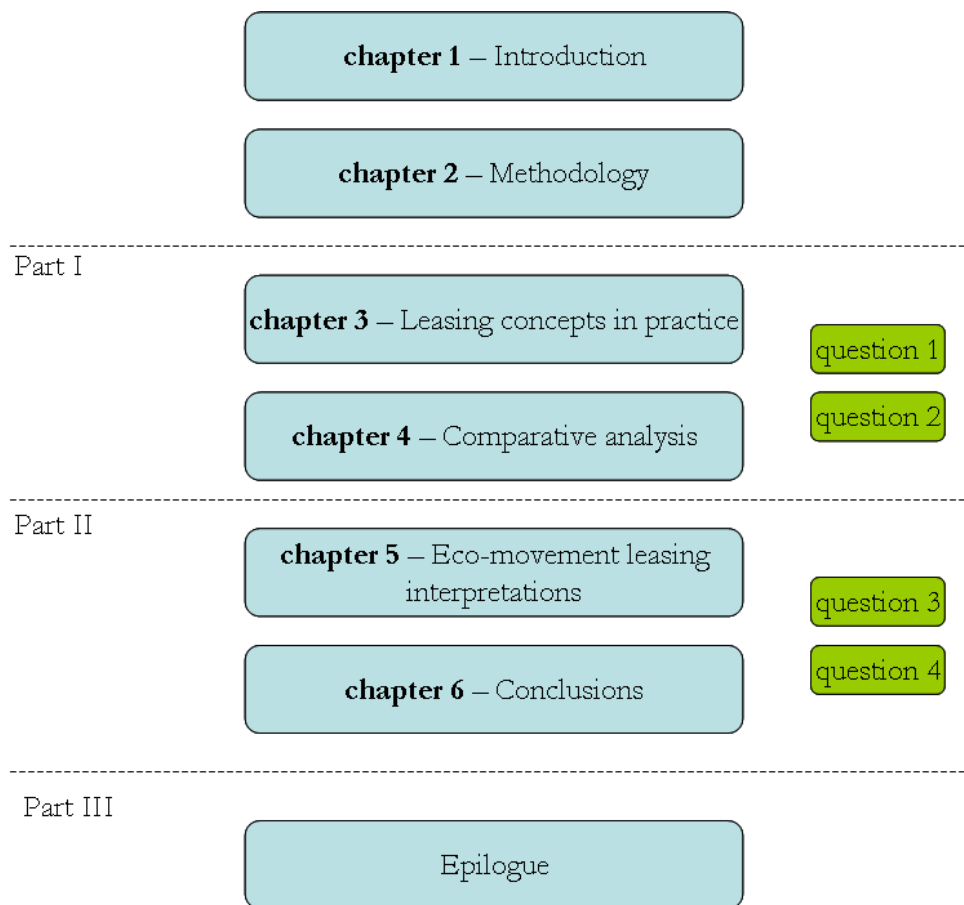


Figure 1.3: Master Thesis outline

1.9 Demarcation

Regarding the scope of this project, there are some limitations. First of all, four passenger mobility industries will be discussed:

1. *Electric bicycle industry*: this industry is booming (BOVAG.nl) and should therefore be discussed in this research. Besides, the electric bicycle plays a very competitive role in the urban electric transport environment.
2. *Automobile industry*: an industry which adopted the concept of leasing long ago. In the Netherlands a total of well over seven million cars is registered (CBS.nl) from which around half a million are lease cars (ND.nl).
3. *Fuel-powered scooter industry*: a major competitor for the currently sold, and new electric scooter of Eco-movement. An industry which also adopted the concept of leasing (scooterleaseplan.nl), and therefore of significant interest in discussing leasing contracts for the new Eco-movement electric scooter.
4. *Electric scooter industry*: the goal of this research. ‘Reinventing the wheel’ could be useless, therefore an in-depth investigation of current available leasing concepts in this industry is crucial.

Second, the ‘feeling’ that people could have regarding the electric scooter will not be part of the Thesis. Personalizing the scooter, for example, and the effect of the lack of noise produced by the electric scooter, will not be included. The main focus of this research will be on the (possible) contribution of the concept of leasing for Eco-movement, and the targets which they set for themselves regarding the C2C gold certification. Adding a research on the ‘feeling’ people get from the electric scooter and their consequential behaviour, is not possible in the 6 months timeframe for this Master Thesis project.

A third limitation will be on the technology part. The battery used in the new Eco-movement electric scooter will be a LiFePO₄ battery. Battery technology is proceeding fast. It could therefore happen that during the research new battery developments occur. These will not be included in the Thesis research, but will in that case be discussed in the epilogue.

Another important limitation to mention will be the research approach. The research will be focussing on the corporate playing field. Customer preferences will not be included directly, as was already depicted by the second limitation mentioned in this demarcation. The interviews are specifically focussing on companies in the mentioned passenger mobility industries.

The RLF of De Brito (2003) is used as a tool for data analysis. The framework is in principle developed for structuring the reverse logistics field of research. It could therefore occur that during the interviews on the concept of leasing, adjustments to the framework must be made. The tool isn’t all-embracing. Thereupon, the RLF is only used, by means of its five ‘dimension boxes’ why (2x), what, how and who, to describe the concepts of leasing in practice. The relations between these five dimension boxes will not be included in the main text, but will be elaborated on in the Epilogue III part.

Two final limitations, which must be mentioned, are the uncertainty about the sincerity of the companies interviewed during the research, and the interviewer’s personal influence and bias on the interview. This research is executed for Eco-movement. Other (interviewed) companies which participate in the electric scooter industry for example, could be wary in giving away important in-house information. This strategic behaviour is understandable, still very important to mention and keep in mind while discussing the collected interview data.

1.10 Project’s outcomes

The Thesis has the objectives to explore the current leasing concepts in four passenger mobility industries, match these concepts on the RLF of De Brito (2003), discuss the differences and similarities, match this overview with the Eco-movement business and C2C requirements, and finally interpret/construe the strategy recommendations for the Eco-movement electric scooter leasing case.

To meet these objectives, methods are performed, resulting in the following outcomes:

- An overview of the most common leasing concepts available in the passenger mobility industry, discussed along the five dimensions of the RLF of De Brito (2003).
- A schematic overview of the main differences and similarities between these passenger mobility industries’ leasing concepts.
- An overview (gross list) of possible Eco-movement/C2C lease concept interpretations.
- Strategy recommendations on how to interpret a new Eco-movement electric scooter leasing strategy.

2 Methodology

It is the aim of this chapter to present the methodology used in the project. Different methods are used to answer the four research (sub)questions. Each method is related to one or more sub-questions and will be elaborated upon in the subsequent chapters. For an overview of this research approach: see Appendix V. Figure 2.1 below shows an ‘exploded view’ of the research methodologies used for the different research questions.

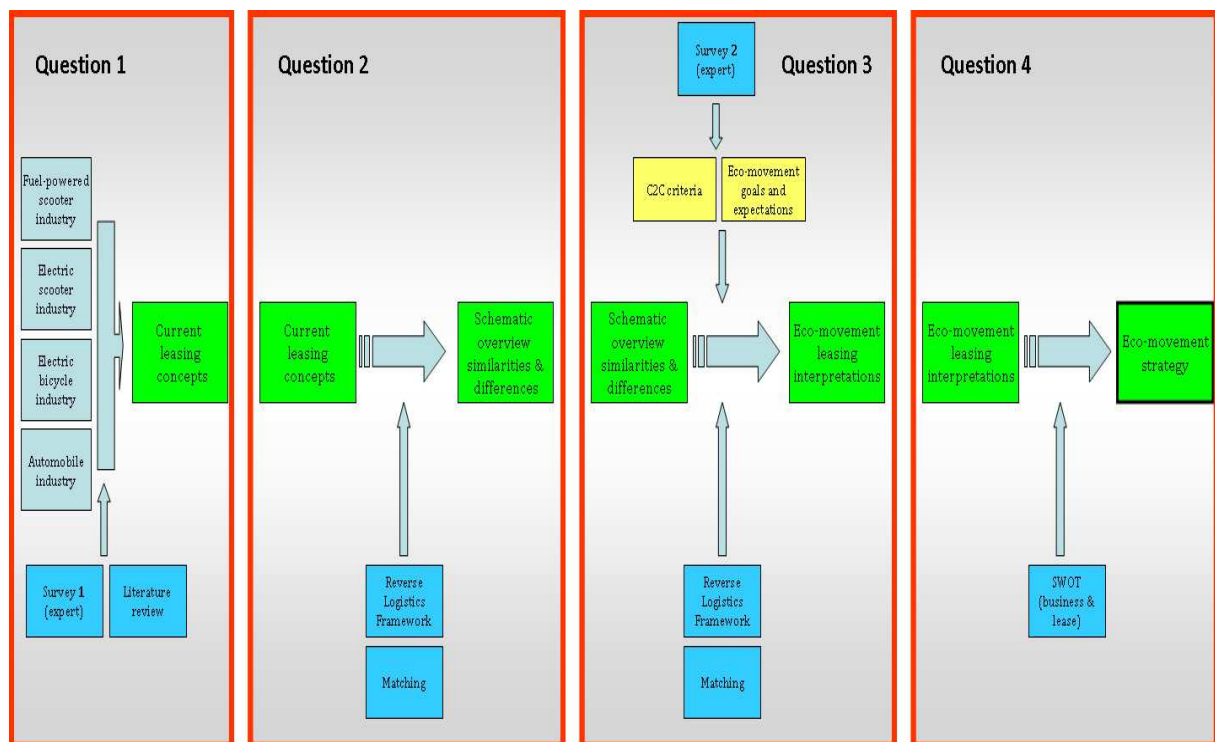


Figure 2.1: Link research questions and used methodologies

2.1 Data collection: Literature review & Expert interviewing

Within this Thesis two kinds of data sources are used: the primary sources and the secondary sources (see Figure 2.2). As can be seen in Figure 2.1 the Thesis will start with a literature review on current leasing concepts, a secondary data source. A lot of literature on these concepts can be found on the internet. Sites like scopus.com and scholar.google.nl are great bases to start your review on and find relevant articles and journals. But also the TU Delft Library has an extensive selection of articles, journals and books in their collection, which could be of relevance for this research.

Expert interviewing is one of the primary data collecting methods while conducting a research. This method is used when knowledge, facts and opinions of individuals are concerned ([Stewart](#)

and Cash 2008). In addition, interviewing can help to get more in-house information, such as internal documents and annual reports of organizations. Various types of interviews can be used: structured-, semi-structured-, topic-focused- (all written or oral), unstructured or group interviews (Groenendijk and Dopheide 2003). Within this Thesis the oral semi-structured interview outline is used. In this type of interviewing the interviewer uses an interview guide with questions that are mostly open-ended, designed to encourage the respondent to talk freely around each topic. Within this research the interpretation of the RLF by the respondent. It is in particular this ‘respondent encouraging feature’ that makes the semi-structured interview protocol a very useful tool within the problem area specified in this Thesis. This feature is also the main reason why for example written questionnaires and observation are not used in this research. The concept of leasing in combination with the C2C certification is a particularly new and unknown research area. The experts could add important knowledge to the interview, because of the oral and semi-structured outline. Knowledge that could be missed by observation or written questionnaires.

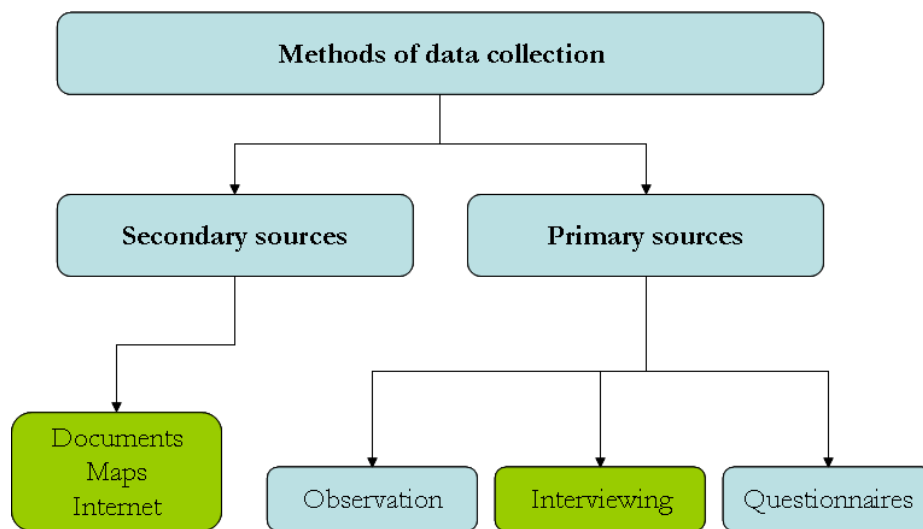


Figure 2.2: Methods of data collection
(adapted from Kumar (2000))

The semi-structured (oral) interviewing has more advantages, next to the ‘respondent encouraging feature’, in that (Van der Velde, Jansen et al. 2004):

- Interviewing produces more response rate
- Interviewing helps to address more topics; questions may be adapted during the course of the interview in response to immediate feedback from the respondent
- Information can be supplemented by observations (e.g. non-verbal reactions, field observations)
- Face-to-face interaction tends to heighten the respondent’s interest in participating and forces him or her to consider the question immediately
- Interviewing has less risk of skipping questions by the interviewee, and questions can be explained in order to avoid misunderstanding
- Interviewing can be a better method, especially in case of explorative researches

- Interpersonal communication makes the interview not only a method for data collection but also an instrument to stimulate and involve potential beneficiaries or stakeholders
- Interviewing yields large amounts of information/data in a short period of time.

Using the oral semi-structured interview outline can also have some disadvantages (Groenendijk and Dopheide 2003):

- This type of interviewing requires a more skilled interviewer
- It is difficult to process the interview outcomes statistically
- The interviewer/respondent bias may play a heavier role
- It is time consuming, while addressing a smaller number of respondents

Because the outcomes of the interviews will be used in a qualitative manner, the second disadvantage is not very relevant for this research. The aim of the interviews will be to gain information about the concept of leasing in four different passenger mobility industries, in order to eventually come up with recommendations for Eco-movement. This will be time consuming, while addressing a smaller number of respondents. But due to the ‘respondent encouraging’ character of the semi-structured interview outline, the final info gained can be of more value. The respondent’s interest in participating will be triggered more and could stimulate them to present more in-house strategic information.

2.1.1 Interviewing protocol

As the proposed research will be exploratory for a substantial part, aimed at gaining information from experts in the field of leasing and passenger mobility industries, oral interviewing will be used. To improve the understanding of the main goal in the scheduled interviews, the interpretation of the RLF of De Brito (2003) by the interviewed companies, the companies received an accompanying letter in advance (for this accompanying letter see Appendix VI). This letter discussed the basics of the five dimensions of the RLF. In this way, the interviewees would be somewhat familiar with the subject, and could think about it before the actual interview. This letter is part of the used interview protocol in this Thesis. This protocol can be described along the example of the Athlon Car Lease interview (paragraph 3.2.1). The actual ‘step by step’ protocol can be found in Appendix VIII.

First of all, an interviewee from Athlon Car Lease must be found. A useful database to find these specific interviewees is LinkedIn. LinkedIn is a network website, where individuals can add their particular interests, curriculum vitae, set up communities, communicate with each other and so on (LinkedIn.com). It is also possible to search for employees of specific companies. That is what I did for this interview. In the end I found the Program Manager Corporate Social Responsibility of Athlon Car Lease International⁵. The first contact was by LinkedIn (internal) mailing. This mail elaborated on my background, proposed Thesis research and what Athlon Car Lease could add to this research. A first glimpse of the RLF was presented and finally the company was asked if they were willing to cooperate in the research. If they responded in a positive way, further contact was arranged. Eventually, a personal meeting was scheduled to execute the oral interview. An example of such an interview (EB-Lease) outline can be found in

⁵ My search focussed on employees concerned with innovation, renewable energy, corporate social responsibility, sustainability, green and electrical transport.

Appendix VII. This Appendix is in Dutch because it is the original version as printed to the interviewee.

These interviews were organized at the specific company. And with the approval of the interviewee the conversation was recorded on tape.

2.2 Data analysis: the Reverse Logistics Framework

The RLF of De Brito (2003) will be used in Part I and Part II of this Thesis. In Part I it will be used (as a data analysis tool) to give a comprehensive overview of the differences and similarities of the leasing concepts, found by the literature review and the performed interviews. In Part II the RLF will be used to elaborate the interpretations on the concept of leasing from the Eco-movement point of view. Objectives and requirements from the Eco-movement business, and C2C body of thought, will be matched on the RLF dimensions.

In paragraph 1.4 a brief introduction on the dimensions of the framework is already given. In this paragraph the RLF of De Brito (2003), as it will be used in this Thesis, will be discussed more deeply. The five dimensions (see Appendix IV) consist of several crucial elements and will be discussed in the following sub-paragraphs.

2.2.1 Why receiving?

The ‘why receiving dimension’ describes the forces driving companies and institutions towards reverse logistics. According to many authors these driving forces can be organized in three categories:

- Economics (direct and indirect)
- Legislation
- Corporate citizenship

Economics

Organizing a reverse logistics program can bring direct and indirect gains to companies. Direct gains for OEM’s for example by dwindling on the use of raw materials or by adding value with recovery. Several examples of such direct gains are discussed by Zhou et al. (1999). They discuss the take-back program of Xerox. The Xerox copiers are leased, refurbished and go through multiple lifecycles. They discuss the topic on single-use cameras that may actually be reused up to 10 times by unsuspecting consumers, and cell phones that are collected and resold in secondary markets. These examples are famous because their reuse or service is value-adding, and make the economic case for tying reuse or recycling to direct corporate profit.

Reverse logistics can also bring indirect gains to companies, for example by marketing of the green image of reverse logistics and thereby attracting customers. It can also be a strategic step to get prepared for future legislation or to prevent other companies from getting the in-house technology of the company.

Summarizing, the economic category describes the following direct and indirect gains:

- Direct gains
 - Input materials
 - Cost reduction
 - Value added recovery
- Indirect gains
 - Anticipating / impeding legislation
 - Market protection

- Green image
- Improved customer / supplier relations

Legislation

The legislation driver refers to any jurisdiction indicating that a company should recover its products or take them back. For example in case of transportation-related damage or warranty. Furthermore environmental regulatory drivers exist in Europe, the US and Japan dictating the prevention of waste and to promote the recovery of waste for reuse, remanufacturing or recycling of materials including electronic equipment and batteries, chemical products, glass, paper, plastics and heavy metals. The European Union has been a leader in developing regulations such as End-of-life Vehicles Directive (ELV), Waste Electrical and Electronic Equipment Directive (WEEE), Restriction of Use of certain Hazardous Substances Directive (RoHS), and the Packaging and Packaging Waste Directive (Kumar and Putnam 2008).

Summarizing, the legislation category describes the following two elements:

- Consumer rights
- Pro-environmental legislation

Corporate citizenship

The third category in the 'why receiving dimension' is the corporate citizenship category. Modern environmental management prescribes sustainable manufacturing practices that focus on prevention of waste and responsible care of the earth's natural resources. Companies use this management to express that they respect society out of good principles. The corporate citizenship in the reverse logistics context concerns a set of values or principles that impels a company or organization to become responsibly engaged with reverse logistics.

Figure 2.3 below, summarizes the driving forces for the 'why receiving dimension'.

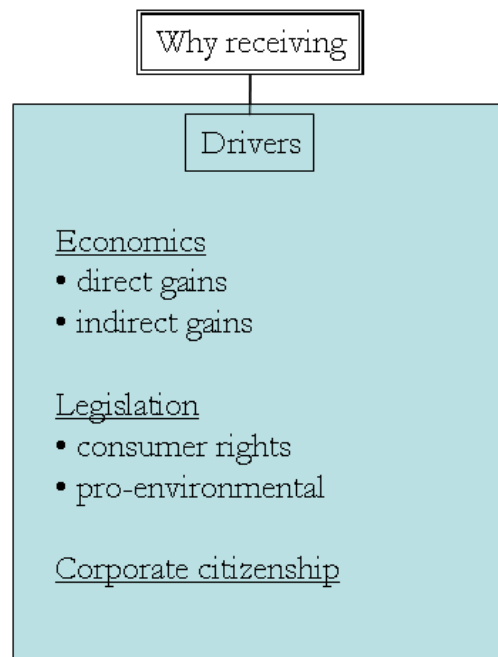


Figure 2.3: 'Why receiving dimension'
(source: De Brito, 2003)

2.2.2 Why returning?

The 'why returning dimension' describes the reasons why products are returned. Reverse Logistics is part of the supply chain research field. De Brito (2003) presents the return reasons of the products therefore in conformity with the usual supply chain phases: from *manufacturing*, to *distribution*, until the products reach the *customer*. Figure 2.4 shows these three groups of return reasons.

Manufacturing returns

Manufacturing returns occur during the production phase. One of the reasons for a manufacturing return could be because of raw material left over. An example of such raw material surplus can be found in the production of Pringles (DiscoveryChannel 2009). The Pringle chips are stamped out of a conveyer moved 'roll' of raw material (mixture of potato, oil, salt etc.). A significant part of the roll, the part that is not stamped, will be left over and is in this case used again in a new roll of raw material. Next to this raw material surplus intermediate or final products may fail quality checks and have to be reworked. Finally (by)products may be left over during production.

The manufacturing returns can be divided into three groups:

- Raw material surplus
- Quality-control returns
- Production leftovers/ by-products

Distribution returns

The distribution returns refer to product recalls, commercial returns, stock adjustments, and functional returns. For each of these returns an example will be given.

A product recall is the recollecting of a product because of safety or health problems with the particular product. For example: IKEA is recalling the TÄNDA remote control because of potential risk of fire or electric shocks due to a (probable) production failure (IKEA.com).

B2B commercial returns occur for example in the case of wrong and/or damaged deliveries. Eco-movement imports some of its electric scooters from China and it has been the case, a couple of times, that the scooter was damaged during distribution. For this kind of 'failures' Eco-movement has a contractual option to return the product to the seller.

Stock adjustments occur within the company, while commercial returns involve more than one company. Various examples of stock adjustments can be found in the case of seasonal products like herring (Hollandse Nieuwe), mussels and strawberries. But also for products as fireworks which can only be sold the last 2 weeks of the year.

The last group of distribution returns is the functional returns-group. Because of the products' function it will go back and forward in the supply chain. The most familiar examples of functional returns are the pallet and the container.

The distribution returns can be divided into four groups:

- Product recalls
- B2B commercial returns (e.g. unsold products, wrong deliveries)
- Stock adjustments
- Functional returns (distribution items/carriers/packaging)

Customer returns

The third group within the ‘why returning dimension’ is the group of customer returns. The B2C commercial, warranty and service returns look somewhat alike. Nevertheless the warranty and service returns refer mostly to an incorrect functioning of the product during use, or to a service from which the customer can benefit because of his purchase. Warranty returns occur when products do not meet the promised quality standards and the product is still in its warranty period. Customers may get a new product or the product can be repaired. The B2C commercial return gives the customer the opportunity to change their minds about purchasing the product, or the opportunity to return the product in case he/she already possesses the product (like birthday presents). In short, when benefiting from a money-back-guarantee or an equivalent, the B2C commercial return is the case.

Next we have the end-of-use and end-of-life returns. The returnable bottles with deposit money on it, are a well known example of an end-of-use return. But also lease cars can be characterized as end-of-use customer returns. The end-of-life returns refer to those products which are at the end of their physical or economic life. They are returned to the OEM, or other companies like brokers (‘ijzerboeren’ for example in the Netherlands) who collect them for value-added recovery.

The customer returns can be divided into five groups:

- B2C commercial returns (reimbursement/ other guarantees)
- Warranty returns
- Service returns (repairs, spare-parts, etc.)
- End-of-use returns
- End-of life returns

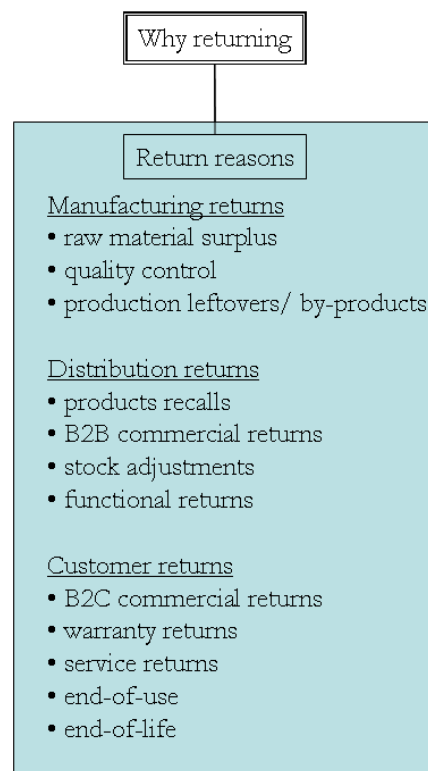


Figure 2.4: ‘Why returning dimension’
(source: De Brito, 2003)

2.2.3 What is being returned?

The ‘what is being returned dimension’ describes product characteristics and product types. This dimension considers what is actually being discarded or returned by the customer. In order to organize the returned products three product characteristics can be identified:

- Composition
- Deterioration
- Use-pattern

Composition

A substantial influence on the easiness of re-processing products is generated by the product composition. Not only the number of product components but also the way in which they are put together and the variety of different materials used in the product, will affect the easiness of disassembling and eventually the economics of reverse logistics activities. An example of a product which is designed for disassembly and has a high material homogeneity is the Herman Miller ‘Mirra’ chair (PeoplePlanetProfit.be). Features which also play a role for reverse logistics are weight, size and easiness of transportation.

Deterioration

A second characteristic of the product, which is of great influence for the recovery options, is the deterioration process the products undergo. De Brito (2003) states three questions that have to be asked in order to evaluate the recovery potential of the product: ‘does the product age during use?’ (intrinsic deterioration); ‘do all parts age equally, or not?’ (homogeneity of deterioration); ‘does the value of the product decline fast?’ (economic deterioration). Intrinsic deterioration can be appointed in the computer business, for example. The computer you buy today, will be outdated tomorrow. Eventually products may become obsolete, due to new technology, and will not be economically viable for recovery anymore. Next, the homogeneity of deterioration affects the recovery viability for the product as a whole. Products that are consumed totally during use, like gasoline, or products that are very sensitive to deterioration, make recovery very hard. If only part of the product deteriorates, recovery options like repair and parts replacement may be considered.

Use-pattern

The last characteristic of the product, which is of significant influence on the options for recovery, is the use-pattern of the product. This characteristic describes location, intensity and duration of the use. Location is of influence on the collection. It can make a great difference whether the product is used by an individual end-user or by an institution. The intensity of use can also differ. This intensity is not only defined by time, but also by the degree of consumption during the use. A clear example of a very low degree of consumption is the example of reading a book. One purchases a book, reads it and eventually keeps it in his/her bookcase. The intensity of use can play a role in case of product leasing. Normally, intensely used lease cars will not be leased anymore, and are sold on the market. However, new forms of leasing (re-lease, paragraph 3.1) appear, and the intensity of use suddenly plays another role. Chapter 3 will elaborate on this.

The ‘what is being returned dimension’ does not only describe product characteristics, but also the related product types. These types give in fact the first global impression on the potential status of the product when it reaches recovery.

Figure 2.5 on the next page summarizes both characteristics and types of the products for the ‘what is being returned dimension’.

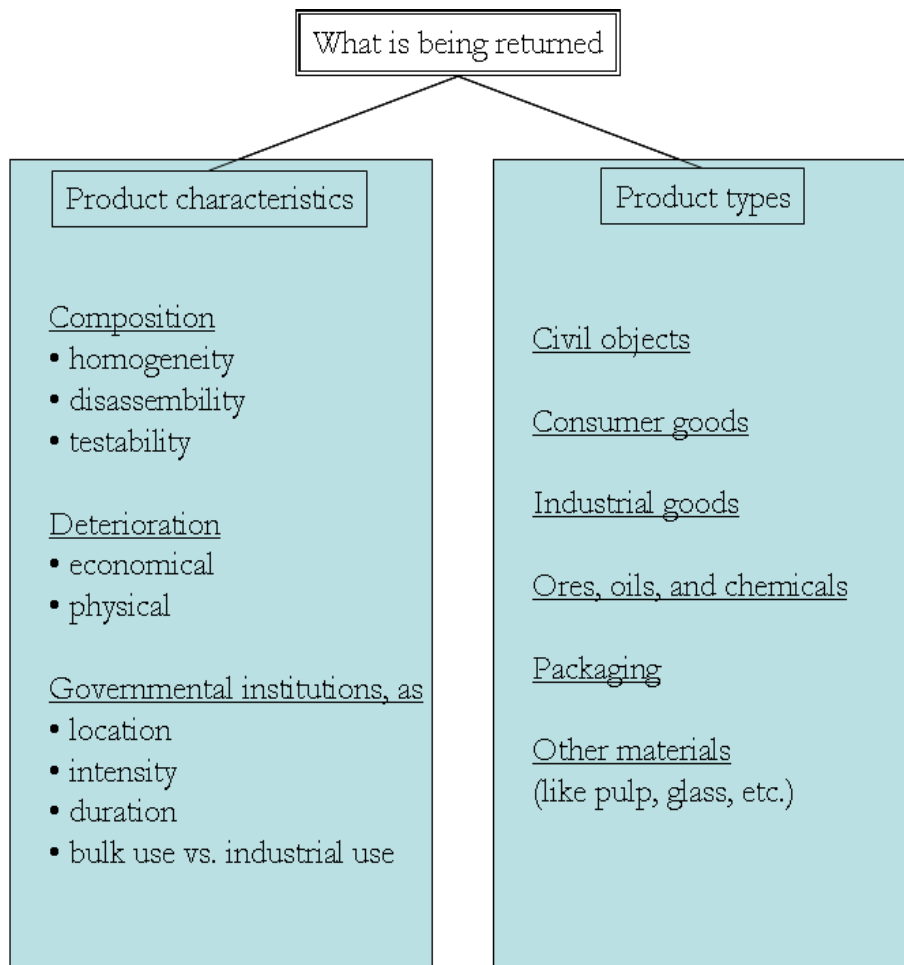


Figure 2.5: 'What is being returned dimension'
(source: De Brito, 2003)

2.2.4 How are products recovered?

The 'how are products recovered dimension' describes in fact the way in which reverse logistics works in practice. This recovery can be described along the line of five processes and two overall recovery options. The five processes are:

- Collection; bringing products from the customer to a point of recovery
- Inspection/testing; the products are inspected, their quality is assessed
- Selection; the products are selected for a specific type of recovery
- Sorting; the products will be sorted and eventually routed according to the decided on recovery option
- Recovery (itself)

After collection, the quality of the products is assessed. If this quality can be characterized "as-good-as-new", products can be put back into the market almost immediately: this is called *direct recovery*. If the level of quality is not "as-good-as-new" the product must experience more re-processing actions, and can not be fed into the market immediately: this is called *process recovery*.

Direct recovery

Direct recovery applies to products that are sold again, used again or re-distributed over and over again. The difference between *re-sale* and *re-use* is that in the situation of re-use there will be no purchase. Re-use applies to products like unused spare parts. *Re-distribution* refers to products like carriers, that are only distributed again and again.

Process recovery

In order to describe the process recovery option the level at which this recovery appears will have to be determined. These levels are:

- Product level
- Module level
- Component level
- Part level
- Material level
- Energy level

A product can be recovered as a whole, by being repaired at a product level. This is called *repair*. The next level is the module level. A product consists of several modules. A house for example consists of the modules 'roof', 'wall', 'window' etc. When the module 'roof' (product = house) is recovered, this is called *refurbishment*. The house gets upgraded, but not recovered as a whole. Next there is the component level. At this level the products are dismantled into components. These components can be used again or replaced by new components for the same product. This is called *remanufacturing*. For example the breaking down of a wall into its components: loose bricks. These bricks can be used again or replaced by new ones. The component level is 'followed' by the part level. This process recovery option is called *retrieval*. It involves a guided selection process of parts for recovery. At the material level, the products are grinded and their materials are sorted out and grouped according to quality criteria. This is called *recycling*. An example of such grinding and sorting is the glass recovery. The last process recovery option takes place at the energy level. The products are burned and the released energy is captured. This is called *incineration*.

The recovery options, mentioned in this paragraph, affect different parts of the organization. Direct recovery (re-use, re-sale, re-distribution) affects the distribution. Repair, refurbishment, remanufacturing and recycling affect the production planning. The last group of recovery options, recycling and incineration, is most likely outsourced by the company. So different actors will be involved in different options of recovery. This will be discussed in the following paragraph.

Figure 2.6 on the next page, illustrates the processes and recovery options discussed here.

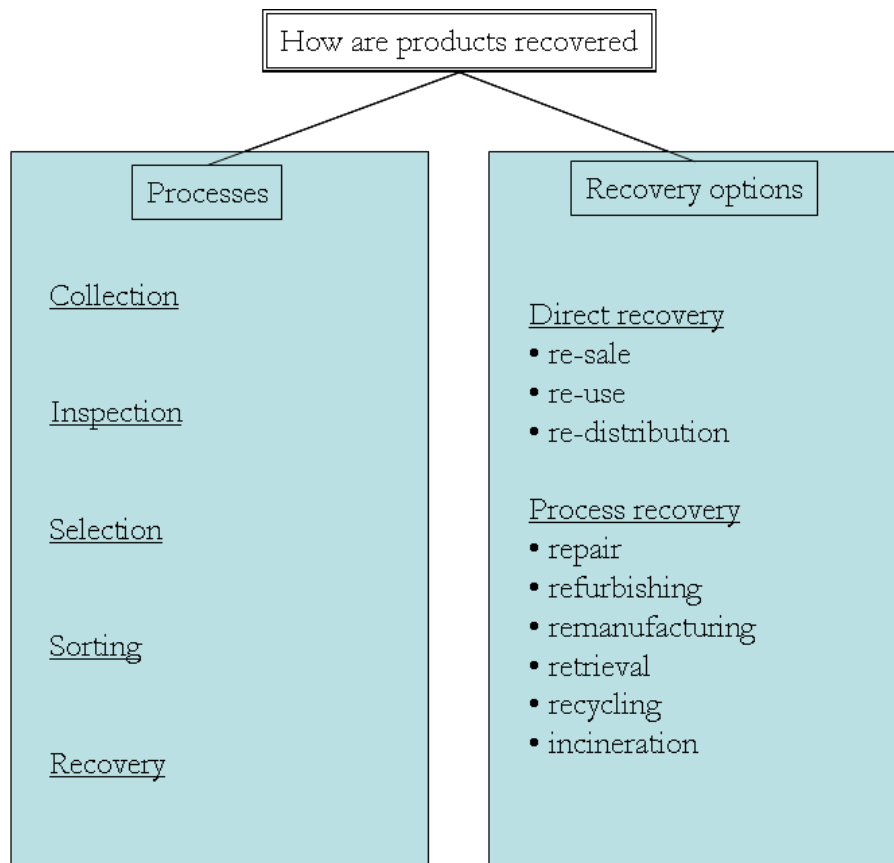


Figure 2.6: 'How are products recovered dimension'
(source: De Brito, 2003)

2.2.5 Who is doing the recovery?

The fifth dimension of the RLF is the 'who is doing the recovery dimension'. This dimension describes not only the most crucial players in the reverse logistics field, but also the role they play in this field. According to De Brito the following four groups of players are most crucial:

- Forward supply chain actors
- Specialized reverse chain players
- Governmental institutions
- Opportunistic players

These actors can play a role at three different levels, as Figure 2.8 shows. At the *managing/organizing level* actors are responsible for organizing the reverse network. These are players from the forward supply chain group, like the OEM. They can also be from the governmental institutions group, like the European Union. An example of such managing by the European Union is the WEEE directive (paragraph 2.2.1) which obliges the Dutch municipalities to facilitate take-back stations for inhabitants to drop their old electrical and electronic equipment, like refrigerators and washing machines (Europadecentraal.nl).

At the *executing level* players simply execute activities in the network: collect, process or re-distribute. These players can be OEM's, jobbers, retailers but also the municipality taking care of waste collection. The *accommodating level* can be seen as the market, the foundation from which the recovery gets its existence. So both sender/giver and future client.

Figure 2.7 gives an overview of the actors and their roles, as they are discussed in the ‘who is doing the recovery dimension’.

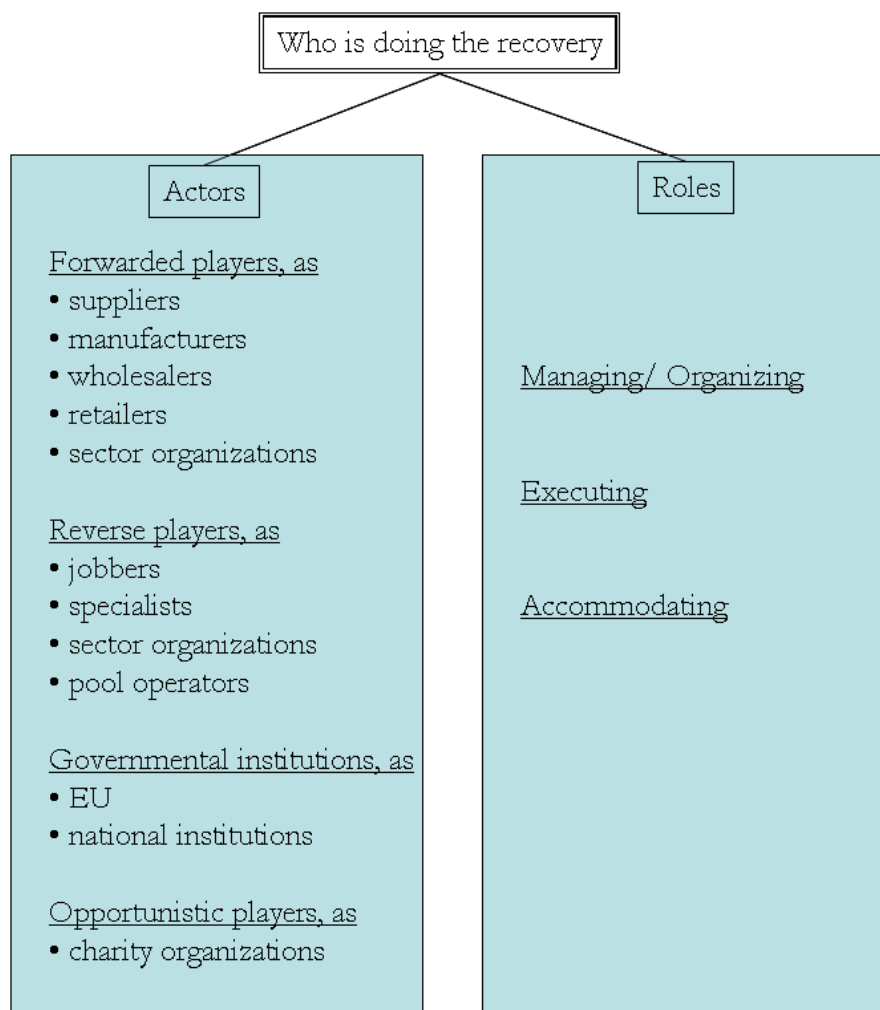


Figure 2.7: ‘Who is doing the recovery dimension’
(source: De Brito, 2003)

Figure 2.8 on the next page (adopted from De Brito (2003)) shows the type of players and levels in which they could participate in a reverse logistics network.

2.3 The framework relations

The skeleton of the RLF is composed of the discussed dimensions in the previous paragraphs. As can be seen in Appendix IV, these dimensions are related to each other in a specific way. The skeleton dimensions are connected by arrows, which have a pre-specified direction.

According to De Brito (2003) the product type and return reason are exogenous entities. They work as input for the decision making on how to recover and who is responsible for what in the reverse logistics network. These decisions are also influenced by the product recovery drivers. Different return reasons, product characteristics and different drivers cause many times to different recovery options and different roles played by the specific actors. As is already discussed in paragraph 1.9 the RLF is mainly used, by means of the five ‘dimension boxes’, to

describe the concepts of leasing in practice. The relations between these dimension boxes will not be included in the main text, but will be elaborated on in the Epilogue III part.

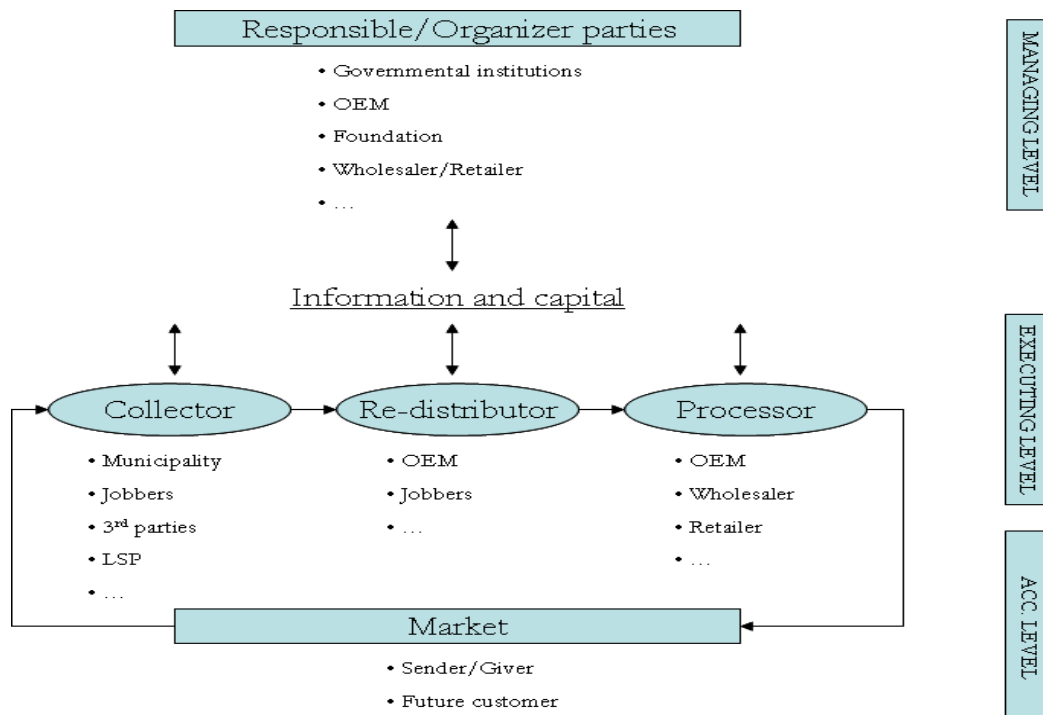


Figure 2.8: Type of players and their roles in reverse logistics
(source: De Brito, 2003)

2.4 SWOT analysis

As mentioned in paragraph 1.8 two Strengths, Weaknesses, Opportunities and Threats (SWOT) analyses will be used to construct recommendations on the concept of leasing for Eco-movement. Input for these SWOT analyses will be the information gained from the literature review on leasing, the data from the interviewed companies and the information from the in-house Eco-movement interview (see Figure 2.1).

The SWOT analysis involves the collection and portrayal of information about internal and external factors which have, or may have, an impact on business. Stacey (1993) describes the SWOT analysis as

a list of an organization's strengths and weaknesses as indicated by an analysis of its resources and capabilities, plus a list of the threats and opportunities that an analysis of its environment identifies. Strategic logic obviously requires that the future pattern of actions to be taken should match strengths with opportunities, ward off threats, and seek to overcome weaknesses. (p. 52)

The SWOT analysis is all about the recognition of the internal strengths and weaknesses, as well as the recognition of external opportunities and threats (Houben, Lenie et al. 1999). A good strategy ensures a fit between these internal and external dimensions.

Originally the SWOT analysis was developed as a management tool for the strategic planning and management of industrial and business enterprises. It has since been expanded to cover a much broader field of application. SWOT analysis can therefore be used in project

planning as a tool for exploring the constraints and opportunities of a project proposal, like the concept of leasing for the new Eco-movement electric scooter.

The SWOT analysis consists of the following four basic steps (Groenendijk and Dopheide 2003):

1. **external analysis:** to identify opportunities and threats

An *opportunity* can be defined as an external fact or development that, if taken advantage of, can substantially contribute to the realisation of the companies' mission. Examples of opportunities include new possibilities for cooperation, favourable government policies and regulations, the demand for new services etc. A *threat* can be defined as an external fact or development that has or can have a substantial negative effect on an organisations' performance. Examples of threats include other projects coming in with similar products, changes in sponsoring and governmental policies.

2. **internal analysis:** to identify strengths and weaknesses

A *strength* can be defined as an internal characteristic that contributes substantially to the realization of the company's mission. A strength is any internal asset (management, staff capacity/motivation, knowledge, etc.) well placed to help exploit opportunities (or demands) and fight off threats. A *weakness* is an internal characteristic that threatens the functioning of the organization. Weaknesses are internal conditions that erode the organisation's position, hamper cooperation with others or obstruct the exploitation of opportunities.

3. **generating alternative strategies**

Strengths, weaknesses, opportunities and threats can be matched/combined in order to arrive at a number of alternative strategies that may form the basis for further strategy formulation. Table 2.1 below gives an example of such matching: a SWOT matrix (adapted from Hunger and Wheelen (1997)).

Table 2.1: SWOT matrix

<div> <div>Internal factors</div> <div>External factors</div> </div>	Strengths (S)	Weaknesses (W)
	SO Strategies Generate strategies here that use strengths to take advantage of opportunities	WO Strategies Generate strategies that take advantage of opportunities by overcoming weaknesses
Threats (T)	ST Strategies Generate strategies that here that use strengths to avoid threats	WT Strategies Generate strategies here that minimize weaknesses and avoid threats

4. **formulation of strategic choice**

The sets of alternative strategies summarised in the SWOT matrix are further discussed and analysed. Gradually a 'synthesised' strategic choice will be defined and the trade-offs involved appraised. This strategic choice will be made by applying criteria to the options presented in the

matrix. These criteria, for selecting the best strategic option, will be developed in close cooperation with Eco-movement.

The SWOT analysis offers not only a consistent approach to identifying major strategic opportunities for Eco-movement, but it can also be a powerful tool in generating commitment among stakeholders (Groenendijk and Dopheide 2003). This commitment can be a good basis for the implementation of a project plan, like the concept of leasing for the new Eco-movement electric scooter. The SWOT analysis creates this commitment among stakeholders by taking the stakeholders' (external) criteria into account, and thereby reaching strategic priorities (for using major strengths and opportunities to tackle major weaknesses and threats) in a cooperative manner. It contributes to ownership of, and commitment to, the processes of strategy formulation and further action planning.

It is in particular this 'ownership/commitment generating' feature which makes the SWOT analysis a very workable tool in elaborating the recommendations for Eco-movement on the concept of leasing. Eco-movement operates in a new (yet upcoming) market segment and will therefore first of all depend on the acceptance of the electric scooter in general by the public and by potential investors (Deiters 2009). The current mobility market in the Netherlands is quite settled. Cars have been popular for decades and successful introductions of new products are mainly product variations (e.g. the Smart and the hybrid car) rather than radical breakthroughs. The implementation of external criteria by the SWOT analysis, can therefore contribute significantly to the overall acceptance and introduction of the electric scooter and leasing concept.

This SWOT analysis will therefore also look into the enablers and requirements for the 'take-off' of the electric scooter. Enablers like future legislation on home-work-home transport modality use, and requirements like infrastructure (e.g. charge points). The SWOT analysis used in this Thesis will therefore be extended with the dimensions:

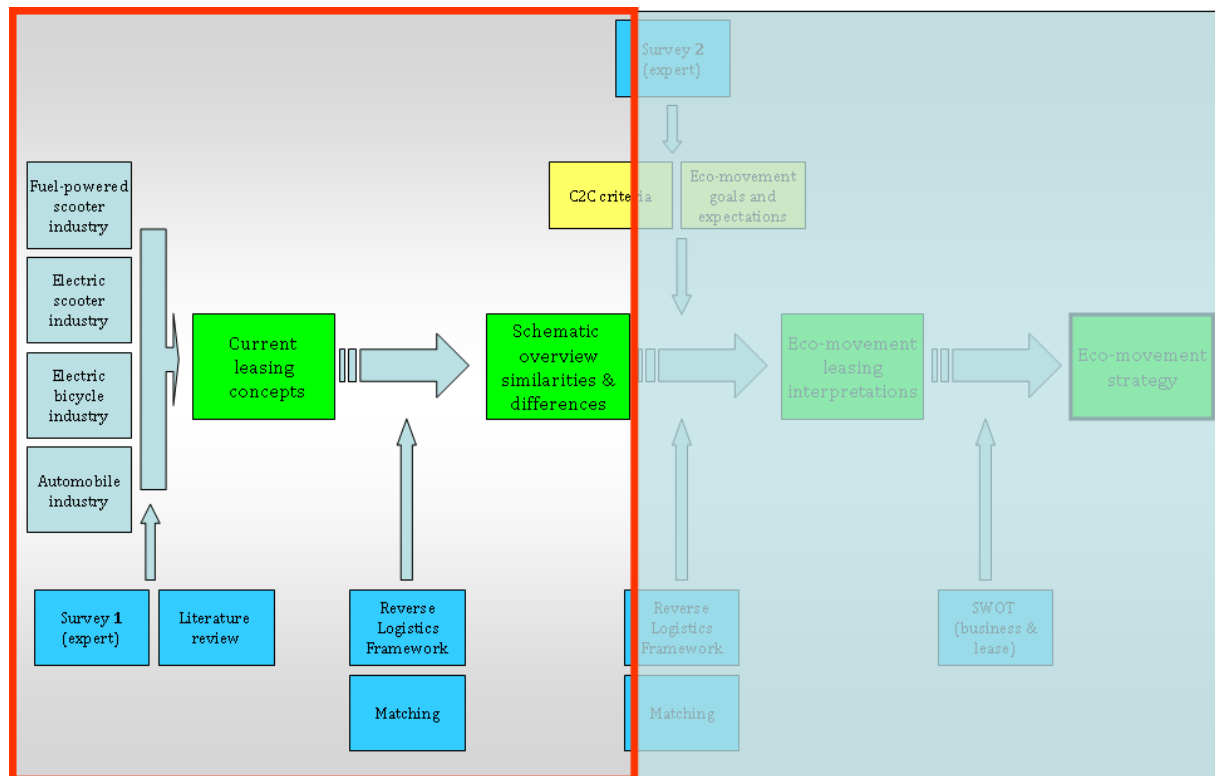
1. What would be enablers to let the electric scooter take-off?
2. What would be the sufficient and necessary conditions (requirements) for this take-off?

The two SWOT analyses (§5.1 and §5.3) involved the management team of Eco-movement, and an Industrial Design Engineering graduate student from Delft University of Technology. They all have the relevant knowledge and experience in the field of electric scooters and can thereby contribute in a substantive manner in both SWOT analyses. Concerning the SWOT-2 (leasing) analysis, the interviewed companies were indirectly included as well. This will be discussed more deeply in chapter 5.

One should keep in mind that performing a SWOT analysis can also have its limitations:

- It requires the commitment of the participants; the participants in this Thesis are all from the management team of Eco-movement. It is a group of young and excited entrepreneurs, searching daily for new opportunities for Eco-movement.
- SWOT analysis can easily be used in a limited sense, as mere list making; all of the SWOT elements will be discussed and filtered briefly during the brainstorm, before mounting them on the SWOT matrix.
- The adequacy of the strategies resulting from the SWOT, will be depending on the adequacy of the strategic factors identified in the analysis (brainstorm) phase; a great deal of self-reflection during the brainstorm session will be performed. The analysis results will also be compared to strategies which already function in practice.

Part I: The concept of leasing in general



3 Leasing concepts in practice

As mentioned in the introduction a wide variety of leasing concepts can be distinguished. This chapter will first discuss the various forms of leasing and leasing company property structures. Paragraph 3.2 will eventually discuss the leasing concepts in practice in four different passenger mobility industries: the automobile industry, the electric bicycle industry, the fuel-powered scooter industry and finally the electric scooter industry.

3.1 Forms of leasing

There are two main forms of leasing: *financial* and *operational* leasing. Next to these main forms of leasing we can distinguish four reasonably new and upcoming (sub) forms: *short*, *green*, *re-lease* and *sale & lease back* leasing (leaseofferte.nl). Figure 3.1 gives a schematic overview of the forms of leasing.

The two main forms:

Financial leasing can be seen as a contract for financing the investment. An investment like a scooter for example. The lessor provides the investment. The lessee rents the product by paying the contractual, periodic (investment) payments and after fulfilling the contract he will get the opportunity to buy the product. Often for a symbolic price. He will then be the lawful owner of the product. During the contract the product will be on the lessee's balance sheet and costs for maintenance, insurance and other service components will therefore be the lessee's own responsibility.

Operational leasing is of a similar construction, but the lessee will not be the owner of the product after the contract period (lening&krediet.nl). Operational leasing can be divided into *full operational* leasing (masterlease.nl) and *net operational* leasing (zibb.nl). With full operational leasing the lessee chooses a product, for example a BMW. The lessor will purchase the car and puts the car at the lessees' disposal for a specified sum, which must be periodically paid by the lessee. The lessor will keep possession of the car, and facilitates maintenance, repairs, vehicle replacement in case of accidents, and insurance. The full operational leasing concept distinguishes two types of contracts: the open calculation and the closed calculation (auto-leasen.nl). The open calculation will adjust to a final real costs overview at the end of the contract, while the closed calculation uses a fixed amount per month without the possibility to adjust to the real costs at the end of the contract period. A positive or negative operating result will be charged on the lessor in this closed case calculation. Main feature of the full operational leasing concepts is the fact that the product will eventually return to the lessor. Net operational leasing looks similar to full operational leasing, but maintenance, repairs and the claims department will be the responsibility of the lessee instead of the lessor. Still, the product will eventually return to the lessor, as was the case with full operational leasing. Appendix III, Table III.1, presents a schematic overview of the main differences between operational and financial leasing.

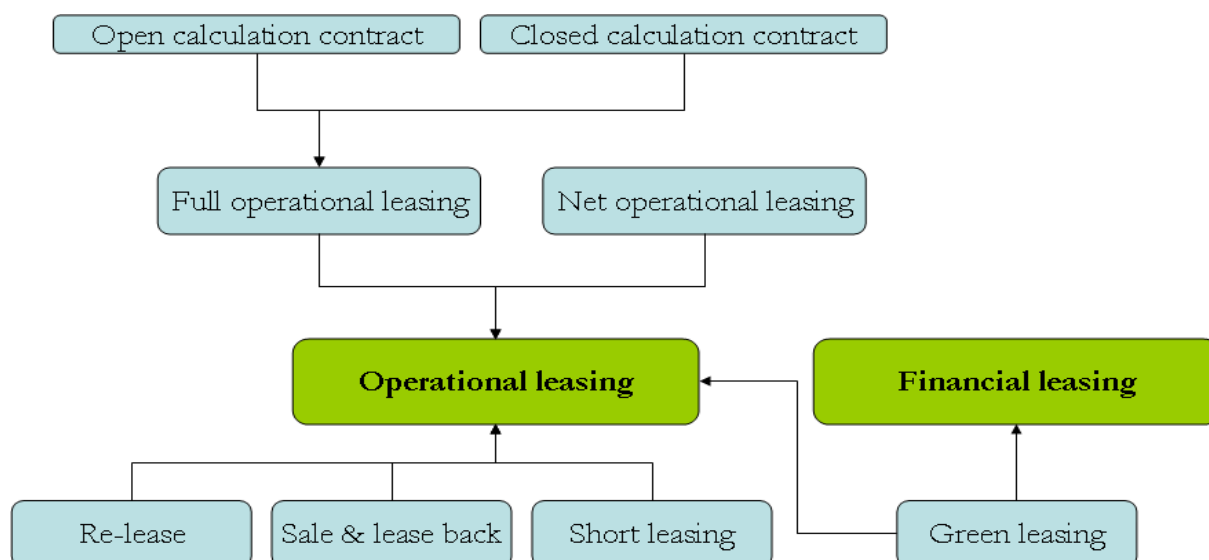


Figure 3.1: Schematic overview forms of leasing

The four reasonably new concepts of leasing are *short*, *green*, *re-lease* and *sale & lease back* leasing. Short lease is a combination of the practical advantages of operational leasing (the extensive service possibilities), and the freedom of the concept of renting. Short lease is however cheaper than renting and a little bit more expensive than operational leasing. The term period of the short lease contract is its characterizing feature: from a minimum of 1 month till a maximum of 12 months. If the contract has to be ended because of employee dismissal for example, short lease can support this without the risk of fining (zibb.nl). The average term of a standard operational lease contract is between 36 and 48 months, and therefore less flexible (VNA 2007).

Re-lease is in fact taking over an already existing lease contract (leaseunlimited.nl). The lessee will receive a 'second-term' lease car and the contract term will be shorter than the usual operational contract term, but the lessee will receive the price advantages of a long-term contract.

Green lease anticipates on the increasing environmental consciousness of society. Environmental friendlier products like cars with an A, B or C level⁶ energy label can be 'green' leased (autotrack.nl). This can have a positive impact on the environment and on the tax addition of the lessee (energielabel.nl). Green lease can be operated on an operational lease or financial lease base.

Sale & lease back is a concept by which the 'lessee to be' owns or buys a car, sells it to the lease company and then leases it back (terbergleasing.nl). In this way the former car owner can outsource the responsibilities for his fleet management and adjust the 'on-balance' fleet to an 'off-balance' fleet (see also Appendix III).

Two final remarks on the leasing forms discussed above: first the lessee can be a corporate as well as a private 'person', although corporate leasing is generally the most common form of leasing. A second remark is the fact that operational leasing contracts, as well as financial leasing contracts, and their discussed sub forms, can be mutually divergent. The concept 'behind' the contract is the same, but the specific interpretation can be extended with a lot of extra options. For example an operational leasing contract can be extended with a guarantee in case of theft, or a financial leasing contract can be formulated with no closing payment for the lessee to finally acquire the subject of lease.

⁶ A is the label for lowest energy use, G for highest energy use.

3.1.1 Lease company property structure

An industry which adopted the concept of leasing long ago is the car industry. In the Netherlands a total of well over seven million cars is registered (CBS.nl) from which around 675.000 are lease cars or delivery vans (ND.nl). These lease cars and vans are managed by approximately 82 lease companies who take care of the lease processes and the day to day fleet management of their lessees (vna-lease.nl). The property structure of these companies is contributory to the way they operate and present their products in the lease market (fleetmotive.nl). Therefore not only the forms of leasing will be discussed in this chapter, but also the most common property structures of these lease companies will be briefly described.

Bank affiliated lease companies: these companies are the property of banking institutions. Because of their near position to the source of money, the interest rate they generally apply in their contracts can be favourable in comparison to other property structure contracts. For example ING Car Lease (INGcarlease.nl).

Dealer affiliated lease companies: these companies are bound to one or more dealers, mostly merged in a dealer holding. Their specialization is the leasing of brands which they represent as a brand dealer. The concept of leasing is used to promote the sales of the particular dealer. For example M. de Koning Autolease (mdekoningautolease.nl).

Multi-brand lease companies: these companies are brand or bank independent and offer a wide variety of products and services for all brands. They present themselves emphatically as the independent operating leasing party. For example DutchLease (DutchLease.nl).

Captive lease companies: these companies are joined with, or bound to a specific brand which uses the concept of leasing to stimulate sales figures of that particular brand. For example Peugeot Lease (peugeot.nl).

3.2 Passenger mobility industries

Paragraph 3.1 discussed the different forms of leasing and lease company property structures found by performing a primarily web based review. These leasing forms and property structures will serve as a formal basis for the following four sub-paragraphs. Each sub-paragraph will discuss an individual passenger mobility industry which adopted the concept of leasing. From each of these industries a substantial part of information is gained by expert interviewing in the particular industry-related company. For an example of such an interview lay-out and structure see Appendix VII. The sub-paragraphs will also focus on the interpretation of the RLF of De Brito (2003) by the different interviewed companies. The RLF can be found in Appendix IV. The discussed dimensions (paragraph 2.2) can be interpreted and interrelated differently in each of these companies. Different return reasons, product characteristics, and different drivers seem many times to lead to different recovery options and actors. For each situation the framework can be used to identify the problematic issues and the associated decision-making areas. This information will eventually be used in chapter 4, where the main similarities and differences between these industry leasing concepts will be discussed and presented in a transparent and schematic way.

3.2.1 Automobile industry

The most common example of such a lease contract is the standard car lease contract. In this automobile industry, we can distinguish a great number of leasing companies. As is already stated in paragraph 2.1.1, the company *Athlon Car Lease* will be the subject of discussion in this Thesis.

Athlon Car Lease is a powerful and diverse corporate lease company with over 129.000 lease cars in their portfolio. By these numbers, they are the second biggest lease company in the

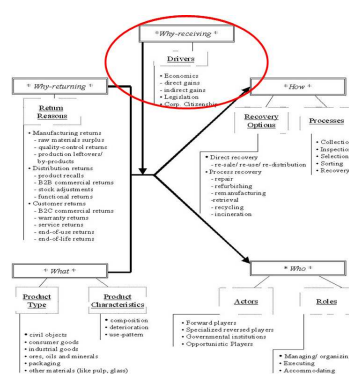
Netherlands. LeasePlan is with over 130.000 lease vehicles the biggest lease company in the Netherlands (leasetrader.nl). Next to the different leasing concepts⁷, Athlon Car Lease also offers rental contracts via their own rental department Rental Services (athloncarlease.com). Athlon Car Lease has over 600 employees working at the different establishments throughout the Netherlands, and is part of the 'De Lage Landen Internationaal', a 100% subsidiary company of Rabobank.

Athlon Car Lease is not only playing the plain lessor role, financing or operating the subject of lease, they are also trying to establish a more sustainable mobility market. For example by developing sustainable and clean mobility solutions, like the program called 'Charged'. Charged is a development program for future possibilities on leasing electric vehicles. This program is regrettably still in its infancy and not fully operational. A concept which could contribute to a more sustainable mobility market in the current situation is the re-lease concept offered by Athlon Car Lease. This concept is based on full operational leasing and embraces the idea of second-hand use of cars. Due to this second-hand feature Athlon Car Lease can, for example, offer the customer very competitive rates in combination with a short lease term (12 months instead of the normal 36 months term).

The lease concept, as it is offered by Athlon Car Lease, has the following operational design (in short): the customer can either choose a car from the list presented by Athlon Car Lease, or can propose one him/herself. Athlon Car Lease will subsequently try to find this specific brand. If they cannot find it within 2 months, the search assignment expires. Eventually the lease contract will have a 12 month minimal term, and has all the 'normal' operational lease contract features: insurance, maintenance, repair, substitute transport and so on. It is the 'second-hand lease car feature' which makes this specific lease contract stands out.

RLF Interpretations Athlon Car Lease

After the brief introduction above, this part will elaborate more on the specific RLF interpretations of Athlon Car Lease. Each dimension⁸ will be discussed as extensively as possible.



Why receiving?

As mentioned in the introduction Athlon Car Lease is not only playing a plain lessor role. They are also trying to establish a more sustainable mobility market. With over 129.000 cars in their portfolio, Athlon Car Lease has a significant share in the total Dutch CO₂-emissions. They specifically state in the company's mission, that they will take responsibility for facilitating concrete solutions for these adverse consequences: one of these solutions is the re-lease concept ([source: interview with K. Aksular](#)). This concept can therefore be characterized by two points of view (driving forces): the economical and the corporate citizenship view.

The economical view behind the Athlon Car Lease aim for a more sustainable mobility market, by offering the re-lease option, is based on the possibility that the car in the near future will otherwise not be a realistic transport alternative anymore. Because of stringent environmental regulation for example. If such a future will evolve, Athlon Car Lease will not survive. The corporate citizenship driving force is tightly related to the economical and comprehends the second-hand feature of the re-lease contract. In this way Athlon Car Lease not only keeps control over the subject of lease during and after the lease term, but they also facilitate the control of ex-lease cars.

⁷ Athlon Car Lease offers full operational, net operational, financial and re-lease contracts to the customer.

⁸ The RLF figures in the text (§3.2.1 – §3.2.4) are just for illustrating which specific part of the RLF is discussed.

The subject of lease, the second-hand car which contributes to a more sustainable mobility market, can therefore be characterized by the corporate citizenship driving force. Offering the re-lease concept, and thereby keeping the car as a realistic transport alternative, can be characterized by the economical driving force. The re-lease concept could attract more customers, due to its competitive rates, and thereby ensure a viable future for Athlon Car Lease.

Why returning?

This dimension can have different interpretations. First of all we can mainly distinguish the customer returns, end-of-use (end-of-lease) returns. These returns occur at the end of the generally shorter re-lease term. This short lease term is one of the advantages of the concept of re-lease: the lessee receives an as-good-as-new lease car, for a competitive rate in combination with a short lease term (athloncarlease.com). This could significantly contribute to the flexibility of the lessee, as is discussed in paragraph 3.1, and it could generate a tax advantage because of the yearly increasing costs of new cars in comparison to the costs of the second-hand

cars used in this re-lease concept (source: interview with K. Aksular).

Athlon Car Lease also offers potential customers the opportunity to return their ex-lease cars (expired lease contracts) to Athlon Car Lease for free, when they choose to operate the re-lease option. Athlon Car Lease will subsequently arrange the selling, or re-leasing of these cars. So the lessee can outsource this process, and focus on its core businesses.

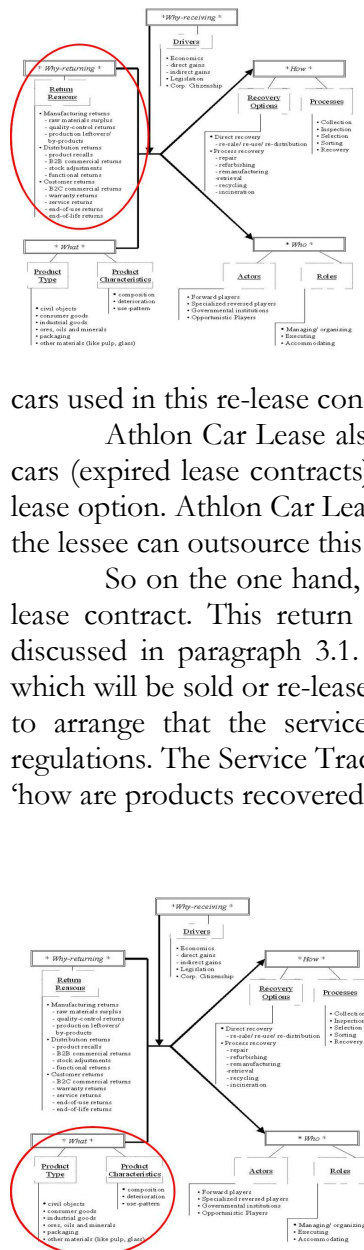
So on the one hand, the subject of lease returns because of the ending of the operational lease contract. This return is predefined and a result of the operational lease characteristics, discussed in paragraph 3.1. On the other hand, Athlon Car Lease also receives ex-lease cars, which will be sold or re-leased again by them. Finally the lessee is obliged, by means of a contract, to arrange that the service and repair returns will be performed according to the factory regulations. The Service Track feature accommodates this obligation. This will be discussed in the 'how are products recovered dimension'.

What is being returned?

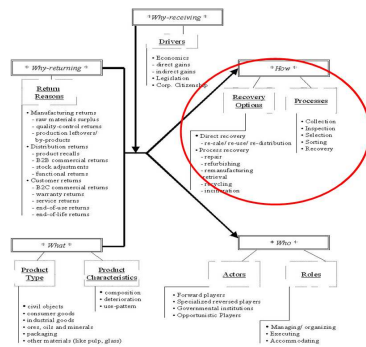
Athlon Car Lease generally operates the following 'lease term/ yearly kilometres' (kilometrage) rate: petrol and LPG 36/25.000, diesel 36/30.000. This means that in case of a petrol powered car, the lessee can cover 25.000 kilometres per year during a 36 months lease term for a predefined lease rate. It depends on the form of calculation (open or closed, paragraph 3.1), what will happen when the lessee exceeds the number of kilometres. The open calculation will adjust to a final real cost overview at the end, the closed calculation will in this case harm the lessor.

The cars, which qualify for the re-lease concept, are carefully selected on age, mileage, technical and apparent condition. Besides, the re-lease car is not older than 2 years, and has covered an average distance of 60.000 kilometres. In combination with the predefined 'lease term/yearly kilometres' rate, Athlon Car Lease can predict the use-pattern of the subject of lease pretty accurately. Regarding the deterioration of the cars, one of the most vulnerable components is the tire. The full operational lease contract does include this fast deterioration and has extra contract features dealing with this product characteristic.

Although the use-pattern can be predicted pretty accurately, it is still hard to precisely describe the characteristics of the returned products, in this case the characteristics of the re-lease



cars. Athlon Car Lease has its own portfolio of cars, but the lessee can also propose one him/herself. First this car must be available and applicable to the concept of re-lease. This will be thoroughly checked upon by Athlon Car Lease. Nevertheless, the possibility to choose a non-portfolio car by the customer, makes the returned product characteristics pretty diverse. This will eventually have its impact on the 'how are products returned' and 'who is doing the recovery' dimensions.



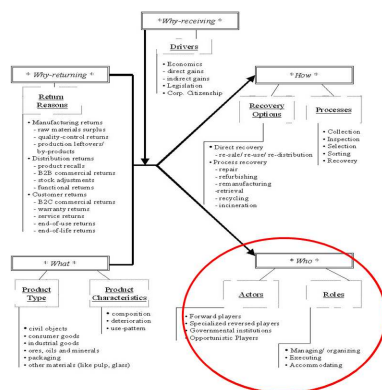
How are products recovered?

Athlon Car Lease operates in a cooperative network of associated dealers and service stations. Recently they opened their own Athlon Car Lease Service Centre in Lisserbroek (athloncarlease.com). With this service centre Athlon Car Lease also offers the lessee an in-house maintenance and repair concept. Next to this in-house concept, the customer can also choose a brand affiliated dealer, a multi-brand affiliated dealer or a fastfitter⁹ for arranging the periodic maintenance and repairs. A comprehensive network, which nevertheless can easily be arranged

by the Service Track feature, presented by Athlon Car Lease on their website. The customer only has to apply the brand of the lease car and his/her postal code, the Service Track software will subsequently match the lessee with an associated dealer or fastfitter nearby.

The recovery processes responsibility distribution is therefore mainly depending on the preferences of the lessee. Both Athlon Car Lease and the associated dealers/service stations can operate the recovery processes: collection, inspection, selection, sorting and final recovery.

Regarding the recovery options, the re-lease concept could be characterized as direct recovery. The second-hand car will in fact be re-used in a new lease contract. But before the car will enter this concept of leasing, it will go through a technical check-up, the interior as well as the exterior will be cleaned and possible damage will be repaired. So, the re-lease concept can better be characterized as process recovery.



Who is doing the recovery?

As is already mentioned in the previous dimensions, the lessee can play a significant role in the network of Athlon Car Lease. This lessee first of all has the possibility to choose a car which is not in the portfolio of Athlon Car Lease. Second the lessee can personally arrange the dealer or fastfitter for the recovery options and processes. These dealers thereby play a mainly executing role. They have committed themselves, by means of a contract with Athlon Car Lease, to manage the service and repair returns. Athlon Car Lease itself plays a managing and accommodating role by for example organizing the lease contracts and software

like Service Track and Repairnet. By presenting this software they also organize the network of associated dealers and fastfitters. Athlon Car Lease can also play an executing role, of which the recently opened Athlon Car Lease Service Centre in Lisserbroek is a clear example. Athlon Car Lease will, by this in-house service and maintenance concept, have to arrange the recovery processes themselves.

⁹ Examples of fastfitters are: Kwik-Fit, Euromaster, Profile Tyrecenter.

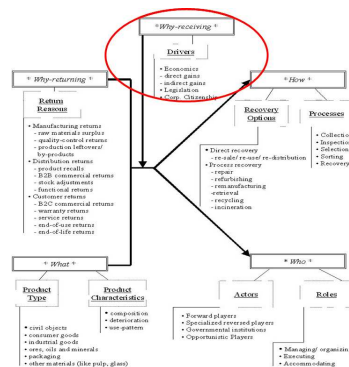
3.2.2 Electric bicycle industry

For information about the implementation of the concept of leasing in the electric bicycle industry an interview is performed within the company *Electric Bikes Lease b.v.*. This interview (in Dutch) can be found in Appendix VII. This company, situated in Soest, has a 60 year-experience within the Dutch bicycle business. Their main goal is to bundle forces and thereby offer companies a solution in the problem areas of (car)parking facilities, high refunding of travelling expenses and stressed employees. EB-Lease offers a full operational electric bicycle lease contract. They only offer corporate lease contracts. These lease contracts cover all costs for repair and maintenance, as well as a three year guarantee in case of theft.

The lease concept, as it is offered by EB-Lease, has the following operational design (in short): a customer (company) chooses an electric bike dealer¹⁰, next a choice will be made on the specific electric bike for the company from the dealer collection, finally the lease contract administrative transaction will be settled by the dealer and EB-Lease (eb-lease.nl). The dealer will deliver the bikes to the company within a couple of days. At the end of the lease contract (always a fixed 3 year lease term), the electric bikes will not return to EB-Lease, but will return to the dealer. The dealers, which are associated with EB-Lease, committed themselves (by means of a contract) to repurchase the bikes from EB-Lease after the lease contract. The repurchased bikes can then be resold again by the dealer. EB-Lease states that the electric bikes they offer, can be used approximately 20.000 km with the original battery (in case of proper use). An employee of the lessee, who lives around 15 km out of his daily job, will cover around 7.000 km during the lease contract. The private person which purchases the bike after the lease contract will therefore still have a lot of fun from this bike for the following years (source: interview with J. Brouwer).

RLF interpretations Electric Bikes Lease b.v.

After the brief introduction above, this part will elaborate more on the specific RLF interpretations of EB-Lease. Each dimension will be discussed as extensively as possible.



Why receiving?

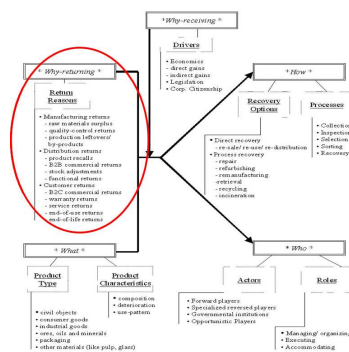
EB-lease states that all three driving forces, as discussed in paragraph 2.2.1, apply to their strategy of corporate leasing of electric bicycles. The economic driving force is mainly of indirect effect: a green image (for both the lessor and lessee), as well as the anticipating on future legislation. The direct effect is generated by the high value represented by the end-of-use (end-of-lease) electric bicycle, although this also affects the dealer. The dealer will eventually buy-back the electric bicycle from EB-Lease before selling it again on the market. So both EB-Lease and the specific dealer will benefit from a high level recovery. As mentioned above,

the bike will cover around 7.000 km during the lease contract, while the original battery can be used approximately 20.000 km. The responsibility for maintenance and repairs during the lease contract term will be for the dealer. This seems in accordance with the fact that the dealer will mainly profit from the re-selling of the electric bicycle after the lease contract. The dealer is thereby 'obliged' to cover these processes in a decent manner. This will be discussed more in the 'how are products recovered-dimension'.

The legislation driving force refers to future legislation on the prohibition of using the car as a home-work-home transport modality for employees that live in a range of 15 km (maximum) of their daily working facility (source: interview with J. Brouwer). This legislation could enforce

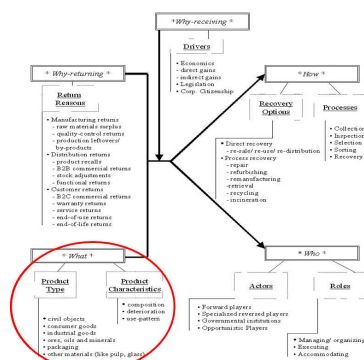
¹⁰ 44 electric bicycle dealers are associated to EB-Lease in the area of Utrecht and Rotterdam.

the demand for sustainable hybrid and electric transport, like in the area of Amsterdam ([NU.nl](https://www.nu.nl)). EB-Lease will not directly be effected by this legislation, but anticipates on it in an economic driven way by offering companies an electric alternative.



Why returning?

As mentioned above, the electric bicycles will not return to EB-Lease, but will return to the dealer. The dealers, which are associated with EB-Lease, committed themselves (by means of a contract) to repurchase the bikes from EB-Lease after the lease contract. The ‘why returning dimension’ applies therefore mainly to the associated dealers. These dealers only receive customer returns, like service/maintenance returns and the end-of-use (end-of-lease) electric bicycles. They are strongly committed to arrange these returns, while they will have to buy-back the electric bicycles at the end of the lease contract and gain profit from re-selling them on the market again. The standard service returns are obviated with an extra warranty coverage. The end-of-use electric bicycles normally return to the dealer after the standard 3 year lease term. This will be discussed in the ‘how are products recovered dimension’. Distribution returns do not apply to EB-Lease, but could apply to the dealers, who are in direct contact with the wholesalers.



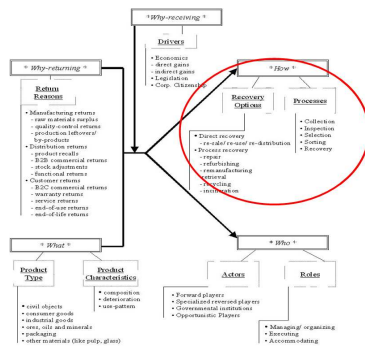
What is being returned?

The ‘what is being returned dimension’ can be described by looking at the characteristics and types of the returned products, as discussed in paragraph 2.2.3. These returned products, the electric bicycles, have a specific composition, deterioration and use-pattern. Related to these characteristics are the product types, which in this case are only consumer goods. Concerning the composition and deterioration of the electric bicycle, the main product component is the battery. This battery ages generally quicker (in case of high frequent charging) than other components, like the frame and the brake cables ([source: interview with J. Brouwer](#)).

The battery is therefore easily accessible and removable. It depends on the brand and type of the bike where the battery is positioned ([gazelle.nl](https://www.gazelle.nl)). But in general it is positioned directly under the luggage carrier or attached to the frame right under the saddle pin. A second component that has an effect on the level of homogeneity of deterioration is the tyre. This deterioration is directly linked to the use-pattern of the bicycle, which can be estimated pretty accurate because of the fixed corporate lease contract term. EB-Lease estimated that a standard electric bicycle will cover around 7.000 km during the fixed 3 year lease contract. The standard tyre used on these bikes has a life expectancy of 5.000 km ([bike4travel.nl](https://www.bike4travel.nl)). This deterioration and use-pattern will therefore be of significant influence on the re-selling price, which can be asked by the dealer.

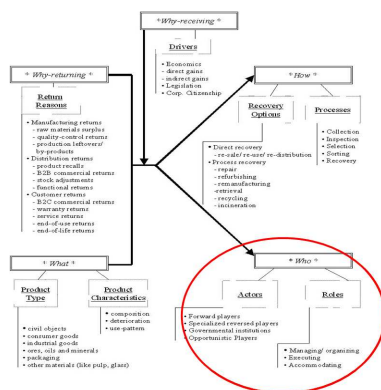
How are products recovered?

This section deals with the way in which value is recovered from the returned products. First of all, the electric bicycles need to be collected, inspected/tested, selected, sorted and then the actual recovery can be performed. This recovery can be a direct or a process recovery. As already mentioned, the electric bicycle will not return to EB-Lease, but to the dealer. The responsibility for the collecting/inspecting/testing/selecting/sorting processes is outsourced by EB-Lease, and



will therefore be for the associated dealer. The dealer is both responsible for the actual maintenance during the 3 year lease contract term, as well as keeping the customer to the pre-specified service returns. EB-Lease will check upon these processes strictly, while the market value of the electric bicycles (economic gain EB-Lease), at the end of the lease contract, will be depending on these maintenance operations. Eventually the recovery can be of a direct form, or of a process form. If the quality is ‘as-good-as-new’, the bicycles can be fed into the market immediately through direct recovery. If not, other types of recovery may be involved

but now demanding more action. Initially, one could state that the electric bicycle recovery will be of a direct form. The bicycle is re-sold immediately after the lease contract. However, this will for a great part depend on the maintenance results during the lease contract term, and the level on which this maintenance is performed. These levels are discussed in paragraph 2.2.4: product, module, component, part, material or energy level. In this case the battery (component level) plays a significant role, while this is the key component of the electric bicycle.



Who is doing the recovery?

From the previous discussed framework dimensions it can already be stated that to a large extent EB-Lease has an accommodating role. They arrange the lease contracts, and part of the administrative transactions between the dealer and customer. The consumer chooses the dealer, orders an electric bicycle, and the dealer finally arranges the completion of the administrative transactions with EB-Lease. These associated dealers play an executing, accommodating and organizing role in the lease network. Executing and organizing by dealing with all processes (discussed in the previous dimension), like collecting and service. Accommodating by arranging the electric bicycles

and the administrative transaction for the customers of EB-Lease. It is difficult to pin-point the main role played by the dealers, but it can be stated that they play a crucial role in the network. The governmental institutions play an organizing role, by for example the issuing of legislation on home-work-home transport modality use. Finally the customers play an accommodating role, while they form the market and without whom recovery would not make much sense.

3.2.3 Fuel-powered scooter industry

For information about the implementation of the concept of leasing in the fuel-powered scooter industry an interview is performed within the company *BOKA Scooter Rentals*. BOKA is originally a company that only rents out scooters in the city of Amsterdam (scooterrentals.nl). They adopted the idea of scooter rental, from big European cities like London and Paris, and Asian cities where the scooter is the most common used transport modality. BOKA states that the city of Amsterdam still doesn't adopt the scooter enough as a useful inner-city transport modality.

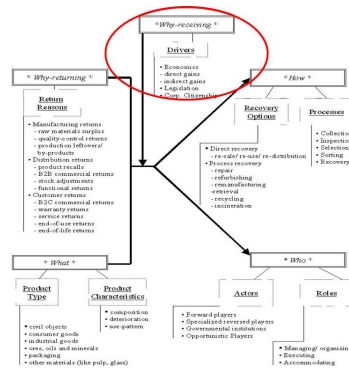
Not that long ago BOKA decided to also offer lease contracts ([source: interview with J. Slats](#)). They offer a full operational scooter lease contract for corporate customers. (Rental contracts exist for both corporate and private customers.) The lease contract covers maintenance, repair and insurance.

The lease concept, as it is offered by BOKA, has the following operational design (in short): the BOKA lease concept can be characterized as an extended rental contract. The minimal

term of the lease contract is 3 months, comparable to the short term lease contract discussed in paragraph 3.1. The maximum term of the lease contract is 24 months. BOKA also offers the customer the possibility to purchase the scooter at the end of the lease contract for 60% of the market value of the scooter.

RLF interpretations BOKA Scooter Rentals

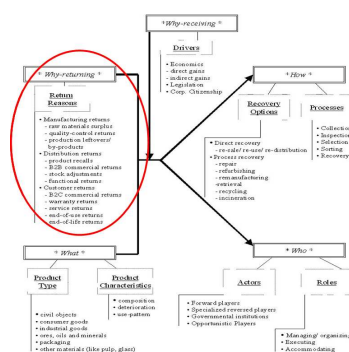
After the brief introduction above, this part will elaborate more on the specific RLF interpretations of BOKA. Each dimension will be discussed as extensively as possible.



Why receiving?

BOKA states that both direct and indirect economic gain can be depicted as the main driving forces for their strategy of corporate leasing of fuel-powered scooters. The direct economic effect is caused by the fact that BOKA will generate turnover during the whole year, due to the fixed monthly payment by the lessee. Turnover will therefore be generated even in the off season of their (mainly¹¹) rental oriented market. This market flourishes during the spring and summer months, but generally decreases in times of bad weather conditions in the autumn and winter. The indirect gains will be generated by an improved customer relationship. BOKA

states that due to the economical recession, the possibility of a staggered payment (as this is a specific lease concept characteristic) could be very attractive for their customers. A second indirect gain is the endeavour to protect the specific market by also offering the possibility to lease the scooter, next to the renting out of the scooter. The market can be influenced by the threat of possible new entrants (Porter 1980). An example of such a new entrant is Hertz Car Rental in Amsterdam (hertz.nl). They currently admitted the (electric) scooter in their range of products. (Hertz originally rents out cars and delivery vans.) While BOKA already has the knowledge on this specific market segment (rent), they could further protect their market by extending the options for the customer. And thereby improving their customer relationship and customer attraction.



Why returning?

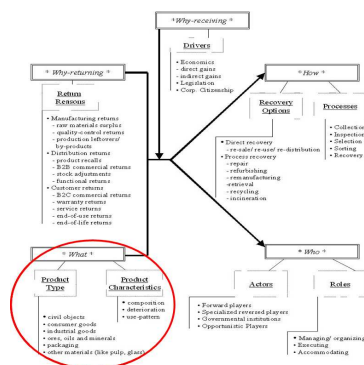
Similar to the previously discussed EB-Lease case, BOKA also only receives customer returns. These scooters directly return to their only establishment in Amsterdam, and can be characterized as 'rented' as well as 'leased' scooters. Next to the maintenance and service repair coverage by the lease contract, BOKA also offers the client a replacement scooter during these repairs. This could encourage the customer to return the scooter to BOKA for these repair and maintenance operations, instead of fixing it themselves

or not returning it at all. Eventually at the end of the term, the scooter will have to be returned in the same condition as it was delivered by BOKA. This is settled by the contract which is agreed upon by the lessor and lessee.

Not all scooters will be returned at the end of the lease contract. The client can purchase the scooter for 60% of its market value. It can already be stated that this purchase-option is

¹¹ BOKA implemented the concept of leasing May/June 2008.

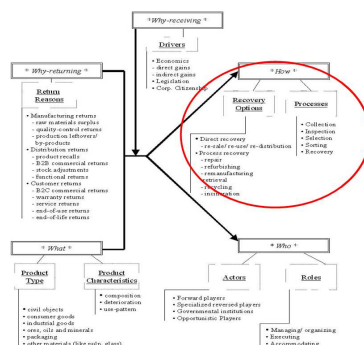
therefore not in accordance with the C2C requirements of this Thesis (see Figure 1.2, for example). This will be discussed more deeply in chapter 4 and 5.



What is being returned?

As mentioned in the brief introduction about BOKA, the lease term can vary between 3 months (minimum) and 24 months (maximum). This range in time has a significant effect on the returned product characteristics. The economical and physical deterioration of a '24 month lease scooter' is at a far more advanced stage than the deterioration of a '3 month lease scooter'. This goes for the use-pattern too. In general the '24 month lease scooter' intensity and duration of use will be much higher than the '3 month lease scooter' intensity and duration of use. This will be

of influence on the recovery options, discussed in the 'how are products recovered dimension'. Concerning the product composition, BOKA currently only offers 1 type of scooter¹² for lease. So each scooter will have the same number of components, which is of direct influence on the easiness of maintenance. Main issue in the 'what is being returned dimension' for BOKA is the wide range of different lease contract terms, which is of significant influence on the recovery options. The 'what is being returned dimension' also describes the product type, which is in this case the consumer good type.



How are products recovered?

As will be discussed in the next dimension, BOKA is responsible for all of the recovery processes mentioned in paragraph 2.2.4. First of all, the scooters need to be collected at the establishment of BOKA in Amsterdam. Normally the customers will return the scooters themselves, as is agreed upon by both parties by means of a contract and a cash deposit. The customer pays this deposit, which will be returned at the end of the contract. At this point the scooters will be inspected on their quality by BOKA, or on the market value when a customer decides to purchase the scooter.

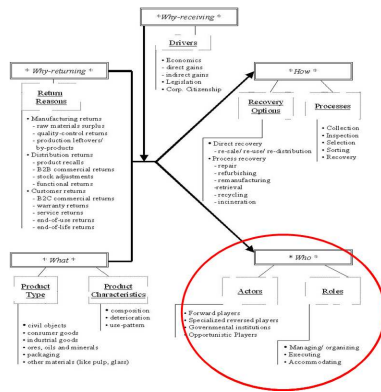
This sale can be seen as direct recovery: re-sale. In case of an end-of-use (end-of-lease) return the scooter will be inspected on its condition, while this may not differ from the original condition at the beginning of the term. Depending on the lease term (varying between 3 and 24 months) other types of recovery may be involved, but now demanding more action: the process recovery. This process recovery occurs at different levels, but in case of BOKA mainly on the component and part level¹³, and is handled by in-house specialists. After these recovery processes the scooters will be rented out or leased again by BOKA. Scooters that do not fulfil the requirements to re-enter this lease market, will be sold in the store or on internet.

Who is doing the recovery?

BOKA specifically states that they play a managing, executing and accommodating role within the concept of leasing, as it is offered by them. This role differs significantly from the role played by EB-Lease, discussed in the previous section. (These differences, and similarities, will be discussed on more deeply and in a convenient arrangement in chapter 4.) BOKA finances the

¹² This scooter is the Sym Fiddle II (50cc, max. speed 30km/h)

¹³ The 'component level' is described by De Brito as *remanufacturing*. The 'part level' is described by De Brito as *retrieval*.



scooters from their own funds and the lease contract is therefore directly formed between BOKA (the lessor) and the specific company (the lessee). No third party is directly involved in this process.

The managing structure of BOKA can be described as a multi-brand property structure, with a little bit of captive influences as well (see paragraph 3.1.1). Although BOKA currently only offers one specific scooter brand, they operate like the individual standard multi-brand lease company. The captive influence is the result of the economic driving force, mentioned in the ‘why receiving dimension’. A captive lease company uses the concept

of leasing primarily to stimulate sales figures of the particular brand. BOKA uses the concept of leasing for generating a turnover during the whole year, including the off season. Finally the customer plays an accommodating role, while they form the market and without whom recovery would not make much sense.

3.2.4 Electric scooter industry

Currently companies in the electric scooter industry also offer opportunities to lease an electric scooter. For example *ScooterPlan* (scooterleaseplan.nl) is already offering corporate lease contracts for electric scooters, next to selling the electric scooters. For information about the implementation of the concept of leasing in this industry an interview is therefore performed within this company.

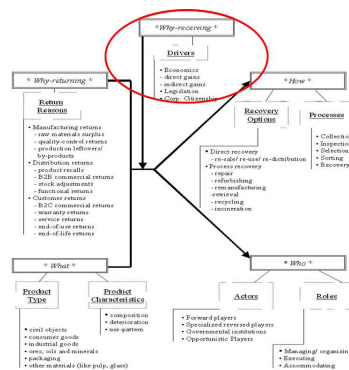
ScooterPlan is one of the ‘Drive Green’ concepts, which is developed by the company WH Solutions b.v. (WHSolutions.nl). This company is engaged in the development of concepts, the realization of these concepts and the marketing. Drive Green is focussing on the combination of mobility and the environment. One of its spin-offs is ScooterPlan. The customer can both buy and lease the electric scooter at ScooterPlan. For the moment, leasing is only available for corporate customers (source: interview with I. Hofstede). ScooterPlan uses the concept of financial lease.

The lease concept, as it is offered by ScooterPlan, has the following operational design (in short): the customer (company) chooses an electric scooter from the list of scooters offered by ScooterPlan. ScooterPlan (lessor) subsequently provides only the purchase investment. Insurance, maintenance and repair can be taken care of by ScooterPlan, but these costs will then be charged on the customer next to the monthly contractual payment. These options are not standard included in the contract, contrary to the concept of operational leasing. The company (lessee) rents the product by paying this contractual, monthly (investment) payment during the fixed 24 months lease term. After fulfilling this contract the company will own the electric scooter. No closing payment has to be done¹⁴. No end-of-lease scooters will therefore return to ScooterPlan. But ScooterPlan does offer the opportunity for customers to hand in the end-of-life batteries at their facilities. ScooterPlan subsequently looks after the safe disposal of these batteries.

¹⁴ This particular financial lease contract is unlike the example given in paragraph 3.1, because no closing payment has to be done in this case. As mentioned in paragraph 3.1 a lot of variations can be identified.

RLF Interpretations ScooterPlan¹⁵

After the brief introduction above, this part will elaborate more on the specific RLF interpretations of ScooterPlan. Each dimension will be discussed as extensively as possible.

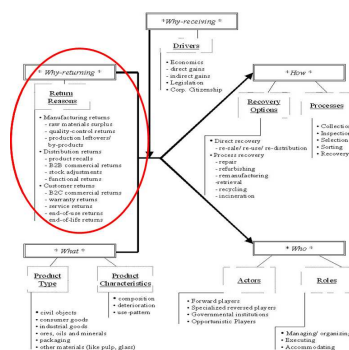


Why receiving?

As mentioned in the introduction ScooterPlan is a spin-off from Drive Green, which is subsequently a concept from the company WH Solutions b.v., settled in Dongen. This company is engaged in concept development, focussing on the combination of cars, environment and subsidizing possibilities. They have set themselves the goal to combine their commercial objectives with significant attention for environmental friendly and sustainable solutions. One of these points of attention is the development of ScooterPlan.

The electric scooter lease concept is promoted by ScooterPlan as ‘the new and environmental friendly alternative, by which the customer will attract attention in a positive way’. The driving force for offering the possibility to lease electric scooters can therefore be the corporate citizenship-driving force as well as the economic driving force. From the specific RLF interpretation it will be an economic driving force, which impels ScooterPlan to become responsibly engaged with reverse logistics, in this case: leasing. But it could also be stated that the indirect economic gain from the green image, is caused by the ScooterPlan corporate citizenship way of thinking. They state specifically (source: interview with I. Hofstede). Electric scooter lease could be a way to organize the companies’ environmental impact and deal with the ‘threat’ of unforeseen costs.

In short: the use of electric scooters is driven by corporate citizenship. Presenting the concept of leasing, as a way to deal with societal demands, is driven by economics.

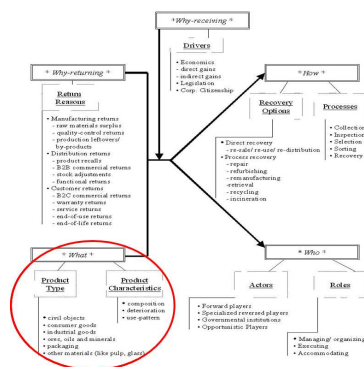


Why returning?

ScooterPlan uses the concept of financial lease. They provide the investment for the scooters, and the customer will rent the scooters by paying the contractual, periodic payment. At the end of the contract the lessee will be the lawful owner of the scooter. ScooterPlan will therefore not receive end-of-use (end-of-lease) scooters, like EB-Lease and BOKA do. This could be a disadvantage, considering the C2C goals, and therefore not applicable to the Eco-movement case of this Thesis. Nevertheless, as already mentioned, ScooterPlan does offer the customer the possibility to return the end-of-life battery to their facilities for free, in order to dispose these environmental unfriendly components in a safe way. They do receive returns in this way, and should therefore be of interest for this particular research.

¹⁵ Remark on the combination of financial lease and the RLF: due to the ScooterPlan financial lease concept the electric scooter will not return to ScooterPlan after the expiring date of the contract. Strictly speaking, one could state that the ScooterPlan financial lease concept and Reverse Logistics do not match. (same can be stated on the BOKA ‘repurchase-case’, as discussed) Nevertheless, the concept of financial lease in practice must be elaborated as well. Further conclusions and remarks on this applicability will be discussed in Epilogue III.

Because of the financial lease concept the maintenance, repair and insurance responsibility will be for the lessee. These options can be included in the contract, and thereby managed by ScooterPlan (and the associated dealers/3rd parties), but this will bring extra costs for the lessee. The ‘why returning dimension’ interpretation is therefore dependending on the contract options agreed upon. In case of a ‘simple’ contract, the lessee will deal with the maintenance, repair and insurance transactions themselves. If these transactions are included in the contract, the product returns to ScooterPlan can be characterized as warranty and service returns. ScooterPlan will also deliver all new electric scooters with a standard 1 year factory warranty (6.000 km max). This warranty applies only if the required maintenance visits can be proven, and they should be executed in accordance with the company rules. The same holds for the battery, though this warranty is only valid for the first 6 months. This will be elaborated on in the following dimension.

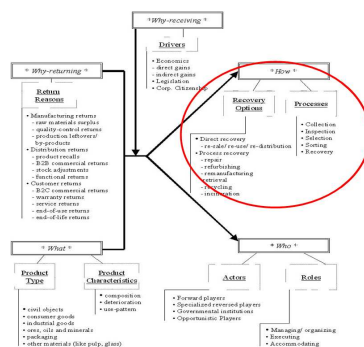


What is being returned?

ScooterPlan has a wide range of electric scooters (consumer goods) in their selection, and product characteristics of the returned scooters could vary therefore significantly. Although the scooters look different, the mechanisms used are similar. ScooterPlan has only one brand of scooters in their selection: EVite. Each scooter has a silicium-gel battery, the same breaking mechanism and the same set of tyres. These mechanisms are the most vulnerable, deteriorate the fastest, and will be causing a major part of the customer returns. The homogeneity of the mechanisms used, on the other hand, could in this case speed up

and simplify the processing of warranty and service returns. ScooterPlan works together with FietsNED, and will therefore not receive all of these returns. FietsNED is a franchise formula for independent bicycle technicians (FietsNED.nl). They aim for a fully covering network in the Netherlands, consisting of mobile maintenance and repair units (vans). The FietsNED technicians visit the client at home, or at any place, in case of a breakdown on the way. So the location characteristic of the use-pattern is of less relevance when the customer takes the extra FietsNED option in his/her lease contract (scooterplan.nl).

The most important returns, which ScooterPlan receives, are the end-of-life batteries. These environmental unfriendly components can be returned by the customer in order to arrange a controlled and safe disposal ([source: interview with I. Hofstede](#)).

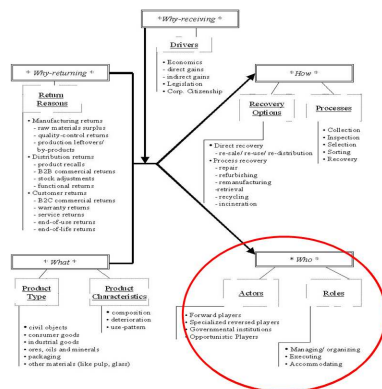


How are products recovered?

Because ScooterPlan uses the concept of financial lease, and recovery will therefore not always be the case, the two recovery options are limited to process recovery only. The collection, inspection and recovery processes can be organized by ScooterPlan or by FietsNED, as mentioned in the previous dimension. The customer chooses either ScooterPlan or FietsNED for this recovery process, when arranging the lease contract. In case of FietsNED, the collection process will not be necessary while FietsNED offers a nationwide coverage with their

mobile maintenance and repair units. ScooterPlan will collect the returned scooters at their central establishment in Dongen. The costs for this transport and labour will be charged on the client. FietsNED offers a ‘trouble on the way-insurance card’. For €25/year the repairs in case of

a breakdown on the way¹⁶, will be executed free of charge by them. For both parties, the recovery will mainly deal with the component and part level, as was the case with BOKA. The most vulnerable parts: battery, brakes and tyres, will cause the main deal of these recovery demands.



Who is doing the recovery?

As is already mentioned in the ‘what is being returned dimension’, FietsNED can play a significant role in the network of ScooterPlan. They play a mainly executing role, focussing on maintenance and repair. ScooterPlan itself can be characterized as the supplier, with a more organizing or accommodating role. The interpretation of this role is depending on the specific contract agreed upon between lessor and lessee. Due to the fact that ScooterPlan uses the concept of financial lease, they normally only provide the investment and will look after the periodic payments of the customer. In general: a passive

accommodating role. When the customer chooses the more extensive contract, with the maintenance, repair and insurance options for example, ScooterPlan will have a more organizing or executing role. Because in that case, scooters will return for maintenance and repair and ScooterPlan will have to arrange these returns in cooperation with the associated dealers. The same holds for the end-of-life battery return option, which is offered by ScooterPlan. ScooterPlan will have to organize this return in cooperation with the associated recycling company, which is in the end responsible for the safe disposal of this environmental unfriendly component.

In short: the customer will be of great influence on the actors involved in the financial lease network, and on the specific roles played by these actors. This will be discussed more deeply in chapter 4.

WH Solutions b.v. finally plays a managing role and can be seen as a specialist within the opportunistic players group.

¹⁶ The client should have the breakdown at least 4 km away from his/her home address.

4 Comparative analysis

As discussed in the previous chapter, a wide variety of leasing concepts can be distinguished in the different passenger mobility industries. This variety of ‘why receive’, ‘why return’ and ‘what’ dimension interpretations cause many times to different recovery options and different roles played by the specific actors in the lease network. This chapter will discuss the main differences and similarities between the discussed leasing concepts, and aims at presenting them in a convenient schematic way. This elaboration will eventually be used as input for the following ‘Eco-movement part’ of this Thesis, which will be presented and evaluated by means of two SWOT analyses and an in-house interview at Eco-movement.

4.1 Similarities and differences

This paragraph will briefly describe the most salient differences and similarities of the RLF dimension-interpretations found in the different surveys performed. A schematic overview of these differences and similarities can be found in Table X.1 in Appendix X. Each dimension will be discussed as extensively as possible, and will be accompanied by a schematic figure which presents the dimension interpretations in a clear way.

Why receiving

Presenting the concept of leasing, by the different discussed companies, is generally driven by economics. Both direct and indirect economic gain can be distinguished. BOKA for example states specifically that the concept of leasing is flattening the seasonal influence of scooter use on their turnover. A direct economic gain. They also state that the possibility of a staggered payment could be very attractive for the customer, in these times of economical recession. So the improved customer relationship can be seen as an indirect economic gain. Athlon Car Lease states that if they do not try to establish a more sustainable mobility market, by offering the re-lease concept, the car could become a non-realistic transport modality. If so, Athlon Car Lease will not survive. A direct economic gain by presenting the concept of re-leasing could therefore be lifesaving.

For companies like EB-Lease, who outsource most of the processes concerning the concept of leasing, the legislation driving force is ‘used’ as a tool to gain economic profit. EB-Lease will not directly be effected by this legislation themselves, due to their primarily accommodating role, but anticipates on it in an economic driven way by offering companies an electric alternative. This is an important issue to mention: the companies, future lessees, who choose to implement the concept of leasing within their employees’ home-work-home transport modalities, are the ones who are driven by legislation. The lease companies, on the other hand, are mainly driven by economics.

For the corporate citizenship driving force it is important to separate two very important things: the concept of leasing and the electric scooter. ScooterPlan for example is a spin-off from Drive Green, a concept focussing on the combination of transport, environment and subsidizing possibilities. They offer electric scooters as subjects of lease. The use of this specific *electric*

scooter can be characterized by the corporate citizenship driving force. They present the electric scooter as an object which contributes to the green, environmental friendly, renewing and sustainable image of the company (lessee). ScooterPlan feels socially impelled and therefore presents this *electric* scooter which fulfils this social responsibility. The concept of leasing, on the other hand, can be seen as the core business of ScooterPlan, and is mainly driven by the possibilities of direct and indirect economic gain. Furthermore, they use the concept of financial lease, and therefore do not receive any end-of-use (end-of-lease) scooters. But they do receive end-of-life batteries as part of their environmental responsible business concept and green image, as can be seen in Figure 4.1¹⁷.

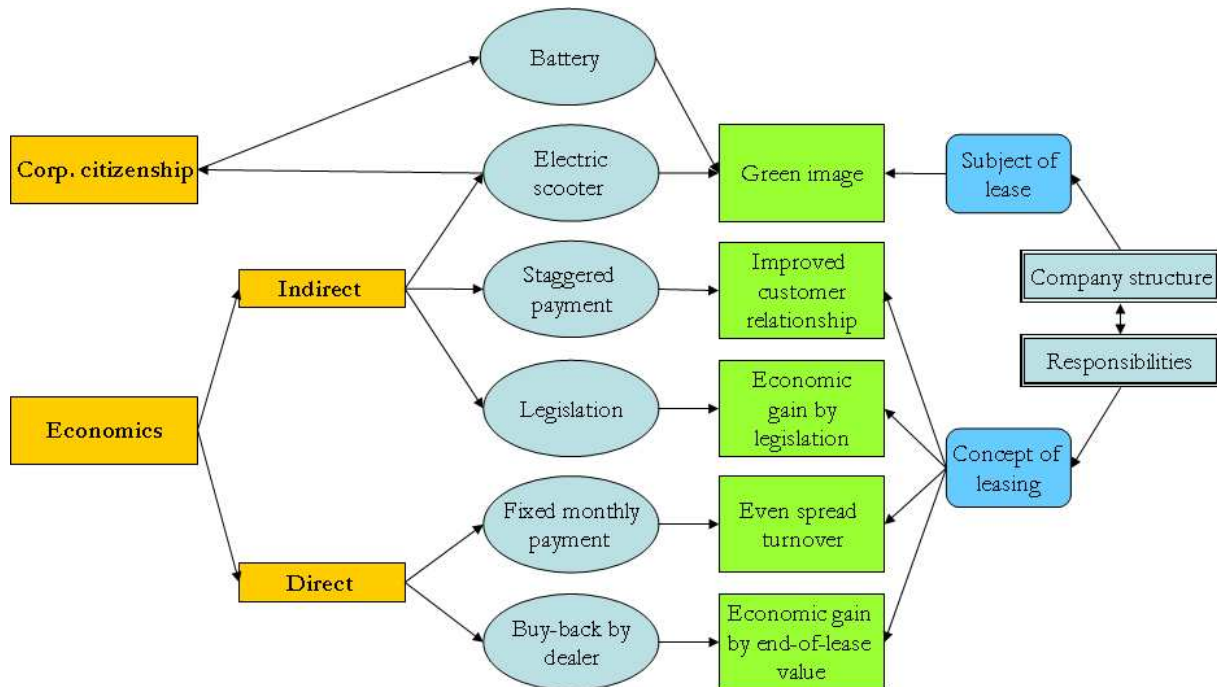


Figure 4.1: Exploded view 'why receiving'

The main differences, which can be distinguished in this 'why receiving dimension' are the way in which the economic driving force applies to the lessor and their concept of leasing, and in what way this economic driving force is presented. Is the concept of leasing of direct economic gain, by for example flattening the seasonal influence? Or could it be more of an indirect economic gain, like the improved customer relationship or green image? These differences in interpretation can be of significant influence on the recovery options and involved actors, which will be discussed in the related dimensions.

It should also be noticed that the concept of leasing is often 'attached to' the corporate citizenship driving force. Especially in case of using the electric scooter as subject of lease. This particular *electric* feature is in fact presented as the socially impelled characteristic. The unity between leasing, the use of electric scooters and corporate citizenship should therefore be elaborated carefully, while it does not apply at any given time. This will be discussed in the Epilogue chapter.

¹⁷ Same colour and same form means same group of components.

Why returning

Products are returned or discarded because either they do not function properly, or because their function is no longer needed. The return reasons presented by the RLF of De Brito (2003) are in conformity with the usual supply chain phases: manufacturing, distribution and customer returns. These reasons can be characterized, next to the ‘why receiving’ and ‘what is being returned’ dimension interpretations, as input for the decision making process within the reverse logistics (lease) network. The ‘how are products recovered’ and ‘who is doing the recovery’ dimension interpretations are based on this decision making process (paragraph 2.3).

The concept of leasing, discussed in this Thesis, specifically applies to the last supply chain phase returns: the customer returns. And within this group of customer returns we can mainly distinguish service, warranty and end-of-use (end-of-lease) returns. See Figure 4.2

The end-of-use returns apply to all companies that offer operational lease contracts. These end-of-use returns are part of this form of leasing, as was discussed in paragraph 3.1. BOKA customers, for example, are even obliged, by means of a contract, to return the scooter in the same state as they received it in the first place. EB-Lease offers a fixed 3 year lease contract, after which the electric bicycles will be returned by the customers to the associated dealers. In both cases we can distinguish the same reason why customers return the products: the end of the lease term – therefore, end-of-use returns. Athlon Car Lease even offers the customer the opportunity to arrange the sales of the ex-lease cars. Also a form of end-of-use return.

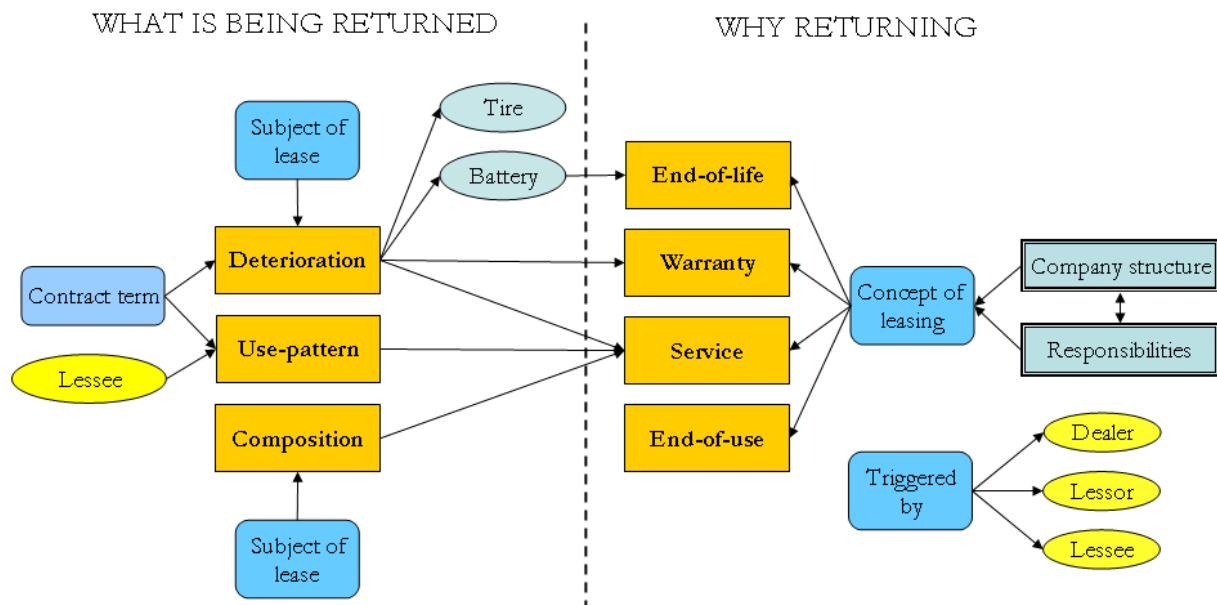


Figure 4.2: Exploded view ‘why returning’ and ‘what is being returned’

Service and warranty returns by the customer can be triggered by the lessor, the associated dealer, or by the lessee themselves. ScooterPlan, for example, recommends the customers a cheap service option by FietsNED, in order to maintain the scooters as good as possible. These scooters will be owned by the lessee after fulfilling the periodic contract payments, so an extensive service contract will be of significant value for the lessee. Both lessee (*high value product at the end of the contract*) and lessor (*outsourcing ‘non core businesses’*) can trigger therefore these returns. EB-Lease outsourced the processes entailed in the customer returns. The associated dealers are strongly committed to arrange these returns, while they will have to buy-back the electric bicycles at the end of the lease contract and gain profit from re-selling them on the market again.

Next to the service, warranty and end-of-use returns, ScooterPlan is also offering the opportunity for the customer to return the end-of-life battery. As can be seen in Figure 4.2. The electric scooter, which in this case is subject of financial lease, will be owned by the customer after the lease contract term. In order to accomplish the goal of combining their commercial objectives with significant attention for environmental friendly and sustainable solutions, ScooterPlan collects the end-of-life batteries. This collection is also applicable to ‘after-contract’ batteries, so when the electric scooter is legally owned by the (former) lessee. The collected batteries will eventually be disposed and recycled in a safe way by a cooperating ISO-certified company.

Returns of the same kind can be distinguished in case of Athlon Car Lease. They offer potential customers the opportunity to return their ex-lease cars (expired lease contracts) to Athlon Car Lease. They will subsequently arrange the selling of these cars, or re-leasing. So the lessee can outsource this process, and focus on its core businesses.

No manufacturing or distribution returns are described by the interviewed companies. This is probably caused by the fact that the leasing processes discussed, are acting at the end of the supply chain: the customer phase. The manufacturing and distribution returns are therefore of no relevance for this research and will not be discussed any deeper in this chapter. The Epilogue III part will elaborate on these framework issues, in order to broaden the scope of the research executed in this Thesis.

What is being returned

The ‘what is being returned dimension’ can, according to De Brito, also be characterized as an exogenous input for the decision making process within the reverse logistics (lease) network, as is schematically presented in Figure 4.3.

The product types distinguished in the different interviewed companies can all be characterised as consumer goods. No civil objects, industrial goods, ores, oils etc. are described by the interviewed companies. These specific product types are therefore of no relevance for this research and will not be discussed any deeper in this chapter.

Unlike the product types, the product characteristics are of major interest for this research and of significant influence on the recovery options and processes (Figure 4.2).

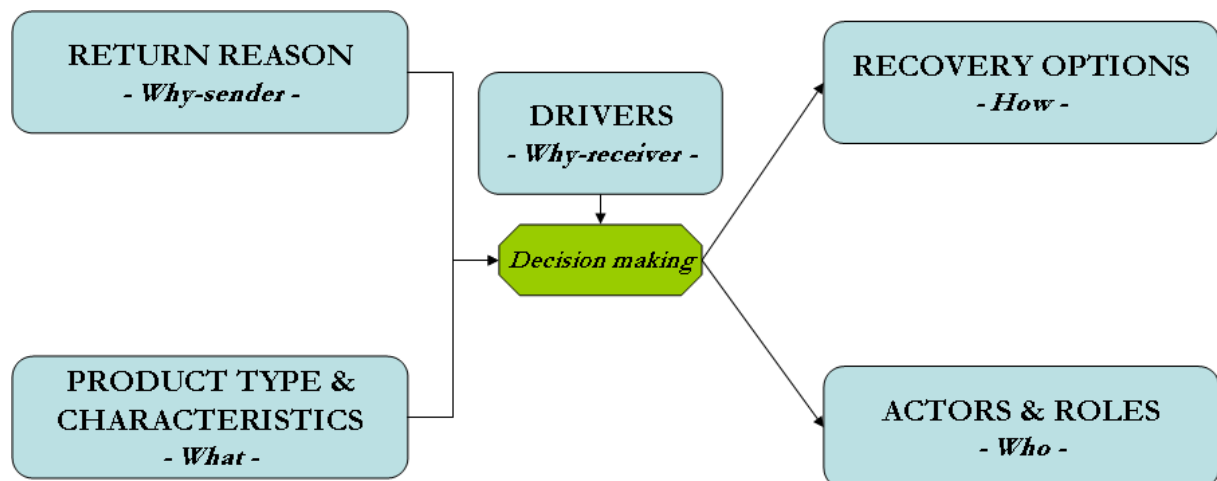


Figure 4.3: The framework relations
(compiled by author on De Brito, 2003)

The returned products have a specific composition, deterioration and use-pattern. The last two product characteristics, the deterioration and use-pattern, are strongly depending on the lease

contract term. BOKA presents lease contracts varying between a 3 months lease term and a 24 months lease term. This range in time has a significant effect on the returned product characteristics and will subsequently affect the recovery options drastically. Next the economical and physical deterioration of a 24-month lease scooter will be at a far more advanced stage than the deterioration of the same scooter, but with a 3-month lease term. It strongly depends on the lease company's interpretation of the lease contract term, what recovery options will in the end be applicable. The 24-month lease scooter of BOKA, for example, will (in most cases)¹⁸ not return to a new lease contract customer, but will integrate in the rental department or will be sold. This is also presented in Figure 4.4.

Companies like EB-Lease offer just one fixed lease contract term. In case of EB-Lease the term will be 36 months. Because of this fixed lease contract term EB-Lease can estimate the use-pattern of the electric bicycle pretty accurate. With this knowledge the recovery processes can be organized more in advance, which could in the end make a difference in the operational costs of these processes. Although EB-Lease states that the electric bicycle, which returns after the lease contract, is at an as-good-as-new condition, the bicycles will nevertheless be sold by the dealers. This is part of the profit gained by the dealer in the cooperative construction between both companies.

Concerning the homogeneity of the deterioration processes of the different parts of the subjects under lease, the battery and tyres age generally quicker than the other components. This could be of particular interest for the Eco-movement electric scooter leasing case as well. In the current situation this deterioration process of the battery is already recognized and act upon. The guarantee term of the battery is generally shorter (6 months), than for example the guarantee term on the frame (24 months) (elektrischescooterwinkel.nl). This will be discussed more deeply in the Eco-movement framework interpretation chapter 5.

The last characteristic of the 'what is being returned dimension', which must be discussed, is the product composition characteristic. This composition could be of significant influence on the process recovery options. ScooterPlan, for example, has only one brand of scooters in their collection. Each scooter therefore has the same silicium-gel battery, the same breaking mechanism and the same set of tyres. This high level of homogeneity of these components could speed up and simplify the processing of repair and service returns. It could also decrease the variety of specialists needed for all recovery processes. Dealers do, in general, not service all brands of scooters available. They often represent a small number of brands and only service these in-house brands. A select number of scooter brands in the company's assortment could therefore be time saving.

How are products recovered

This dimension strongly differs between the discussed companies. The dimension characteristics 'recovery options' and 'recovery processes', are strongly affected by the way in which the leasing company defines the company's responsibilities, or it's overall company structure. So not only the returned product characteristics and reasons for this return, but also the drivers from the 'why receiving dimension' are of significant influence on this 'how are products recovered dimension'. See Figure 4.4.

One example of such influence of the company's structure on the 'how are products recovered dimension' can for instance be found in the EB-Lease case. The collection, inspection, selection and final recovery of the electric bicycles will be the responsibility of the associated dealers. One could state that in this case the property structure therefore inclines to the dealer affiliated structure. The dealer will be responsible for the actual maintenance during the 3 year lease contract term, as well as keeping the customer to the pre-specified service returns. The EB-

¹⁸ Source: Interview at BOKA with Jordy Slats. He could not give statistics on the number of (re)leased scooters. Most of these scooters integrated into the rental department.

Lease interpretation of direct economic gain from only accommodating the lease contracts and administrative transactions, thereby affects the options and responsibilities for the recovery processes significantly. All responsibility will be for the associated dealers. Nevertheless, EB-Lease will strictly check upon these processes while the market value of the electric bicycles, after the lease contract term, will depend on the accuracy of these processes.

Lease companies can also arrange the recovery processes themselves or in cooperation with a third party. ScooterPlan, for example, offers the customer the opportunity to extend their financial lease contract with service, repair and maintenance options. The customer chooses either ScooterPlan or the cooperating company FietsNED for these recovery processes, when arranging the lease contract. The customer therefore triggers the recovery options in this case. Although ScooterPlan offers the customer the opportunity to arrange the recovery processes via their own facilities, they do not hesitate to recommend FietsNED for these processes. The FietsNED recovery option in the lease contract is for instance cheaper than the ScooterPlan recovery option (scooterplan.nl). This could also be caused by the fact that ScooterPlan only offers financial leasing contracts and therefore do not want to get involved with the recovery processes to much. They only want to provide the investment of the electric scooters, and outsource most of the (non-core business) operational processes. They do offer the customer the opportunity of returning the end-of-life batteries for free, in order to dispose and recycle these components in a safe and controlled way. This disposal and recycling is organized in cooperation with a (German) ISO-certified recycling company.

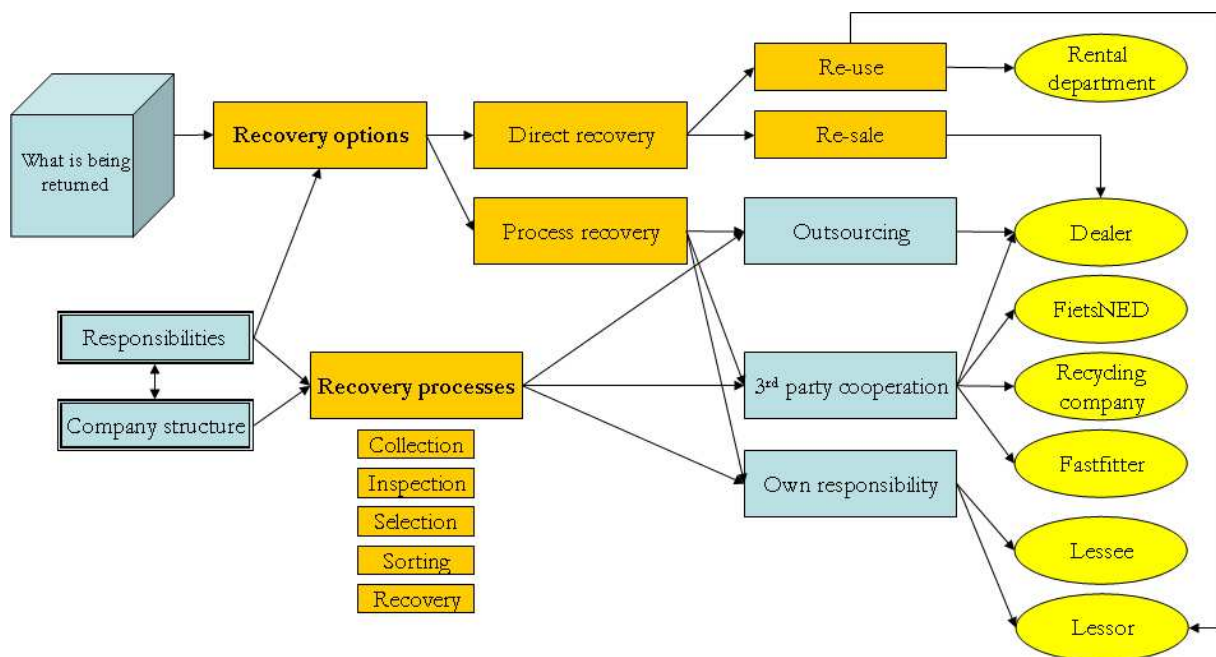


Figure 4.4: Exploded view 'how are products recovered'

The interpretation of the 'how are products recovered dimension' is for a great part depending on the definition of the lease company's responsibilities. Is the company willing to get involved in operational recovery processes like collection and inspection? If so, are these processes organized in cooperation with third parties or just by themselves? Or does the company outsource most of these processes and are they more focussing on arranging the lease contracts?

Who is doing the recovery

The number of actors involved and specific roles played by these actors and lease companies, also differs significantly between the interviewed companies. Like in the previous discussed dimension, the organization of the actors and roles is strongly depending on the way in which the leasing companies define their responsibilities and overall company structure.

First of all, the leasing company itself. According to the RLF an actor can play a managing/organizing, an executing and/or an accommodating role¹⁹. This role is closely related to the way in which the recovery processes are arranged. EB-Lease for example, plays a mainly accommodating role. They arrange the lease contracts, and part of the administrative transactions between the dealer and customer. The recovery processes from the ‘how are products recovered dimension’ are outsourced to the associated dealers. The dealers therefore play a more executing and organizing role in this case. They do not only manage the recovery processes, but also arrange the electric bicycles and part of the administrative transactions for the customers of EB-Lease.

BOKA on the other hand, is personally responsible for most of the recovery processes and can therefore be characterized as an accommodating and managing as well as an executing actor. Accommodating mainly by financing the scooters from their own funds. Managing by arranging the direct lease contract between BOKA and the customer, and executing by arranging most of the recovery processes involved. BOKA thereby plays a completely different role, in comparison to EB-Lease.

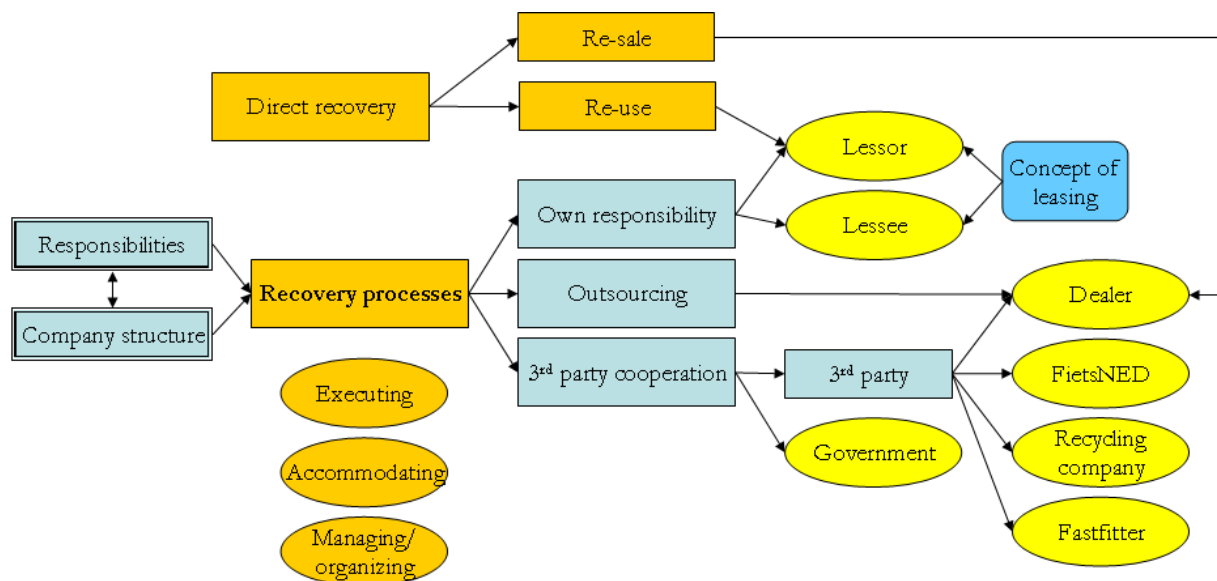


Figure 4.5: Exploded view ‘who is doing the recovery’

The roles played by the associated ‘third party’ players, like the dealers (in case of EB-Lease), the fastfitters (in case of Athlon Car Lease) and the franchise formula FietsNED or the battery recycling company (in case of ScooterPlan), will also be affected by this lease company organizational structure. The dealers which are associated with EB-Lease do not only arrange the service and repair processes, but also manage the lease network. They accommodate the bicycles, the collection, the maintenance, the repairs and the final recovery. FietsNED, in case of

¹⁹ It is hard to pin point each actor with just 1 role. Some overlap between the different roles may and will occur. Figure 4.5 therefore presents these roles in a non-connected form. Every case describes different connections between the actors and the specified roles.

ScooterPlan, has a more executing/accommodating role and only manages the service and repair processes when a customer chooses for this FietsNED service option in the lease contract.

The customer (lessee) can therefore play a vital role in the design of the leasing processes. First of all they play an accommodating role, while they form the market without whom recovery would not make much sense. Next, they can decide on which company will arrange their service, maintenance and/or end-of-use returns. In the financial lease case of ScooterPlan for example: will FietsNED deal with these recovery processes or will ScooterPlan deal with them? Or neither one of them, and will the customer organize these processes without consulting on of these companies? Dealing with these recovery processes is not automatically included in the concept of financial lease, so the customer may choose to arrange it him/herself. Or in case of Athlon Car Lease: will the customer choose for the in-house service and maintenance option of the Athlon Car Lease Service Centre? Or will the customer blindly adopt the options presented by the software program Service Track?

Finally the governmental institutions must be mentioned. They play a mainly organizing role, by for example the issuing of legislation on home-work-home transport modality use. But they could also play an accommodating role, by facilitating infrastructure ('Amsterdam Elektrisch' ([NU.nl](http://www.amsterdam.nl/elektrisch))) or subsidies. This will be discussed more deeply in the SWOT analysis part of this Thesis.

4.2 Finalizing Part I

The next part of this Thesis, Part II: The Eco-movement strategy, will elaborate on the information gained in the previous chapters. It will specifically focus on the Eco-movement concept of leasing strategy.

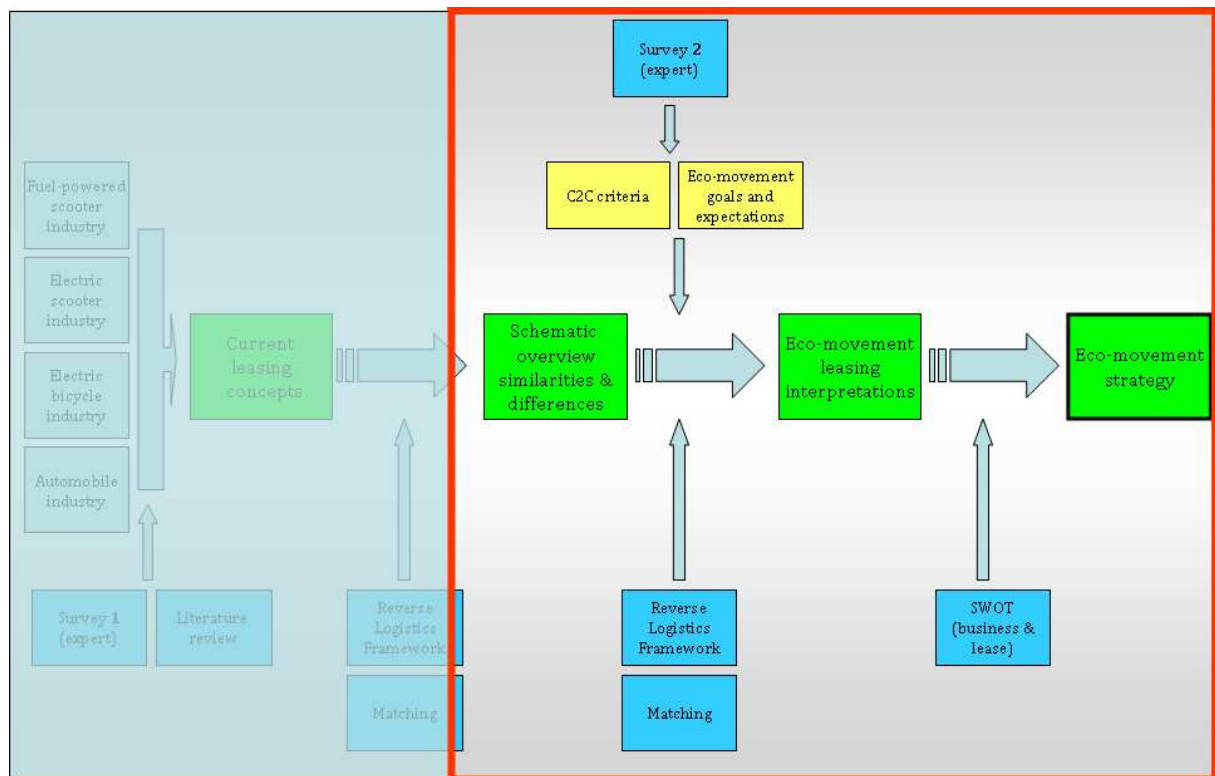
The main features that can be distinguished from the previous chapters, and that will form the basis on which Part II will embroider, are:

1. The concept of leasing has a wide variety of configurations. Nevertheless, all of these different configurations are based on two main forms of leasing: *financial lease* and *operational lease*. The most salient difference between these two main forms of leasing is that the subject of lease, in case of operational lease, will return to the lessor after the lease contract. And exactly that specific feature makes this form of leasing very interesting. This product return to the lessor is consistent with the fifth requirement of the C2C gold certification. The product components will return to their technical cycle, as is shown in Figure 1.2. The operational leasing form can therefore be of specific interest for this Thesis research. Besides full operational leasing offers a wide variety of service components, which is also in accordance with the *product of service* concept of Braungart and McDonough (2002).
2. Presenting the concept of leasing, by the different discussed companies, is generally driven by economics. The way in which this economic driving force (directly or indirectly) applies to the lessor depends mainly on the way in which the company's structure and responsibilities are defined.
3. The corporate citizenship driving force applies to the subject of lease, and not specifically to the concept of leasing itself. The electric feature of the electric scooter for example, is often presented as the socially impelled characteristic. Although leasing can generate a green image by taking care of the product return after the lease contract, the concept of leasing and corporate citizenship can not be connected automatically, it is depending on the subject of lease.

4. The return reasons in general do not differ between the discussed leasing companies. We can mainly distinguish customer returns, of which most of them are service and end-of-use (end-of-lease) returns. This return can be triggered by the lessor, the lessee or a 3rd party involved. The organisation of this return depends mainly on the way in which the leasing company's structure and responsibilities are defined.
5. What, product characteristics, is being returned to the lessor (or an associated party) strongly depends on the lease contract design and the lease contract term available. The variety of brands, offered by the lessor, can also be of influence on the returned product characteristics. These features can have a significant effect on the deterioration, use-pattern and composition of the subject of lease.
6. How products are recovered strongly differs between the discussed companies. Not only the returned product characteristics and reasons for this return, but also the company's driving forces are of significant influence on this recovery process interpretation. Is the lessor mainly focussing on arranging the lease contracts, and therefore outsourcing non-core businesses like collection and inspection? Or are these processes organized in cooperation with third parties? And is the subject of lease re-used again after the lease term, or is it re-sold?
7. The involved actors, and roles played by these actors, depend on the way in which the economic driving force is constructed and presented by the lessor. Is the lessor playing a managing, executing and accommodating role all together, or is the lessor just the accommodating actor in the field of leasing? It is therefore important to comprehensively consider and discuss the company's structure and responsibilities. What (non-) core businesses can be distinguished and what responsibilities is the company facing?

The following Part II of this Thesis will elaborate on the Eco-movement interpretations regarding the concept of leasing. The previous discussed features of leasing, and the Eco-movement company structure and responsibilities will be matched in order to present leasing recommendations for the new Eco-movement electric scooter.

Part II: The Eco-movement strategy



5 Eco-movement leasing interpretations

“Generally, successful organizations will attempt to achieve a situation where they can work from strengths to take advantage of opportunities. If they have weaknesses, they will strive to overcome them, making them strengths. If they face threats, they will frame strategies that cope with them so that they can focus on opportunities”. (Groenendijk and Dopheide 2003)

This chapter will elaborate on the leasing concept features which could, in principle, match the Eco-movement objectives regarding C2C gold certification and competitiveness. First a SWOT analysis will be constructed for Eco-movement, excluding the concept of leasing, in its current and possible future business environment. This will be called SWOT-1. Second, the objectives and requirements from the Eco-movement business, and the C2C body of thought, will be matched with the discussed leasing concept features found in chapter 3. These leasing concept features will be elaborated and discussed, by means of an in-house interview at Eco-movement. This elaboration will be used as input for the extended (lease concept including) SWOT analysis, which will be discussed in paragraph 5.3. This will be called SWOT-2. With the info gained from these two SWOT analyses and the in-house Eco-movement interview, the strategy triad will be constructed and discussed in paragraph 5.4.

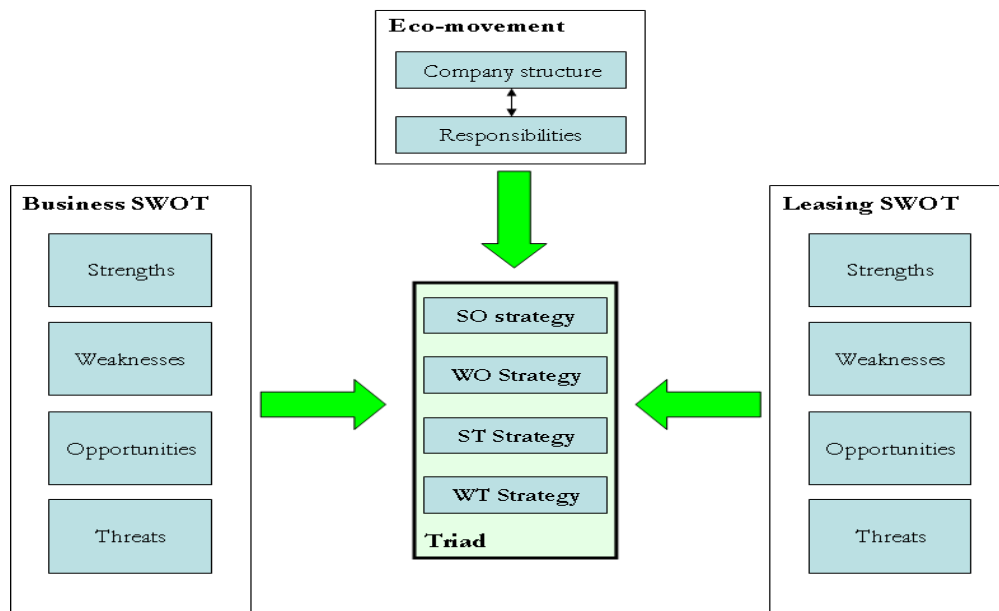


Figure 5.1: Strategy development approach

5.1 Eco-movement business SWOT

This paragraph will discuss the SWOT-1 analysis, which will be functioning as part of the foundation on which the conclusions in chapter 6 will be constructed. Figure 5.1 presents the strategy development approach, which will be conducted in this chapter.

The Eco-movement business SWOT-1 analysis will elaborate on the strengths, weaknesses, opportunities and threats of Eco-movement in its current and possible future environment. In order to distinguish these SWOT-1 components, a brainstorm session is executed at Eco-movement. The SWOT-1 analysis, followed by a strategic orientation, can be done by an individual, but is more effective when carried out in a participatory brainstorm exercise (Groenendijk and Dopheide 2003). Therefore the Eco-movement management team and a fellow research graduate were involved in the brainstorm SWOT-1 exercise.

As already mentioned in the introduction of this chapter, the SWOT-1 analysis will solely be about the company Eco-movement. The concept of leasing is not included yet. Leasing will be included after constructing the SWOT-1 matrix for the Eco-movement company as it is perceived in the current situation. First looking at the company Eco-movement in its business environment, before including the concept of leasing, is a good way to create alternative strategies that might not otherwise be considered. It could so happen that the analysis, in case of including the concept of leasing, will be focussing on these lease opportunities too much.

Elaborating on the strengths, weaknesses, opportunities and threats of Eco-movement in its business environment does not only have the purpose of constructing strategies. It can also distinguish (business wise) criteria for implementing the concept of leasing. These criteria, in combination with the leasing concepts, should be kept in mind while constructing strategies for the Eco-movement leasing case. This will be discussed more in paragraph 5.3.

The SWOT-1 analysis exercise, performed at Eco-movement, can be described along the following five steps (step 3,4 and 5 are already discussed in paragraph 2.4):

- Step 1: define the entity (organisation, problem area, situation, technique)
- Step 2: brief participants about the purpose and procedure of the brainstorm session, and explain terminology used
- Step 3: actual identification of strengths, weaknesses, opportunities and threats
 - the participants will be asked to list perceived external threats and opportunities: present ones and, even more important, future ones too
 - list in the same way the internal strengths and weaknesses
 - construct the axes of the matrix (see Table 2.1)
 - list only the most important and relevant factors and discuss the responses of participants.
- Step 4: develop alternative strategies (fill-in matrix)
 - define SO, ST, WO, WT strategies
- Step 5: select best strategies
 - develop one or more criteria (from interview Eco-movement, paragraph 5.2) for selecting the best strategies and apply the criteria to the SO, ST, WO, WT options.

STEP 1:

This step was taken care of during the past 4 months of graduate research, including the TU Delft meetings, and the personal in-house meetings at Eco-movement from October 2008 on. The results of this first step are discussed in the current and previous chapters.

STEP 2:

This step speaks for itself. The SWOT-1 analysis will be performed at Eco-movement. The participants for the brainstorm session will be from the management team of Eco-movement, a fellow graduate student from Industrial Design Engineering and myself.

Information about the SWOT-1 analysis technique was delivered to the participants²⁰ a week in advance. This mail described the problem area, a short introduction of the SWOT-1 analysis procedures and rules, as discussed in paragraph 2.4, and my final goals for the brainstorm session.

STEP 3:

This step can be seen as the actual start of the SWOT-1 analysis. First the participants are asked to list perceived strengths, weaknesses, opportunities and threats just plain for the company Eco-movement itself. The concept of leasing is not yet included.

The participants individually listed their interpretations on post-it's. These post-it's were subsequently mounted on the wall, which was divided in 4 sections: the four SWOT-1 components. This process went on until all participants were done. See figure 5.2. After this individually listing of perceived SWOT-1 components, the components were discussed one by one, and eventually attributed to the corresponding axes of the SWOT-1 matrix (after clarification by the author and approval by all participants). Eventually the SWOT-1 axes were filled in completely with the post-it's. A second discussion was held, to filter the most important and relevant factors. It appeared to be 10 factors remaining per axis, endorsing the SWOT-1 components – business interpretation – fully according to the participants. After this filtering the actual development of alternative strategies could start.



Figure 5.2: Brainstorm post-it's

First the most relevant internal strengths and weaknesses, and the external opportunities and threats of Eco-movement, perceived by the participants, will be discussed here.

²⁰ The management team of Eco-movement consists of 3 former TUDelft students: ir. Falco van Vloten (co-founder), ir. Steven Blom (co-founder) and ir. Roderick van den Berg (R&D, sales). The Industrial Design Engineering graduate student is Ernst-Jan Mul. He is responsible for the final design of the new electric scooter. His research is supervised by prof. dr. ir. J.C. Brezet.

Recalling the definition of a strength (paragraph 2.4):

A *strength* can be defined as an internal characteristic that contributes substantially to the realization of the company's mission. A strength is an internal asset, well placed to help exploit opportunities (or demands) and fight off threats.

1. honest: about the quality of products presented.
2. independent: Eco-movement is not brand/dealer affiliated (paragraph 3.1.1)
3. flexible, low-cost organisational structure: e.g. they arrange the selection of products and brands themselves. If they want to quit selling a specific brand, they can do so. Besides they arrange the product, service and promotion.
4. strong press and internet strategy: e.g. the internet site, which is their main commercial sign board, is of high quality.
5. the creation of the 'electric products image' can be controlled by Eco-movement: e.g. they developed an electric transport platform: EVN (EVN.nl).
6. customer-friendly: the after sales processes are in convenient order, keeping in mind that Eco-movement only has an internet shop.
7. knowhow regarding the electric transport technology: this is partly achieved by creating and maintaining a solid relation with the Delft University of Technology.
8. strong bonding with supplying network: from 2006 on Eco-movement build up a loyal network of suppliers.
9. biggest Dutch electric transport retailer: by the piece
10. lean arrangement of sales processes: selling an electric scooter is subdivided in 15(!) checkpoints. Due to the Eco-movement experience and routine this selling process is arranged in a convenient way.

Figure 5.3: Strengths Eco-movement business

Recalling the definition of a weakness (paragraph 2.4):

A *weakness* is an internal characteristic that threatens the functioning of the organization. Weaknesses are internal conditions that erode the organization's position, hamper the cooperation with others, or obstruct the exploitation of opportunities.

1. arrangement of after sales processes: in comparison to an actual store which is opened daily from 9am till 6pm, service is limited due to the internet based store.
2. do not have an own brand: Eco-movement is not associated with 1 personal brand, the typical Eco-movement customer does not exist. Lack of customer loyalty.
3. image: green and electric transport is often related to elderly people instead of being trendy. The brand name 'Eco-movement' does not speak up to this weakness.
4. cash flow back-up: Eco-movement is a young and developing company with a small liquidity rate.
5. low flexibility in development (growth): partly the result of low capital substantiality.
6. online sales of unknown expensive product: people are hesitant to online buy (expensive) products which they have never seen before.
7. dealer founded business model: because Eco-movement is a dealer, they can only sell their products on the Dutch market (contrary to an importer who can serve several nations simultaneously).
8. immature market: Eco-movement is developing a (slowly growing) electric scooter market.
9. vague focus: does Eco-movement wants to sell as many scooters as possible, or does Eco-movement wants to motivate others to move eco-friendly?
10. hesitant about sharing electric transport knowledge: this could put up a barrier for potential 3rd party cooperation.

Figure 5.4: Weaknesses Eco-movement business

Recalling the definition of an opportunity (paragraph 2.4):

An *opportunity* can be defined as an external fact or development that, if taken advantage of, can substantially contribute to the realisation of the company's mission.

1. stimulating governmental policies for the electric transport market: for example 'Amsterdam Elektrisch' and the MIA/Vamil regulation ([VROM.nl](#)).
2. market still has to crystallize out: if the market is fully developed it could be hard to infiltrate, while Eco-movement now has the opportunity to firmly settle itself, and probably design the market in a personal way ([Garling and Thøgersen 2001](#)).
3. 3rd party interest: not only from a governmental point of view, but also from the corporate side there is interest in electric transport. Eco-movement can be a solid and valuable partner.
4. network: Eco-movement has an extensive network in the electric transport industry.
5. price and availability of fossil fuels: electric (non fossil fuel-powered) transport can be attractive more and more.
6. hype concerning the electric bicycles ([BOVAG.nl](#)): If the public adopts electric transport, Eco-movement is at the right place.
7. Eco-movement publicity and turnover by cross-pollination: EVN, for example, creates testing days, testing days create sales, sales create service and publicity and so on.
8. great deal of (governmental) investment opportunities versus non/little/bad plans to create possibilities for this money: well-designed plans are missing, it is more 'yelling than really doing'. But still, the money is available.
9. mass 'green thinking': not only the early-adapters and eco-fanatics, but also the current non-electric scooter users.
10. settled companies enter the electric scooter market: companies like Vespa enter the market and could open the market for a bigger public (Vespa supporters could come with them).

Figure 5.5: Opportunities Eco-movement business

Recalling the definition of a threat (paragraph 2.4):

A *threat* can be defined as an external fact or development that has, or can have, a substantial negative effect on the organisations' performance.

1. copying of business components: FietsNED is developed by Eco-movement, and almost immediately copied from them by direct competitors. Hard to control.
2. big players in fossil fuels market delay development of electric transport: negative press releases by Shell, BP, Q8.
3. negative news coverage concerning the maturity of electric transport: articles about the fact that electric cars do already exist, but that mass production will not be the case in the near future ([fd.nl](#))
4. price fixing by big concerns: these big players can exploit their scale-advantage.
5. settled companies enter the electric scooter market: companies like Vespa enter the market and could become major competitors for Eco-movement.
6. eco-fatigue: also frequent misuse (or non-necessity thought) of the concept of sustainability and green transport, resulting in an aversion to electric transport.
7. competitors become cheaper: everyone can set up a website to subsequently start selling electric scooters online for a lower price.
8. electric products (un)familiarity: a significant part of the Dutch population has little knowledge regarding electric transport.
9. too much growth of electric transport market (demand): Eco-movement has a low flexibility in development.
10. growth of comparable products: electric bicycles could take away a significant part of the electric scooter-clientele of Eco-movement.

Figure 5.6: Threats Eco-movement business

STEP 4:

This fourth step describes the process of developing alternative strategies, by filling in the SWOT-1 matrix (see Table 2.1). Within this matrix we can distinguish 4 types of strategies, constructed by matching the different SWOT-1 components:

- SO Strategies: strategies that use strengths to take advantage of opportunities
- WO Strategies: strategies that take advantage of opportunities by overcoming weaknesses
- ST Strategies: strategies that use strengths to avoid threats
- WT Strategies: strategies that minimize weaknesses and avoid threats

For each type of strategy, two examples will be given. These strategies can eventually be used in paragraph 5.4.

SO Strategies:

1. Eco-movement should take advantage of the potential governmental investments (opportunities 1 & 8), by exposing their in-house knowhow, regarding the electric transport technology (strength 7) and their independent position in the electric scooter market (strength 2).

For example by: lobby for arranging the electric scooter as transport modality for employees of governmental institutions and/or public institutions (DePers.nl). Eco-movement is not brand or dealer affiliated and can therefore be an independent partner for these institutions. Eco-movement did for instance already rent scooters to HTM²¹ (blog.eco-movement.com). Second, Eco-movement should lobby more for participating in the PPP regarding the transition to electric transport in the city of Amsterdam (NU.nl).

2. Eco-movement should take advantage of the 3rd party interest in electric transport (opportunity 3) by utilizing the fact that they have control of the way in which the 'electric products image' is established (strength 5).

For example by: recently an advertising company contacted Eco-movement for a new electric transport commercial. The advertising company had no knowledge about electric transport whatsoever and therefore contacted Eco-movement. They recommended the advertising company thereupon to have a testing day at their facilities, arranged by Eco-movement. The commercial is not finished yet²².

WO Strategies:

1. Eco-movement should take advantage of the 'electric transport stimulating' governmental policies (opportunity 1) in order to overcome the hesitation of online buying, of an unknown (expensive) product, by potential customers (weakness 6).

For example by: they should cooperate with public information dissemination, for example by adding info on 'Postbus 51 spots' (postbus51.nl). In this way they can communicate the advantages (and general info) of electric scooters in a more widespread way, reaching a larger number of interested people.

2. Eco-movement should take advantage of the hype concerning the electric bicycle (opportunity 6) in order to deal with their small liquidity rate (weakness 4) and immature electric scooter market (weakness 8).

For example by: selling the electric bicycles themselves. Eco-movement recently implemented this strategy. They are currently selling 2 brands: Qwic and Puch. They also developed a new internet site for the electric bicycles (elektrischefietswinkel.nl). Although this industry is

²¹ Haagse Tramweg Maatschappij

²² June 15, 2009

booming (BOVAG.nl), and almost every brand has its own electric bicycle, it is hard to penetrate in this market. The industry is protecting its own dealers, against internet-based companies like Eco-movement ([source: interview with R. van den Berg](#)). Because Qwic is also delivering electric scooters to elektrischescooterwinkel.nl, they were willing to cooperate with Eco-movement.

ST Strategies:

1. Eco-movement should use their in-house knowhow, regarding the electric transport technology (strength 7), and their control regarding the way in which the 'electric products image' can be established (strength 5) in order to avoid eco-weariness (threat 6), and in order to disprove negative news coverage (threat 3).

For example by: as will also be stated in the next paragraph, Eco-movement will have to arrange that the focus of the customer will not mainly be on the 'green and electric' feature of the scooter. The electric scooter is just a trendy, and in the end cheaper, scooter for all ages which can easily compete with the standard fuel-powered scooters. This can for example be achieved by arranging broadcasting time on TMF and MTV, or advertising and information dissemination on high schools and cities. Like the biggest Dutch electric scooter/bicycle testing day organized September 27 of this year in Leeuwarden (grootste-opstapdag.nl). The negative news coverage can be disproved by playing a more prominent role in facilitating electric transport for governmental and public organisations (SO strategy 1).

2. Eco-movement should use the strong bonding with their supplying network (strength 8) in order to stand up to the (cheaper) competitors (threat 7) and to the price fixing possibilities by big concerns (threat 4).

For example by: at this moment Eco-movement has arranged that potential customers do not directly contact the importers, for example Qwic or Novox, but will arrange the contact via Eco-movement. The spotlight is on the brand-independent position of Eco-movement. Nevertheless, Eco-movement should arrange future long term contracts with these importers, increase customer loyalty by offering high quality scooters and Eco-movement service arrangements, arrange a higher liquidity rate, or accept partly merging with the competing big concerns.

WT Strategies:

1. Eco-movement should communicate the advantages of the electric scooter in a more advanced way, in order to minimize the hesitation of the online purchase of an unknown (expensive) product by potential customers (weakness 6), and in order to avoid the product unfamiliarity (threat 8).

For example by: adding an €-savings calculator. Maybe in combination with a CO₂-savings calculator: if the customer would drive x km with an electric scooter, he/she would save €x on fuel and x mg on CO₂ emissions. These emissions can also be presented in a more tangible manner (like # of trees, or cm of non-melting polar ice). Besides Eco-movement should organize more testing days at high schools and public events in order to broaden the product familiarity and number of potential customers.

2. Eco-movement should sell electric bicycles as well, in order to minimize the liquidity problem (weakness 4), step up to the competitive danger of the electric bicycle (threat 10) by selling them as well, and use the hype around the electric bicycle to decrease the electric products unfamiliarity (threat 8).

For example by: Eco-movement is currently selling the electric bicycles via the new website elektrischefietswinkel.nl. They can also inform the electric bicycle customers, which visit (or

just contact) the store in Amsterdam, about the electric scooters. The electric scooters and electric bicycles are presented in the same shop-window, so cross-pollination could occur.

STEP 5:

The final step in this SWOT-1 analysis is to select the best strategies. In order to select these strategies, one or more criteria should be developed. This will be done by executing an in-house Eco-movement interview, discussed in the following paragraph. The criteria will eventually be applied to the SO, ST, WO and WT options constructed in step 4.

This final step will in this particular research be slightly altered. As is already shown in Figure 5.1, two SWOT analyses will be performed and one in-house Eco-movement interview. The goal of this chapter will be to eventually match the results from these data collection and data analysis methods, and present this match in the strategy triad. In this way the Eco-movement business goals, the different leasing concept features, and the perceived Eco-movement responsibilities will be interwoven in order to present ‘combined’ strategies for Eco-movement on the concept of leasing. This will be discussed in paragraph 5.4.

5.2 Matching the objectives

After the previously discussed SWOT-1 analysis, an interview is performed at Eco-movement. The lay-out of the interview can be found in Appendix IX. The purpose of this interview is to present the Eco-movement objectives regarding their competitive strategy, by means of the concept of leasing, in combination with the C2C gold certification. So, an overview of the main leasing concept features (discussed in chapter 3 and 4) that could match with the Eco-movement mission and ambition (criteria) will be presented. To be perfectly clear about this Eco-movement mission and ambition, they are stated in the two following Figures 5.7 & 5.8, and explained in equal important parts (wiki.eco-movement.com):

MISSION: *Motivate to move eco-friendly*

Motivate:

By presenting clean (environmental friendly) products and services Eco-movement stimulates companies and consumers to life in a conscious and responsible cooperative way with the environment.

Move:

Move on in a literally and metaphorical way. The meaning of *move* in one respect contains the mobility products presented by Eco-movement, on the other hand it comprehends the doings and dealings of companies and consumers.

Eco-friendly:

Eco-friendly comprehends the concepts ‘sustainability, environmental consciousness, sensible’ and it refers to the attitude and behaviour by which the companies and consumers (should) pass on through life.

Figure 5.7: Mission Eco-movement

(adopted from Eco-movement in-house network)

AMBITION: *Innovate and motivate others to share the responsibility for a healthy environment, now and in the future*

Innovate:

Develop and introduce products and services which contribute to a clean, sensible society.

Motivate others:

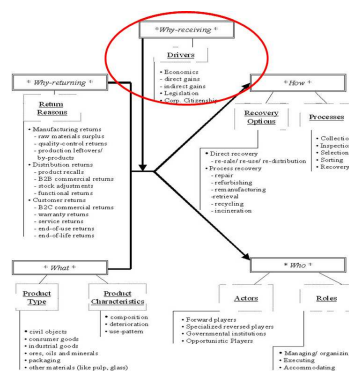
Clean products and services contribute to an increase in knowledge, a positive attitude and a sensible and conscious way of living by companies and consumers with respect to their environment.

Now and in the future:

Pursue a long-term vision, and give interpretation to this long-term vision by introducing products and services which will contribute to a clean and sensible society in the near as well as the distant future.

Figure 5.8: Ambition Eco-movement
(adopted from Eco-movement in-house network)

The results of the interview will be discussed along the lines of the RLF of De Brito as much as possible. In this way the results from chapter 3 can be matched and compared in a more elaborate manner.

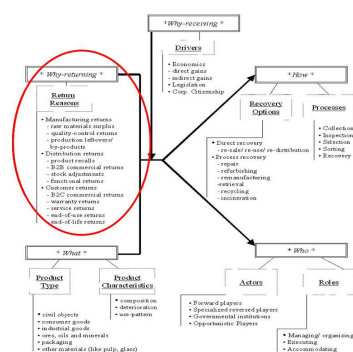


First of all, the ‘why receiving dimension’. Eco-movement states that a significant part of their corporate customers is declaring that they would like to lease the electric scooters, in stead of buying them. Three of the main reasons for this desire could be the staggered payment possibilities, the advantages of outsourcing the corporate fleet management responsibilities, and the outsourcing of damage responsibility, generated by the concept of leasing (Fan and Burton 2005). Companies state that they face a financial barrier to invest in the purchase of the scooters, and do not want to get involved in non-core businesses like fleet management. Besides they still perceive the electric scooter as a developing transport modality, which is not at its optimal level yet. The drivers, for implementing the concept of leasing, depicted by Eco-movement are therefore mainly of indirect economic gain, by improving the customer relationship and partly taking away the responsibility in case of damage. Eco-movement specifically states that the electric scooter market is still developing. Corporate customers will for example begin with two lease scooters, and will thereupon extend their lease fleet. Eco-movement will have to adapt to this developing market. This is for a significant part similar to the BOKA Scooter Rentals case. Although the direct economic gain, of flattening seasonal influences, was playing a more outstanding role for BOKA.

The corporate citizenship driving force plays an important role in the decision making process, regarding the concept of leasing for Eco-movement. The new electric scooter will have to be certified at the C2C gold level. But they also state that the emphasis will have to be more on the fact that the new scooter will be cheaper and relaxter in the end, than on the fact that it is an electric and environmental friendlier transport modality. Quote: “We should be a company like Albert Heijn, not like the health food shop.” (source: interview with R. van den Berg).

The main driving forces, which can be distinguished for Eco-movement, are the indirect economic gain by the improved customer relationship (adapting to the client’s desires), and the

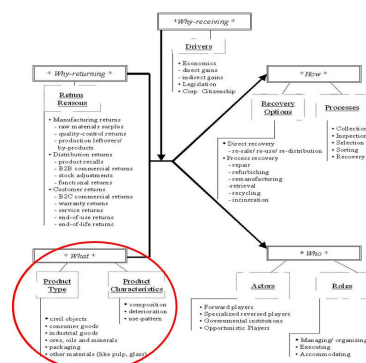
green image by striving for a C2C gold certification. It should finally be noted that Eco-movement will not present itself as prize fighter, using very cheap (and therefore very low quality) electric scooters. They do not want to attract customers which base their decisions on the lowest price-lease company. Eco-movement strives for a high quality lease concept. They state that customers, which are mainly looking for discount, are customers who will complain about every little trifle²³.



The 'why returning dimension' will be constructed generally like the ScooterPlan case. Eco-movement developed the FietsNED concept in 2006 (which is subsequently copied by ScooterPlan) for arranging part of their customer returns. The customer can choose whether Eco-movement or FietsNED will arrange the returns. These returns will be service and repair returns, but the most important ones are the end-of-use (end-of-lease) returns. Due to the 'C2C scooter component return' requirement, operational lease is the only applicable form of leasing for Eco-movement. Main feature of this form of leasing is that the subject of lease will return

to the lessor after the lease contract. Next to this C2C requirement, Eco-movement can not execute a financial lease form because of their small liquidity rate. Therefore they cannot pre-finance scooters, which will be paid off in the following 36 months²⁴ for example. They also state that the lessor can become very depending on the discretion of the lessee, in case of a financial lease contract. If the lessee states that the scooter didn't work for a month and he/she therefore will not pay the monthly price, the lessor can face time consuming administrative and legal fuss.

Outsourcing the responsibility for arranging the customer returns, like EB-Lease did, will not be suitable for Eco-movement. They particularly state that cooperating, and sharing Eco-movement in-house knowledge regarding electric transport with dealers, could have the perverse effect of giving these dealers a leg up the electric scooter market. Besides the customer (lessee) will get in (too) close connection with the dealer, resulting in a situation where Eco-movement will be sidelined, because they only arrange the first 'purchase contact'. Eco-movement will have to arrange these returns themselves or in cooperation with FietsNED, like they do right now. FietsNED only strives for an optimal servicing network, and will not get involved in selling the electric scooters themselves. FietsNED is therefore a safe partner for Eco-movement.



The 'what is being returned dimension' is a dimension, which is in the new Eco-movement electric scooter case, hard to interpret comprehensively. The new Eco-movement electric scooter will have to be C2C gold certified. The production processes, the materials used and product composition, the component control by Eco-movement, the final design of the scooter: all of this is still in it's infancy. Therefore it is almost impossible to describe what product characteristics can be distinguished in case of a 'C2C gold certified-scooter return'. In order to describe this dimension anyway, the current electric scooter returns (in case of warranty

for example) will be discussed. These scooters could in the end be applicable for leasing as well.

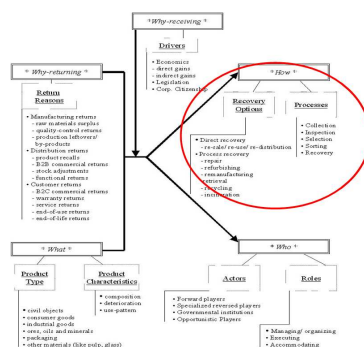
Regarding the product characteristics, the deterioration processes differ significantly between the scooter components, and will therefore be of specific interest. Not only because

²³ This Eco-movement requirement is caused by the negative experience, resulting from selling €1000 Oxxio scooters in 2007.

²⁴ This lease term is just an example.

these processes could strongly affect the recovery options, but they could also have implications for the company's responsibilities. Such as in the EB-Lease and ScooterPlan cases, the battery ages generally quicker than other components, like the frame and the braking system. The homogeneity of deterioration is therefore of a low level and the reuse of the battery as such will be out of the question. ScooterPlan did arrange the opportunity for the lessee to hand in this end-of-life battery. These environmental unfriendly components can be returned by the customer in order to arrange a controlled and safe disposal by an associated 3rd party²⁵, which is specialized in this safe processing. Eco-movement currently arranged such an opportunity for their customers as well. Not only because this is obliged by the scooter component return requirements discussed in chapter 1, but also for sustaining a solid customer relationship. Eco-movement offers the customer the opportunity of returning these end-of-life batteries for free, in order to dispose and recycle these components in a safe and controlled way. This disposal and recycling is organized in cooperation with the ISO-certified battery recycling company 'Miton Accumulators and Batteries' (miton.nl). The customer can also return the end-of-life batteries after the Eco-movement lease contract term ([source: interview with R. van den Berg](#)).

Regarding the use-pattern of the scooters, Eco-movement currently has no reliable information whatsoever. They could therefore use the data presented in the EB-Lease interview in paragraph 3.2.2. The electric bicycle use-pattern can in fact be compared with the electric scooter use-pattern. EB-Lease offers a fixed 3 year operational lease term. The lessee (who lives around 15 km of his daily job) will cover around 7.000 km during this lease term, according to EB-Lease. The standard batteries, currently in the Eco-movement assortment, have a lifespan of around 25.000 km²⁶. The batteries should in this case therefore succeed in fulfilling a 3 year lease term before becoming end-of-life returns. But further research on the use-pattern and the way of using the scooters by the future lessees, and the possible lifespan of the LiFePO4 batteries, could be valuable. This will be mentioned more extensively in the recommendations part of the next chapter.



As is already mentioned in the 'why returning dimension', the recovery processes of the 'how are products recovered' will be mainly the responsibility of Eco-movement. They specifically state that cooperating, and sharing Eco-movement in-house knowledge regarding electric transport with normal scooter dealers, could have the perverse effect of giving these dealers a leg up the electric scooter market. The processes of collection, inspection, selection and recovery will therefore be arranged mainly in-house, or in a controlled cooperation with FietsNED. Whether it will become direct or process recovery is still hard to predict. The scooters can

be re-used (re-leased), like the Athlon Car Lease case. Although the battery condition and the economic deterioration of the scooter will have to support this. If the lifespan of the battery will be around 25.000 km, process recovery can be the case for Eco-movement. Repairs will have to be arranged at the component level (new batteries and tires for example) and the scooter can eventually be re-leased again. These repairs can also be arranged in cooperation with FietsNED, but Eco-movement should be aware of the possible financial consequences of this cooperation for the lease contract. If Eco-movement offers the possibility to arrange the repairs via FietsNED, they could become financially responsible without having the control over these repairs anymore. Eco-movement will in the end be responsible for paying the technicians of FietsNED. This must be partly charged on the lessees as well, increasing the periodic lease rate. The lessee can after all call the technicians at any time, for every kind of damage. These

²⁵ ScooterPlan did not give away the identity of this particular German company.

²⁶ This silicium-gel lead battery has a lifespan of around 500 recharge cycles with a range of 50 km per cycle.

technicians will charge a standard call-out rate and operational costs, which will be passed on to Eco-movement. These costs could become too high, resulting in a non-viable lease concept.

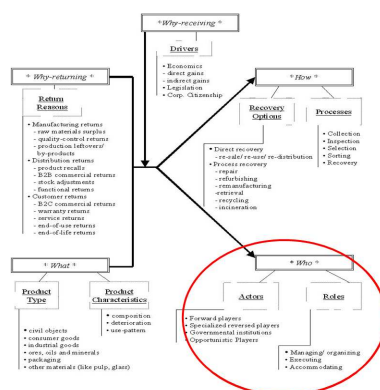
The returns nowadays are arranged as follows and could be a valid base to design the future lease return processes on (source: interview with R. van den Berg):

1. If the customer is not yet linked with FietsNED, the customer has to fill-in a ticket on the website, specifying the cause of damage. This ticket will be processed by Eco-movement within 24 hours. → step 3 or 4
 2. If the customer is linked with FietsNED already, he/she can also call FietsNED directly → skip 3 & 4
 3. Eco-movement subsequently sends the replacement part to the customer who will repair the damage him/herself, for example a broken handle bar which is very easy to replace.
- Or
4. the customer brings the scooter to Eco-movement and they will repair it at the Eco-movement facility in Amsterdam Zuid-Oost. Or
 5. the customer calls FietsNED, FietsNED will repair the damage and (only) in case of warranty the costs for this repair will be paid by Eco-movement. The customer will still have to pay the call-out charge of FietsNED.

In this way Eco-movement has a form of control, concerning the recovery processes executed by FietsNED. This must be the focus of the future recovery process arrangement, in case of leasing, as well.

A second challenge for Eco-movement will be to predict the number of service returns by the lessee during the contract. This will also have a significant effect on the monthly lease rate. The electric scooter is a relatively new product, in comparison to the cars used by Athlon Car Lease for example. They can accurately predict what the number of monthly service returns will be in case of a VW Golf, driven by a specific lessee. Eco-movement currently has customers, who did not return their scooter for any service return during the last 24 months. But one could not state that all customers will be that cautious with their belongings. This will be mentioned more extensively in the recommendations part of the next chapter.

Finally, offering operational lease will be risky (financially) in the beginning. Eco-movement therefore clearly states that they will first have to accomplish a higher liquidity rate. So, when the lease concept fails Eco-movement can still move on as web based electric scooter store. The financial backbone of the company will have to be 'upgraded'.



In order to distinguish the main actors involved in a possible Eco-movement leasing concept, 'who is doing the recovery', we have to define the timeframe in which we want to implement this concept in practice.

The corporate demand for leasing the electric scooters, instead of buying them, is present throughout the customer database of Eco-movement. If Eco-movement wants to implement the concept of leasing at this moment, they will have to cooperate with an established lease company, for example a company like Athlon. Although this is in contrast with the mentioned perverse effects in the 'why returning dimension'.

They particularly stated that cooperating, and sharing Eco-movement in-house knowledge regarding electric transport with dealers, could have the perverse effect of giving these dealers a leg up the electric scooter market. Besides the customer (lessee) will get in (too) close connection with the dealer, resulting in a situation where Eco-movement will be sidelined, because they only

arrange the first ‘purchase contact’. These dealers could as well be Athlon. Nevertheless, as is already mentioned, the liquidity rate of Eco-movement is not supporting the purchase of multiple electric scooters from the associated suppliers in order to present these scooters for lease. Therefore they need the (financial) support of an established lease company. The idea behind the concept (source: interview with R. van den Berg) will be that the e.l. company will purchase the electric scooters from Eco-movement. Eco-movement will train the e.l. company technicians in order to service the customer returns. An important requirement for Eco-movement will be to convince the e.l. company of the fact that Eco-movement will be invaluable as an electric scooter supplying partner. And as service-training facilitator. The e.l. company could otherwise directly establish a sales channel with the manufacturer of the electric scooters themselves. This will be discussed in the ‘strategy triad’ paragraph 5.4. Eco-movement will in this leasing concept mainly play an accommodating role, by delivering the best electric scooters available.

If Eco-movement wants to implement the concept of leasing, when they are financially independent and mature, the following lease concept design could be applicable. Eco-movement will offer a lease concept in close cooperation with the service network of FietsNED. It will be comparable to the ScooterPlan case. Eco-movement will be playing a more organizing and executing role. This role played by Eco-movement will be depending on the way in which the lessee wants to arrange its service returns. The end-of-use (end-of-lease) returns will have to be arranged by Eco-movement anyway, because of the C2C requirements. But the maintenance and service returns can be arranged by both parties. Eco-movement will have to arrange their financial FietsNED (in)dependency, discussed in the ‘how are products recovered dimension’, in an accurate way. The management of Eco-movement should elaborate more on possible contract designs with FietsNED, before implementing the concept of leasing. On financial grounds as well as on responsibility distribution grounds. This will also be discussed more in the ‘strategy triad’ paragraph 5.4.

5.3 Eco-movement leasing SWOT

The previously described Eco-movement SWOT-1 components and the Eco-movement objectives regarding the concept of leasing (in combination with the C2C requirements and competitive strategy), will eventually form 2/3 of the strategy triad input. The completing part will be the result of the leasing included SWOT-2 analysis, which will be discussed in this paragraph.

This SWOT-2 analysis is performed after the analysis from paragraph 5.1. Again a brainstorm session is used to generate an overview of the strengths, weaknesses, opportunities and threats for Eco-movement in case of leasing. For this brainstorm session not only the participants from the first analysis were present. The different interviewed companies, from chapter 3, did also receive the question to formulate their perceived strengths, weaknesses and opportunities regarding the concept of leasing. This information is used to check whether the components generated with the Eco-movement management team, are not focussing on the company Eco-movement too much. This could eventually hamper creativity.

The analysis is executed following the same steps, as were used in the first analysis. The following strengths, weaknesses, opportunities and threats regarding the concept of leasing were distinguished by the participants:

A *strength* can be defined as an internal characteristic that contributes substantially to the realization of the company’s mission. A strength is an internal asset, well placed to help exploit opportunities (or demands) and fight off threats.

Strengths Eco-movement leasing:

The main reason for Eco-movement to also present the concept of leasing is that they will become attractive to a bigger market section. The strength will therefore be their improved **competitive standing** when they both sell and lease electric scooters. As is already stated in the previous paragraph, the corporate business segment is declaring that they would like to lease the electric scooters, instead of buying them. By presenting the possibility to lease the electric scooters, Eco-movement can take away the financial barrier for these customers. The staggered payments can be a driver for potential customers to change one's mind about the operational organization of their fleet. Next, the possibility to outsource the corporate fleet management concerns; the operational management of damage, break down and insurance for example, is also in favour of the customer (lessee).

Eco-movement can arrange a broad portfolio of high quality scooter brands for the lease market, due to their extensive network. They are a brand and importer independent company. Because of this independency they can, in principle, meet all customer demands on scooter supply variety. A **flourishing customer relationship** can be the resulting strength.

A *weakness* is an internal characteristic that threatens the functioning of the organization. Weaknesses are internal conditions that erode the organization's position, hamper the cooperation with others, or obstruct the exploitation of opportunities.

Weaknesses Eco-movement leasing:

Eco-movement is a web based electric scooter store. They have **little if any knowledge** regarding the implementation and operation of the concept of leasing. Eco-movement also **lacks a supporting liquidity rate** to pre-fund the electric scooters for leasing. They will therefore depend on the will of external specialized parties and investors to cooperate with Eco-movement.

Leasing will be more attractive to corporate customers, than to private customers. The **monthly lease rate of an electric scooter will be considerably high** in proportion to the purchase price of one, due to (among other things) depreciation and predicted number of service returns. An employee who can't work, due to an electric scooter break down, will be a debit for the corporate customer (lessee). In this case an operational lease contract will, for a significant part, prevent this debit by immediately arranging a substitute scooter. The monthly operational lease costs for the corporate customer counterbalance the debit of a non-working employee, and the costs for employing an in-house fleet manager. This calculation will not hold for the private customer.

Leasing an electric scooter will in general be **more expensive and less flexible** than renting one. Currently Eco-movement is also renting out the electric scooters for €25 per day. So that will be approximately €550 per month, in case of 22 working days. A standard operational monthly lease rate will be around €350²⁷, in case of a 6 months lease term ([source: interview with R. van den Berg](#)).

An *opportunity* can be defined as an external fact or development that, if taken advantage of, can substantially contribute to the realisation of the company's mission.

Opportunities Eco-movement leasing:

The interest in the electric scooter market is increasing. The number of potential corporate customers for Eco-movement is growing, and therefore the **demand could be growing as well**. Not only in number of corporate clients, but also in number of leased scooters. Eco-movement

²⁷ Replacement value scooter: €2200. Value after depreciation: €660 - €880. Service costs: €100/month. Monthly lease rate will be: $(€2200 - €770) / 6 + €100$

creates, by presenting the concept of leasing, the opportunity to broaden their market and sales. Not only for leasing the electric scooter, but also for their current core business of selling electric scooters. This could have **positive effects on their liquidity rate**.

A second opportunity created by leasing, and correlated to the previous one, is the opportunity of **taking away the hesitation of purchasing** an electric scooter. The electric scooter is still perceived as a developing transport modality, which is not at its optimal level yet. The operational lease concept could take away this hesitation, because substitute transport, maintenance and repair responsibilities will be for the lessor. The lessee can therefore use the electric scooter, without quality concerns disturbing him/her.

By incorporating operational lease **Eco-movement lives up to the C2C requirement** of scooter component return. The electric scooter will return to Eco-movement after the lease contract term. This return feature brings Eco-movement closer to their goal of C2C gold certification.

A *threat* can be defined as an external fact or development that has, or can have, a substantial negative effect on the organisations' performance.

Threats Eco-movement leasing:

The **electric scooter market is still at an immature level**. Although the corporate business segment is declaring that they would like to lease the electric scooters, substantial external support is lacking. There is enough talking, but less action.

If Eco-movement decides to intensively cooperate with a 3rd party, they can be **losing part of their control over the in-house business activities**. Besides the relationship between the customer (lessee) and this 3rd party could hamper the competitive standing of Eco-movement. This threat can be characterized similar to the threat of the possible perverse effect of giving the dealers a leg up the electric scooter market, in case of cooperating and sharing Eco-movement in-house knowledge regarding electric transport.

There is **little if any data available about the customer behaviour regarding the lease products**. Will the lessee feel any responsibility for the subject of lease, considering driving behaviour, care about scooter components, theft prevention, maintenance agreements? All of these aspects could have a significant influence on the value and condition of the electric scooter which will be returned after the lease contract. Besides Eco-movement will face difficulty predicting the number of monthly service returns, which forms a significant part of the lease rate they will set. The risk of predicting this number too low, resulting in a bigger service debit, will be charged directly on Eco-movement.

5.4 Strategy triad

The final step in this chapter will be to develop strategies for Eco-movement, concerning the concept of leasing. In order to accomplish this goal the two SWOT analyses, and the in-house Eco-movement interview were performed. The results from these data collection and data analysis methods will in this paragraph be matched, and presented in the strategy triad. In this way the Eco-movement business components, the different leasing concept features, and the perceived Eco-movement responsibilities and goals will be interwoven in order to present 'combined' strategies for Eco-movement.

First, the overall results (from the two SWOT analyses and the interview) were discussed with the Eco-movement management team. This session resulted in the overview of main business and leasing SWOT components, and Eco-movement responsibilities. This overview is presented in Figure 5.9 on page 69. The Eco-movement management team appointed the strengths,

weaknesses, opportunities and threats which they perceived as most important. Simultaneously, they distinguished the applicable timeframe for the strategy formulation. This timeframe describes two possible scenario's: *Eco-movement leasing within 2 years* and *Eco-movement leasing after 2 years*.

Eco-movement leasing within 2 years

If Eco-movement wants to present the concept of leasing within the following two years, they will have to cooperate with an established lease company. At this moment Eco-movement is lacking the in-house knowledge about operating the concept of leasing in practice, they do not have a supporting liquidity rate to pre-finance the lease scooters, and the market is still at an immature level, resulting in a high product unfamiliarity throughout the group of potential customers causing a potential purchase hesitation of electric scooters.

Eco-movement is a brand and importer independent web-based scooter dealer, with a great deal of knowhow regarding electric transport, well-grounded by the solid relation with the Delft University of Technology and the comprehensive supplying network in the Netherlands. Eco-movement has a lot of corporate customers which declare that they would like to lease the electric scooter, instead of buying it. Eco-movement could, by leasing, increase its attractiveness to a bigger market section. This bigger market potential could decrease the negative news coverage regarding electric transport and thereby motivate external support for facilitating electric transport, like governmental environmental policies.

If Eco-movement wants to cooperate with an established lease company, they will have to face the hesitation of sharing electric transport knowledge and, more important, loss of control over in-house activities. At the same time they can life up to the opportunities of (future) C2C gold certification for their new electric scooter, and (current) improving of the corporate customer relationship. Which could eventually result in less hesitation surrounding the online sales of the electric scooter, and thereby also of advantage for the private market.

One of the main uncertainties of electric scooter leasing, is the little (if any) information available about the customer behaviour, in respect to the lease scooters. In what condition will the scooters be returned by the future lessee? By cooperating with an established lease company, Eco-movement can distribute this risk in a safer (shared) manner.

Summarizing the previous elaboration, Eco-movement should operate the following strategy if they want to present the concept of leasing within 2 years:

Cooperation with an established lease company is crucial. Eco-movement should therefore convince this established lease company that Eco-movement will be an invaluable supplying partner in the cooperative offering of operational lease for electric scooters. Eco-movement will arrange the electric scooters and the start up of the service facilitating department. The established lease company will arrange the actual concept of operational lease with the customer (lessee). The established lease company will by this cooperation not depend on just 1 importer, because Eco-movement will be pre-shifting the best brands of electric scooters for them. Eco-movement will therefore constantly use their extensive network to check the market whether new and/or better scooters are available. Next they will have to share their knowledge regarding electric transport, if they only want to facilitate the start up of the service facilitating department within the established lease company.

The most important component of this strategy is the persuasive attitude towards the established lease company, in order to present Eco-movement as the crucial mediator between lessor and electric scooter importers. Eco-movement already has the supporting network of importers and electric transport knowledge, which the established lease company could be lacking. The established lease company conversely has the leasing knowledge and a big

supporting group of current car lessees, which Eco-movement is lacking. They could by cooperating complete each other on the concept of electric scooter lease.

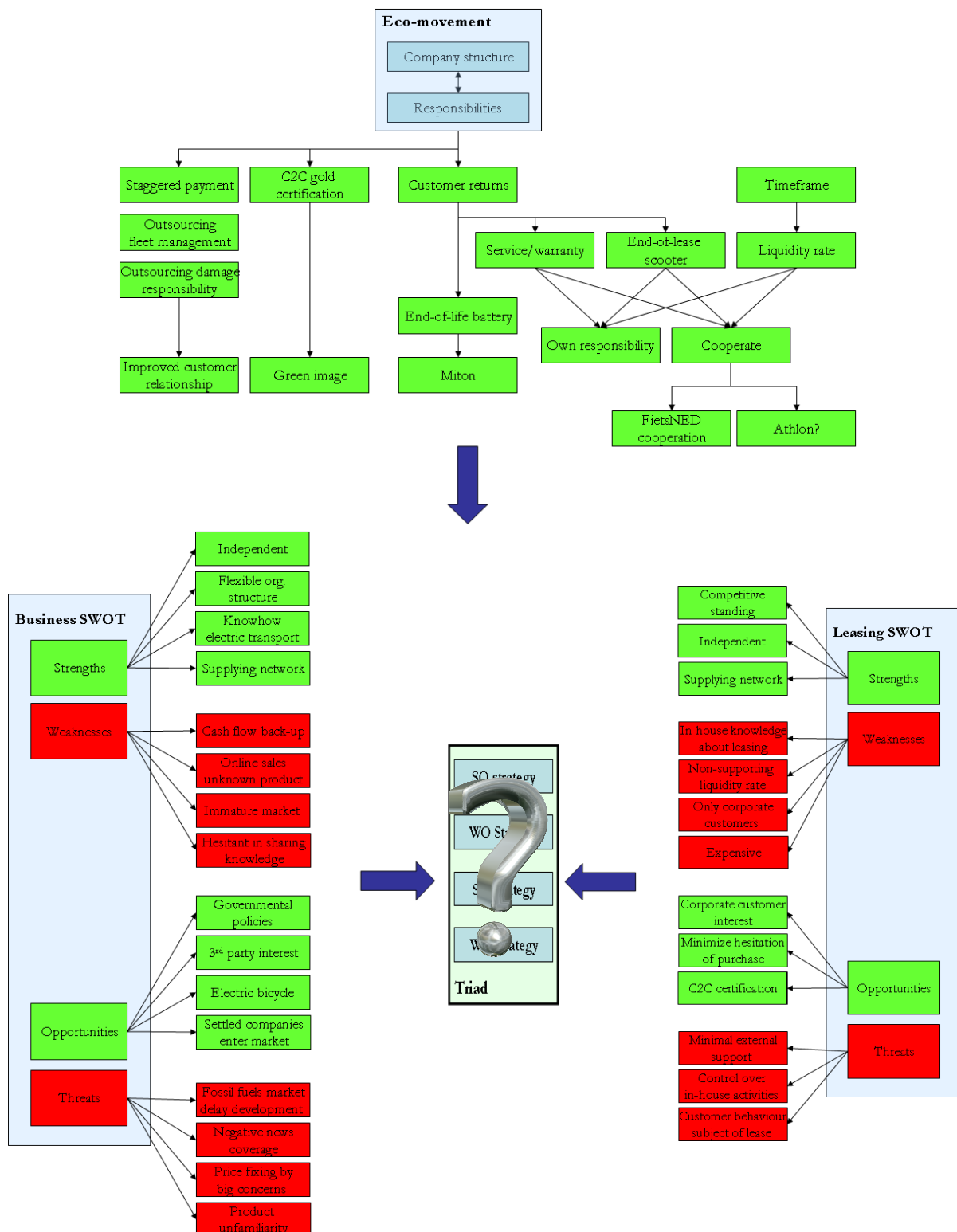


Figure 5.9: Strategy triad question mark

The main drawback of this mediator role, played by Eco-movement, can be the loss of control over in-house activities and intended C2C goals. If Eco-movement wants to strive for the C2C

gold certification, they will have to arrange this directly with the established lease company. Eco-movement will in this case not only have to convince this established lease company of the advantages of cooperating with them, they will also have to enthruse the established lease company for striving for this certification.

Eco-movement could also postpone this C2C goal and first develop a solid liquidity rate to operate the concept of leasing themselves: *Eco-movement leasing after 2 years*.

Eco-movement leasing after 2 years

If Eco-movement decides not to cooperate with an established lease company, or this potential lease company does not want to cooperate, both for any given reason, Eco-movement will not be able to present the concept of leasing in the present situation. As is already appointed, Eco-movement is lacking the leasing knowledge and financial support in order to present the operational lease form in a promising manner by themselves.

The Eco-movement goal of striving for a C2C gold certification for their new electric scooter should therefore be altered. First they will have to proceed in developing a mature market and a financially independent electric scooter company. Before this is achieved, Eco-movement should not aim at goals which are too revolutionary, in respect to the still developing market in which they operate:

- The electric scooter market is still at an immature level. Electric scooters are not fully adopted yet.
- The potential customers still perceive the purchase of an electric scooter to be more risky than purchasing the original fuel-powered scooter. Product unfamiliarity is an important reason for this hesitation.
- The current electric scooter quality could hamper a successful implementation as subject of lease. Little knowledge about customer behaviour, regarding the subject of lease, is available. Besides the electric scooter has been introduced in the Netherlands only 3 years ago. Quality assessments are therefore based on a limited range in time.
- Online sales of a reasonably unknown product is still discouraging potential customers to purchase an electric scooter.
- Incomplete news coverage is hampering the development of the electric scooter market, and the overall image of electric transport.

Nevertheless:

- Battery (and charging) technology is developing in a positive way (epyon.nl).
- The electric bicycle market is booming.
- Governmental and municipal policies aim at supporting companies like Eco-movement, and they aim at living up to the body of thought behind these companies.
- People become more environmentally conscious.
- Eco-movement's ambition is to pursue a long-term vision, and to give interpretation to this long-term vision by introducing products and services which will contribute to a clean and sensible society in the near as well as the distant future.

The concept of leasing can therefore be the service, which will contribute to a clean and sensible society, introduced in the *distant* future, while the electric scooter will be the product, which will contribute to a clean and sensible society, introduced in the *near* future.

Eco-movement will first have to increase its liquidity rate, by for example selling the electric bicycle. They currently adopted the electric bicycles from Qwic and Puch into their assortment. Next, Eco-movement will have to communicate the advantages of the electric scooter in a more advanced manner. The electric scooter is currently surrounded by ignorance. Rumours about noise (the scooter is dangerous because it is quiet), charging times (should be hours), speed (really like the original fuel-powered moped and scooter?), costs (much more expensive than fuel-powered), image (electric transport is for elderly people) and so on can be distinguished all too often. Eco-movement will have to fight these rumours in a clear and transparent way. Eventually, when they are financially independent and mature, Eco-movement could offer a lease concept in close cooperation with the service network of FietsNED. It will be comparable to the ScooterPlan case discussed in chapter 3, except for the fact that Eco-movement will implement an operational lease form. Eco-movement will be playing a more organizing and executing role. This role played by Eco-movement will be depending on the way in which the lessee wants to arrange its service returns. The end-of-use (end-of-lease) returns will have to be arranged by Eco-movement anyway, because of the C2C requirements. But the maintenance and service returns can be arranged by both parties.

By steadily pursuing the goal of presenting the electric scooter as a common alternative for cars or conventional scooters (purchase and lease), Eco-movement can become a key player when the market finally reaches its critical mass point. By then it will be the question whether Eco-movement did really become the *Albert Heijn*, or that they are still operating at a *health food shop* level...

6 Conclusions

“There are risks and costs to a program of action. But they are far less than the long-range risks and costs of comfortable inaction”.

John F. Kennedy (1917-1963)

This chapter discusses the results of the preformed research. Paragraph 6.1 will answer the four research sub-questions, as stated in paragraph 1.7 of this Thesis. Paragraph 6.2 will finally give recommendations on further research.

6.1 Conclusions on the research questions

This Thesis has been carried out from the following perspectives:

First of all, Eco-movement strives for the C2C gold certification for their new electric scooter. This certification requires return strategies to be described. One of these return strategies could be the concept of leasing. Investigating these leasing concepts therefore serves the purpose of the Eco-movement management. From this perspective the main research question is formulated:

“How can the concept of leasing contribute to the - C2C gold certification criteria and Eco-movement business goals and expectations - regarding their new LiFePO₄-powered scooter?”

The second perspective deals with the qualification of the usability of the RLF of De Brito (2003) for this leasing focussed Thesis. This can be seen as the scientific research perspective. This perspective will be mainly addressed in the Epilogue part of the Thesis. The third perspective, about the wider relevance of the C2C philosophy, will also be discussed in the Epilogue part.

In order to answer the main research question, four sub-questions are formulated. Each sub-question will be separately answered in the following paragraphs.

6.1.1 Answer to the first research question

Sub-question 1 is formulated as follows:

What leasing concepts can be distinguished in the current passenger mobility industries?

The aim of chapter 3 was to determine what leasing concepts are available in the current passenger mobility industries, and in what way these concepts were interpreted in the automobile industry, the electric bicycle industry, the fuel-powered scooter industry and the electric scooter industry. By performing a mainly web based literature review it can be stated that the concept of

leasing has a wide variety of configurations, as was presented in Figure 3.1. Nevertheless, all of these different configurations are based on two main forms of leasing: *financial lease* and *operational lease*. The most salient difference between these two main forms of leasing is that the subject of lease, in case of operational lease, will return to the lessor after the lease contract.

The financial lease concept can be seen as a contract for financing the investment. The lessor provides the investment. The lessee rents the product by paying the contractual periodic payments, and after fulfilling the contractual payments he will be the lawful owner of the product. Operational leasing is of a similar construction, but the lessee will not be the lawful owner of the product after the lease contract. (An overview, of the main differences between operational and financial lease, is presented in Appendix III, Table III.1) Operational lease can be divided in full operational lease and net operational lease. The full operational lease can subsequently be characterized by either an open calculation contract, or a closed calculation contract. Sub-forms of operational lease can be: re-lease, sale & lease back, short lease, green lease. Only the green lease concept can also be of a financial lease form.

6.1.2 Answer to the second research question

Sub-question 2 is formulated as follows:

What similarities and differences can be distinguished between the current passenger mobility industries' leasing concepts?

Information about the interpretations on the concept of leasing, by the different companies, is gained by means of performing several in-house interviews. The companies were elaborated along the lines of the five dimensions of the RLF of De Brito. The main similarities and differences, distinguished between these companies, on the five RLF dimensions are (presented in Appendix X, Table X.1):

Presenting the concept of leasing, by the different discussed companies, is generally driven by economics. The way in which this economic driving force (directly or indirectly) applies to the lessor depends mainly on the way in which the company's structure and responsibilities are defined. (this dimension is presented in Figure 4.1)

The corporate citizenship driving force applies to the subject of lease, and not specifically to the concept of leasing itself. The electric feature of the electric scooter for example, is often presented as the socially impelled characteristic. Although leasing can generate a green image by taking care of the product return after the lease contract, the concept of leasing and corporate citizenship can not be connected automatically, it is depending on the subject of lease.

The return reasons in general do not differ between the discussed leasing companies. We can mainly distinguish customer returns, of which most of them are service and end-of-use returns. This return can be triggered by the lessor, the lessee or a 3rd party involved. The organisation of this return depends mainly on the way in which the leasing company's structure and responsibilities are defined. (this dimension is presented in Figure 4.2)

What, speaking of product characteristics, is being returned to the lessor (or an associated party) strongly depends on the lease contract design and the lease contract term available. The variety of brands, offered by the lessor, can also be of influence on the returned product characteristics. These features can have a significant effect on the deterioration, use-pattern and composition of the subject of lease. (this dimension is presented in Figure 4.2)

How products are recovered strongly differs between the discussed companies. Not only the returned product characteristics and reasons for this return, but also the company's driving forces are of significant influence on this recovery process interpretation. Is the lessor mainly focussing on arranging the lease contracts, and therefore outsourcing non-core businesses like collection and inspection? Or are these processes organized in cooperation with third parties? And is the subject of lease re-used again after the lease term, or is it re-sold? (this dimension is presented in Figure 4.4)

The involved actors and roles played by these actors depend on the way in which the economic driving force is constructed and presented by the lessor. Is the lessor playing a managing, executing and accommodating role all together, or is the lessor just the accommodating actor in the field of leasing? It is therefore important to comprehensively consider and discuss the company's structure and responsibilities. What (non-) core businesses can be distinguished and what responsibilities is the company facing? (this dimension is presented in Figure 4.5)

6.1.3 Answer to the third research question

Sub-question 3 is formulated as follows:

Which leasing concept features could, in principle, match the Eco-movement objectives regarding C2C gold certification and competitiveness?

The concept of operational lease matches the Eco-movement:

- objectives regarding the C2C gold certification: the C2C requirement of scooter component return is assured by the salient feature of operational lease that the subject of lease will return to the lessor after the lease contract.
- objectives regarding business competitiveness: Eco-movement does not operate a liquidity rate which supports the pre-financing of electric scooters in case of financial lease.

This information was gained by an Eco-movement in-house interview, focussing on the Eco-movement competitive strategies and C2C certification goals.

Regarding the drivers for offering the possibility of leasing by Eco-movement, the main forces are the indirect economic gain by the improved customer relationship and the green image by striving for a C2C gold certification. The corporate citizenship driving force is playing an important role by this C2C certification. Nevertheless, the emphasis of the electric scooter attention will be less on the environmental friendly feature, and more on the fact that the scooter will be cheaper and relaxter in the end.

The customer returns, warranty/service and end-of-use (end-of-lease), will be dealt with by either Eco-movement, or the associated service facilitators of FietsNED. The customer will eventually choose for one of these service options. Outsourcing the responsibility for arranging the customer returns will not be suitable for Eco-movement. They particularly state that cooperating, and sharing Eco-movement in-house knowledge regarding electric transport with dealers, could have the perverse effect of giving these dealers a leg up the electric scooter market. Besides the customer (lessee) will get in (too) close connection with the dealer, resulting in a situation where Eco-movement will be sidelined.

One of the main components of the electric scooter is the battery. Eco-movement is offering the customer the opportunity of returning the end-of-life batteries for free, in order to

dispose and recycle these components in a safe and controlled way. This disposal and recycling is organized in cooperation with the ISO-certified battery recycling company Miton. The customer can also return the end-of-life batteries after the lease contract term.

Offering operational lease can have financial risks caused by the Eco-movement (non) control over the repairs executed by FietsNED, and the uncertainty about the number of service returns. Eco-movement therefore clearly states that they will first have to accomplish a higher liquidity rate.

Although Eco-movement states that cooperating and sharing in-house knowledge, regarding electric transport, could have perverse effects, they still keep the option of cooperating with an established lease company open. Otherwise, implementing any concept of leasing in the near future would be impossible, due to their non-supporting liquidity rate.

6.1.4 Answer to the fourth research question

Sub-question 4 is formulated as follows:

What recommendations can be made for the new Eco-movement electric scooter regarding the concept of leasing?

(Both strategies discussed below are based on Figure 5.9)

At this moment Eco-movement is lacking the in-house knowledge about operating the concept of leasing in practice, they do not have a supporting liquidity rate to pre-finance the lease scooters and the market is still at an immature level, resulting in a high product unfamiliarity throughout the group of potential customers, causing a potential purchase and lease hesitation of electric scooters. If Eco-movement wants to present the concept of leasing within the following two years, they will have to cooperate with an established lease company.

The most important component of this strategy is the persuasive attitude towards the established lease company, in order to present Eco-movement as the crucial mediator between lessor and the electric scooter importers. Eco-movement already has the supporting network of electric scooter importers and possesses a significant amount of electric transport knowledge, which the established lease company could be lacking. The established lease company conversely has the leasing knowledge and a big supporting group of current car lessees, which Eco-movement is lacking. They could by cooperating complete each other on the concept of electric scooter lease.

The main drawback of this mediator role, played by Eco-movement, can be the loss of control over in-house activities and intended C2C goals. If Eco-movement wants to strive for the C2C gold certification, they will have to arrange this directly with the established lease company. Eco-movement will in this case not only have to convince the established lease company of the advantages of the concept of cooperative electric scooter lease, they will also have to enthruse this established lease company for striving for the C2C gold certification.

If Eco-movement decides not to cooperate with an established lease company, or this potential lease company does not want to cooperate, both for any given reason, Eco-movement will not be able to present the concept of leasing in the present situation. The Eco-movement goal of striving for a C2C gold certification for their new electric scooter should therefore be altered. First they will have to proceed in developing a mature market and a financially independent electric scooter company. Before this is achieved, Eco-movement should not aim at goals which are too revolutionary, in respect to the still developing market in which they operate. The concept of leasing will therefore be the service, which will contribute to a clean and sensible society,

introduced in the *distant* future, while the electric scooter will be the product, which will contribute to a clean and sensible society, introduced in the *near* future.

6.2 Recommendations on further research

There are some limitations to the performed study, which were already stated in paragraph 1.9. To solve these limitations some recommendations on further research must be made.

First of all, a study must be performed on the possible reasons for the reserved acceptance of the electric scooter in the Netherlands. What influence do factors, like product unfamiliarity, costs and battery development, have on this process? And in what way can Eco-movement productively react on these factors? What enablers and necessary conditions should be contacted or created by Eco-movement in order to speed up the take-off of the electric scooter market?

Second, the research approach in this Thesis was primarily focussing on the corporate playing field. The customer preferences and behaviour regarding the subject of lease were not included. This behaviour can be of significant effect on, for example, the monthly lease term calculated by Eco-movement (service returns). This lease term could thereupon be an important factor of acceptance for both lessor and lessee. A study should therefore be performed on the 'feeling' electric scooter users experience from the electric scooter in general, and in case of leasing. Factors as 'personalizing of the scooter' and '(lease) price range acceptance' should be elaborated, as well as the impact of leasing on the level of caution of the user regarding the electric scooter. Is the user acting less cautious because of the operational lease form features and the (possible) resulting perception of non-ownership?

One of the recommendations for Eco-movement was that they should cooperate with an established lease company in order to present the concept of leasing within the near future. This option was in fact discussed with a well-known lease company. They were interested, but no concrete information could be shared. This limitation was also appointed in discussing the interviewed companies. This research is executed for Eco-movement. Other (interviewed) companies which participate in the electric scooter industry, or are planning to do so, could be wary in giving away important in-house information. The market is still developing, and this strategic behaviour is therefore understandable. Nevertheless, an extensive study must be performed on the cooperative intensions, including the C2C body of thought adoption, of established lease companies and possible 3rd parties involved.

Eco-movement is striving for a C2C gold certified electric scooter. As is already depicted in chapter 5, this C2C certification could be too revolutionary in the still developing electric scooter market. It will therefore be very important to investigate the customers' personally perceived (dis)advantages of this certification, and the way in which Eco-movement should deal with this customer perception. Is the C2C body of thought recognized as such that it has (dis)advantages for the potential group of users?

Finally, this research is done for Eco-movement, but it can also be used for other electric scooter companies. In the Thesis' Part I, a significant part of the information is generic. The information about the forms of leasing, lease company property structures and leasing concepts in practice can be used by other parties. There is, however, some Eco-movement specific information regarding their RLF interpretation. This is discussed in Part II of the Thesis. But this RLF systematic view can nevertheless be easily used for studies concerning other electric scooter companies. The Eco-movement RLF interpretation can be a starting point for the companies' personal interpretation. The information in this Thesis can therefore be a source of knowledge for other studies concerning leasing, C2C and electric scooters.

Epilogue

“The important thing is not to stop questioning”.
Albert Einstein (1879-1955)

The epilogue can be seen as Part III of the Thesis. After presenting the recommendations for Eco-movement a more general view on the Thesis will be given: the so-called helicopter view. First a reflection on the (MBDC) C2C ‘openness’ to contributing participants in the Netherlands will be given. This reflection is the result of attending a C2C-symposium in Delft last May, which was partly chaired by Michael Braungart. Second, a brief reflection will be presented about the perverse and naïve optimism regarding the new eco-effective way of thinking. Third, a reflection will be given on the RLF of De Brito, regarding the results presented in this Thesis. Finally the relevance for the customer of C2C certification in the present electric scooter market will be discussed. All of these reflections serve the purpose of broadening the usability of the research results.

I

The first part of this Epilogue will present a reflection on the (MBDC) C2C ‘openness’ to contributing participants in the Netherlands.



Nudeln-to-Nudeln?

Is the body of thought behind C2C really that open to contributing participants? Are Michael Braungart and William McDonough that keen on re-designing the eco-effectiveness of products and processes used and built by different companies, just from a world saving point of view? Or is the ‘The Next Industrial Revolution’ body of thought becoming more and more a way to gain economic profit for the company MBDC²⁸? Questions that emerge when recalling the pitiful downfall of the Dutch website cradletocradle.nl in February this year (CradletoCradle.nl).

The site cradletocradle.nl started a year earlier in order to create consciousness around the C2C body of thought in the Netherlands. Daily info mailings, news, events and videos kept the visitors informed. Even the internet sites from abroad were translated in Dutch and uploaded on the site. This resulted in 600-700 daily visitors. Generally speaking, the site was a success. Not

only for its number of frequent visits, but also for its uniting effect. Companies, entrepreneurs, governmental institutions and universities contacted with each other on the site. They exchanged information, constructed cooperating groups and offered their waste on the site. The site was not only a medium for generating C2C publicity, it was more an innovating platform.

The site was financed by advertising funds. This was a costly and time consuming way of financing. Because of the site’s background, all forms of commercial ‘green washing’ and ‘free riding’ on the C2C body of thought by the potential investors, in order to look sustainable and ‘green’, were not admitted by cradletocradle.nl. A time consuming and costly process of identifying the genuine partners to be. But the management in this way kept their promise of not doing a ‘little bad in order to do more good’. *Do not try to do things right, but try to do the right thing* as MBDC preaches.

Because of this, maybe stubborn, living up to the C2C principles, they were strongly depending on subsidies, gifts and sponsoring by companies which not only adopted the C2C body of thought, but also put these C2C ideas in action. Eventually this financing form has ruined the initiative.

At the symposium, Michael Braungart was fanatically lecturing on the possibilities for everyone to contribute to the C2C body of thought. If you had some good ideas, you were most welcome to join and you could expect support from MBDC. At that moment, the downfall of cradletocradle.nl emerged in my memory, and especially the lack of support from MBDC and

²⁸ MBDC is founded by Braungart and McDonough in 1995, in order to promote and design ‘The Next Industrial Revolution’. It is a product and process design consultancy firm, which is engaged in revolutionizing products.

EPEA²⁹. Why did MBDC/EPEA not (financially) support the popular and well functioning Dutch medium cradletocradle.nl? Braungart's answer to this question was as follows:

“It is simply to protect the term Cradle-to-Cradle. If everyone could ‘do it’, the value of Cradle-to-Cradle would decrease significantly and we strive to maintain a certain standard. If people adopt the Cradle-to-Cradle body of thought and use it, without our advice, the term would become meaningless and they could just as well call it *Nudeln-to-Nudeln*.”

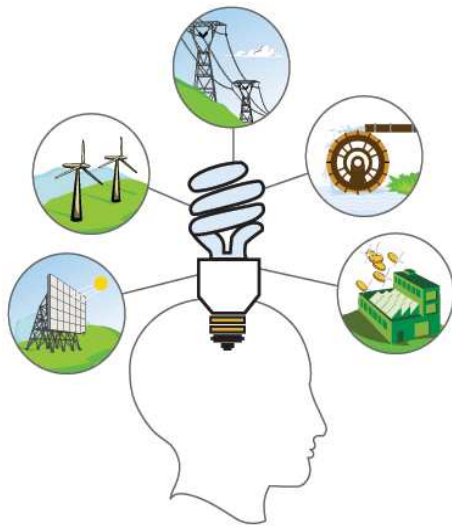
This is not the verbatim text, but contains the tenor of the answer and I think this tenor is wrong. The C2C certificates (basic, silver, gold, platinum) maintain the standard. These certificates are only issued by MBDC, by which the quality should be safeguarded. Initiatives and the sharing of experience and information are important motives to innovate and eventually apply for this C2C certification. But, where can you apply for these certificates if you have the drive and ideas, but not the capital to involve the expensive MBDC consultants? Is recycling, second-hand trade, refuse collection, workplace improvement, bio-climatic construction technology, energy saving, science or economy monopolized in the same way? Of course not! These initiatives work because they are controlled by everybody, in favour of everybody. And that should be the case for MBDC's C2C also, if it wants to reach a worldwide audience.

If there is no change of that cooperating and controlling view, than the idea of Braungart's open source Nudeln-to-Nudeln isn't that bad at all. There will be examples of N2N called innovations, which are non-sustainable innovations in practice in the end. But this is what happened also in current ergonomics, energy saving initiatives and recycling innovation. Nevertheless, these ‘failures’ are not that bad, keeping in mind that the majority of the initiatives did work! And that all initiatives (even the bad ones) are scrutinized by an enormous group of committed people. It's a question of time, before this omnipresent control will separate the wheat from the chaff. And luckily we are than talking about a big plantation, not a hobby garden with corn.

²⁹ EPEA is founded in 1987 by Michael Braungart. Its purpose is to employ the C2C methodology worldwide on products and processes, in cooperation with the client.

II

The second part of this Epilogue will present a brief reflection on the perverse and naïve optimism regarding the new eco-effective way of thinking.



Don't worry, buy happy!

C2C supporters constantly emphasize that the *eco-effectiveness*, which they strive for, differs significantly from just increasing the classic *eco-efficiency*. By implementing the C2C body of thought, harmfulness design and production will disappear and waste will actually become food. The classic *eco-efficiency*, conversely, states that we should produce the same products but in a more efficient way, using less energy, resources and raw material, resulting in less waste. McDonough and Braungart call this 'less bad is no good, polluting less is still polluting' (Braungart and McDonough 2002). This *eco-efficiency* is still destroying and poisoning the world, less fast, but it is happening. A lot of so-called recycling is actually downcycling: the recycled products are not of equal value

anymore, while they constantly decrease in quality. McDonough and Braungart therefore plead for a whole new design assignment of everything we produce: the *eco-effective* design.

But is all the optimism surrounding this C2C *eco-effectiveness* justified? In order to reflect on this question we should elaborate on two classic *eco-efficiency* problems some more.

One of the two main drawbacks of a more efficient environmental policy, is the fact that the (environmental) profit gained by this policy almost immediately will be lost by new forms of consumption. The so-called 'rebound effects' occur (Binswanger 2001). Products become more efficient, but the consumer will alter his consuming patterns simultaneously to this increase in product efficiency. In the end, the environmental profit is lost again. The supporters of *eco-efficiency*, partly create these problems themselves. They specifically state that only the technology can and will solve all of these problems, and that their lifestyle is not the problem. *Don't worry, buy happy*. Not our consuming patterns, but the unsatisfactory level of production process efficiency is causing a negative environmental impact (Burritt and Saka 2006).

This one-sided approach of *eco-efficiency* can result in environmental profit for individual products, but not for the total ecological system. A striking example is the car. Due to innovation in car mechanics the fuel consumption decreased and the car became more environmentally conscious. But simultaneously we travelled more and bought more cars. The environmental profit of less consuming and less poisoning cars is perished by the ongoing growth of our fleet of cars. Not to mention our increasing comfort demands, like air-conditioning, and the craze around big 4x4 cars for inner city transport, which also cooperate in crushing the *eco-efficiency* profit.

Despite the importance of technological improvement for an increase in *eco-efficiency*, this technical improvement will therefore not automatically guarantee a smaller ecological footprint (Evans 2008). The question arises if this problem will occur with C2C *eco-effectiveness*

as well? Theoretically, it will not. The C2C principle uses the closed technical and biological cycles, so no loss of raw material and energy can occur. But that is speaking of theory. In real, these perfectly closed cycles are illusions. And if these cycles (in some way) do happen to arise, what about the old and non-sustainable products which will still be available on the market? Should we take the same rebound effects into consideration?

The second drawback which will be discussed in this Epilogue, is the slow and limited breakthrough of the classic eco-efficiency. And (again) the question if this could happen with eco-effectiveness as well.

Even the smallest adjustments, in order to create a more sustainable production and consumption society, penetrate with difficulty into our daily habits (Deiters 2009). The sense of urgency is missing in policies, the business community and with us, the consumers. We constantly want new products and sustainability is not one of the main buying-arguments in that process. The average consumer is just focussing on the lowest price and the producers are adapting to that (Thøgersen and Olander 1995). They are even stimulating this behaviour. Again the car industry can be depicted as a striking example of this behaviour. Hybrid cars, or other economical cars, are mainly niche products in a market which still jacks up volume numbers, power and fuel consumption. How is this possible? But also energy producing and energy transporting companies are playing this non-environmental role. A significant part of these companies use anything but the best available techniques. The old production lines are still not deducted or they are just more profitable than new eco-efficient investments. Stimulating policies could be very important in this matter. But even the governmental institutions still act too little in this respect (Kemp, Parto et al. 2005). Regarding the policies for limiting air, water and soil pollution, we are on the right track. But for the use of raw material and energy, or the limiting of our ecological footprint, the main policy is still in it's infancy. One could state that these policies are more or less of symbolic value. An eco-label here, an eco-label there and a premium for that initiative is as far as they want to reach. The governmental support for ecological product and process innovation is relatively small, compared to the classic economic support. Not to mention, the non-use of ecological criteria in decision making about innovation support. Companies will therefore first deduct their old investments. Innovations in this way will be unused, because cheaper and more environmental unfriendly techniques will stay permitted. Or innovations will be blocked because they will have to compete with present day techniques on the main criterion of costs.

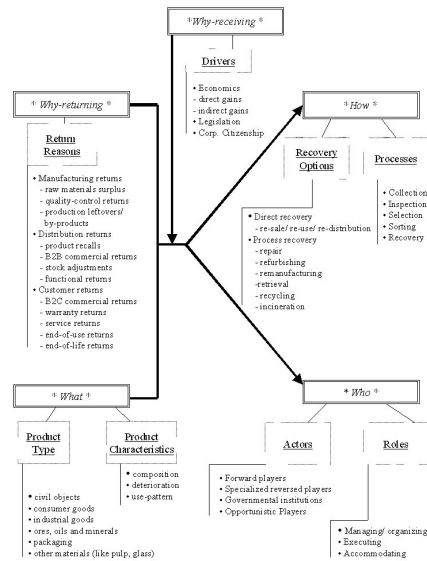
All of these elements slow down a quick transition to more classic eco-efficiency. And the question stays whether the transition to more eco-effectiveness will be interrupted in the same way. Do the rebound effects, the policies and the force of habit (of producer, transporter, consumer and government) also occur in this C2C body of thought?

Nevertheless, a quick and excessive implementation of C2C could be necessary in order to accomplish a more ecological economy. But at the same time, the danger and perverse impact of C2C is the naïve optimism that everything is settled on better design and technology. McDonough and Braungart want to get rid of the sense of guilt which sticks to the classic eco-efficiency thinking: "We should not limit ourselves. We should not try to do less bad. We should choose for 100% doing the right thing! That will open the doors to a 'world of abundance, instead of a world of limits'. And therefore we should only design in an effective and reasonable way, *without questioning our lifestyle*. Everybody will be happy!"

Or is it precisely this optimism which is inappropriate?

III

The third part of this Epilogue will present a brief reflection on the RLF of De Brito, regarding the results presented in this Thesis.



Reverse Leasing Framework?

The Reverse Logistics Framework of De Brito is originally developed for structuring the reverse logistics field of research (De Brito 2003). It is constructed on the five basic dimensions: ‘why receiving’, ‘why returning’, ‘what is being returned’, ‘how are products recovered’ and ‘who is doing the recovery’. According to De Brito the product type (‘what’) and return reasons (‘why returning’) are exogenous entities. They work as input for the decision making on how to recover and who is responsible for what in the reverse logistics network. These decisions are also influenced by the product recovery drivers from the ‘why receiving’ dimension. Different return reasons, product characteristics and different drivers cause many times to different recovery options and different roles played by the specific actors.

Within this Thesis the RLF is used to examine and describe the current available leasing concepts in four passenger mobility industries. The aim of this third part of the Epilogue is to present some reflections on the RLF, regarding the presented results.

First of all, the applicability of the RLF regarding the presented companies and their specific concept of leasing. The example of EB-Lease shows the first difficulties using the RLF for describing the specific EB-Lease dimension interpretations. EB-Lease presents the concept of leasing for mainly economic reasons: direct economic gain from the monthly received lease payments, and indirect economic gain from the green image by the subject of lease. This dimension can therefore be described in a substantive manner, and according to the RLF examples presented by De Brito in her PhD Thesis. But, thereupon EB-Lease outsources most of the operational lease processes. They do not receive any returns! The ‘why returning’, ‘what is being returned’ and ‘how are products recovered’ dimensions therefore mainly apply to the associated dealers. In what way the exogenous entities influence the recovery processes and actors involved, is of little relevance for EB-Lease. Similar, the EB-Lease drivers are of little relevance for the decision making process by the associated dealers. The associated dealers will ‘just’ have to service the returns in order to sell the electric bicycles for a good price after the lease contract. EB-Lease will ‘just’ have to arrange the lease contracts. EB-Lease and the RLF therefore only match on the ‘why receiving dimension’. The question arises what value the RLF can have in describing this lease company?

Before elaborating on this question a second problem, and of similar relevance as the EB-Lease matching problem, will be discussed. This problem is concerning the ScooterPlan financial leasing case. In order to explain this problem, let us first recall the definition of reverse logistics as defined by the European Working Group on Reverse Logistics (De Brito and Dekker 2004):

“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 recovery or point of proper disposal.”

Because of the financial leasing concept specifications, the subject of lease will not return to the lessor. In this case ScooterPlan. Not only the connection with the ‘how are products recovered dimension’ will therefore be problematic, but the overall connection with the reverse logistics body of thought can be questioned. Can we distinguish a ScooterPlan process, controlling the backward flow of electric scooters? No, we can not. The lessee will legally own the scooter after fulfilling the contractual, monthly payments. There will be no backward flow of electric scooters. The only finished goods that will return to ScooterPlan are the end-of-life batteries. But, the responsibility for the safe disposal of these environmentally unfriendly components will than be for an associated 3rd party. The actual recovery is not controlled by the original lessor. Again, we could ask ourselves what value the RLF can have in describing this particular ScooterPlan company?

The answer to this question could be that it would in this case be better to look at the network, in which ScooterPlan is operating, from a higher point of view. What role is ScooterPlan than really playing? And what role is the associated battery specialist playing? Keeping this higher view in mind, I think it would be more sufficient to match the RLF dimensions with the associated battery specialist. Such an example can also be distinguished in the case studies performed by De Brito in her PhD research (page 85, reference 17 (Europe)). ScooterPlan could in this case be characterized as an opportunistic player, who is part of the ‘associated battery specialist network’. The dimensions for the associated battery specialist could be interpret as follows:

driver	return reason	what	recovery option	who
legislation	end-of-life	consumer goods	recycling	(among others) ScooterPlan

And concerning the EB-Lease case, it could be more sufficient to focus on the dealers. EB-Lease is in that case playing an accommodating role. The dimensions for the dealer could be interpret as follows:

driver	return reason	what	recovery option	who
direct economic gain	end-of-use	consumer goods	re-sale	(among others) EB-Lease

Summarizing the above; the applicability of the RLF regarding the presented companies and their concept of leasing could be of more value when interpreting this RLF from the ‘associated parties point of view’. These parties are actually more involved, and in control of the reverse logistics processes. The lease companies, discussed in this Thesis, are less. Presenting the concept of leasing, by the interviewed companies, will not automatically mean that these companies are also in charge of *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 recovery or point of proper disposal*. It can therefore be hard to sufficiently describe these processes.

The RLF can in the end be a practical and useful way to structure reverse logistics leasing networks, but one should consider the point of view from which the framework will be interpret extensively. What actor is in control of the processes, and what actor is playing a less controlling role? What point of view will form the basis?

Eventually the RLF will be more applicable and useful in describing reverse logistics networks for OEM's, and actors involved in networks which consist of a significant flow of moving goods. The electric scooter market as such, is therefore less applicable.

A final remark on the RLF, as it is used in this particular Thesis, is the perceived connection between the product characteristics and return reasons. In the RLF, as it is discussed in the PhD Thesis of De Brito, both dimensions are exogenous. The RLF figure (Appendix IV) suggests that they separately (and solely) influence the decision making process on how to recover products and which actors to involve. A direct connection between the both dimensions is not distinguished. Regarding the future Eco-movement subject of lease, I question this non-existence of a connection between these dimensions.

As is already presented in Figure 4.2, the 'what is being returned dimension' is in my view influencing the 'why returning dimension'. Particularly in the case of the electric scooter as subject of lease. The faster deterioration of the battery can be depicted as a reason for the service and/or end-of-life returns of this component by the customer. So the product characteristics, especially the use-pattern, and product type do not only influence the recovery processes and actors involved, but can also be of influence on the return reasons of the customer.

In the end, this will have no impact on the decision making regarding the recovery processes and actors involved. Both dimensions can have a separate and/or interrelated input on this process. It is just to indicate that the relations between the RLF dimensions in Appendix IV can be conceived less stringent.

IV

The fourth part of this Epilogue will present a brief reflection on the relevance of C2C certification for the future customer.



Cradle-to-Cradle certified ‘buikschuiver’

For the past six months I have been working on this Thesis. During this period I had to explain what I was doing numerous times. In the beginning I was enthusiastically telling every interested one, about the research area in which I was performing my study: the Cradle-to-Cradle body of thought, the concept of leasing, the Reverse Logistics Framework, the electric scooter, Eco-movement, the company and so on. All topics which are very much happening right now. Topics which are discussed in the news almost every day: sustainability, environmental consciousness, electric transport. My Thesis research should be associated with these topics as well. At least that is what I thought people would refer to, listening to my story. It turned out to be slightly different, especially with the electric scooter.

The first reaction, of people listening to my story, was most of the times very enthusiastic, particularly about this electric scooter. Almost everybody did hear from the scooter. But what amazed me the most, were the particular electric scooter features mentioned by these people. One would expect that the non-CO₂ emission feature, the concept of sustainability and the overall costs per km characteristics, for example, would be mentioned most of the times. Not at all! These environmental impact related features were practically overruled by remarks like:

“The scooter does not make any noise. That will be dangerous!”

“Only elderly people use electric transport.”

“The electric scooter is more expensive than the fuel-powered one.”

“But, the range of the scooter is limited to around 30km, right?”

“Electric transport...you mean like the Prius? It is ugly! I want a scooter like the Vespa!”

“Ok, but recharging the battery, how am I going to do that? And where? And that will probably take a very long time?”

“What will be the speed of the electric scooter, probably slower than the fuel-powered one...”

A lot of regrettable ignorance. And very little, if any, connection with the environmental advantages of the scooter were recognized! But why is the electric scooter perceived in such a negative way? Surfing the internet I accidentally found a column about a father whose son had

recently become 16 years of age, and now was legally permitted to ride on a scooter. The father was explaining why he (in the end) didn't purchase an electric scooter for his son:

The son was specifically declaring that he wanted a 'buikschuiver'. A scooter, which in his opinion looked like a cross motor. The father had a job in the environmental business and therefore suggested the electric scooter. "The electric scooter is much cheaper in the end, and environmentally friendlier as well. Air pollution is not the case with an electric scooter. Charging with 'green electric power' means no extra CO₂ emission. So, a cleaner, cheaper and quieter scooter." The father liked the sound of the idea very much at first sight. Although, was the father thinking... When he gave his son the electric scooter, there would be two possible scenarios: either his son will be the trendsetter regarding electric transport, or he will be rejected by his fellow classmates mercilessly. Adolescents amongst themselves, group pressure and so on. That will eventually cause that the 'buikschuiver' will be purchased anyway, and he bought his son a fuel-powered 'buikschuiver' scooter.

The reason for mentioning this particular example in the Epilogue, is that the electric scooter is still perceived as 'uncool' and 'irrelevant' in the group of potential users. As is depicted on the previous page, this can for a great part be explained by the ignorance which is still surrounding the electric scooter. The main advantages of the electric scooter do not hold against the negative image, or aren't recognized at all. The electric scooter is still perceived as a transport modality for elderly people. It is not perceived as 'happening and trendy'. Second, the environmental relevance of the electric scooter is not yet assigned totally. The original fuel-powered scooter is not perceived as a major burden on the environment, while for example the car is. For car users it is therefore perfectly normal to choose for a generally more expensive in purchase, but less expensive in consuming, car. Besides these cars are often highly subsidized by governmental policies, who also recognize the polluting external effects of cars. The fuel-powered scooter is not yet perceived as such a heavy burden on the environment, and the concept of the electric scooter could therefore be characterized as irrelevant.

So what would be the relevance of a C2C gold certified electric scooter for the potential user, when the market is still in its infancy and the plain electric scooter is far from fully adopted? I personally think, that the market is not yet ready for adding the C2C certification on the electric scooter. People do not recognize any personal advantage from this certification. Let them first fully adopt the idea of plain electric transport. And let them recognize the advantages of the electric scooter. Fight the ignorance surrounding electric scooters. And compete with the original fuel-powered scooters on non-environmental features, like looks and personalizing options. When it is finally impossible to imagine a world without electric scooters, it could be time for the next step: a C2C certified 'buikschuiver'.

References

BOOK

- Braungart, M. and W. McDonough (2002). Cradle-to-Cradle: remaking the way we make things. New York, North Point Press.
- De Brito, M. P. and R. Dekker (2004). A framework for reverse logistics. Reverse logistics. Quantitative models for closed loop supply chains. R. Dekker, K. Inderfurth, L. van Wassenhove and M. Fleischmann. Berlin, Germany, Springer-Verlag.
- Evans, S. J. (2008). Public Policy for Sustainable Consumption. Public Policy Issues Research Trends, Nova Science Publishers, Inc.
- Groenendijk, L. and E. Dopheide (2003). Planning and Management Tools; A reference book. Enschede, ITC.
- Hunger, J. D. and T. L. Wheelen (1997). Essentials of strategic management. Reading, Massachusetts, Addison Wesley Longman Inc.
- Kumar, R. (2000). Research Methodology: A step by step guide for beginners. London, Sage.
- Stacey, R. (1993). Strategic Management and Organisational Dynamics. London, Pitman.
- Stewart, C. J. and W. B. Cash (2008). Interviewing: principles & practices, McGraw-Hill.
- Van der Velde, E. G., P. G. W. Jansen, et al. (2004). Guide to management research methods. Oxford, Blackwell.
- Verschuren, P. and H. Doorewaard (2007). Het ontwerpen van een onderzoek. Amsterdam, Boom Lemma.

CONFERENCE PAPER

- EPEA (2008). Cradle-to-Cradle design innovations: towards a cycle economy. International Umweltforschung GmbH: pp. 48.

CONFERENCE PROCEEDINGS

Kang-ning, H. and M.-r. L. Lin (2002). The comparing study between electric scooter and gasoline-fuelled scooter by life cycle assessment. Proceedings 5th International Conference Ecobalance.

FILM OR BROADCAST

DiscoveryChannel (2009). How it's made, Science Channel.

JOURNAL ARTICLE

Aghazadeh, S. M. (2008). "Reverse logistics helps environment, gives competitive advantage." International Journal of Environment and Sustainable Development.

Binswanger, M. (2001). "Technological progress and sustainable development: what about the rebound effect?" Ecological Economics **36**(1): pp. 119-132.

Burritt, R. L. and C. Saka (2006). "Environmental management accounting applications and eco-efficiency: case studies from Japan." Journal of Cleaner Production **14**(14): pp. 1262-1275.

Dasgupta, S., S. Siddarth, et al. (2007). "To lease or to buy? A structural model of a consumer's vehicle and contract choice decisions." Journal of Marketing Research **44**(2): pp. 490-502.

Fan, J. and J. Burton (2005). "Vehicle Acquisitions: Leasing or Financing?" The Journal of Consumer Affairs **32**(3).

Garling, A. and J. Thøgersen (2001). "Marketing of electric vehicles." Business Strategy and the Environment **10**.

Houben, G., K. Lenie, et al. (1999). "A knowledge-based SWOT-analysis system as an instrument for strategig planning in small and medium sized enterprises " Decision Support Systems **26**: pp.125-135.

Kemp, R., S. Parto, et al. (2005). "Governance for sustainable development: moving from theory to practice." International Journal of Sustainable Development **8**(1-2): pp. 12-30.

Kumar, S. and V. Putnam (2008). "Cradle-to-Cradle: Reverse logistics strategies and opportunities across three industry sectors." International Journal Production Economics **115**: pp. 305-315.

Mont, O., C. Dalhammar, et al. (2006). "A new business model for baby prams based on leasing and product remanufacturing." Journal of Cleaner Production **14**(17): pp. 1509-1518.

Mutha, A. and S. Pokharel (2008). "Strategic network design for reverse logistics and remanufacturing using new an old product modules." Computers and Industrial Engineering **Article in press**.

Porter, M. E. (1980). "Industry structure and competitive strategy: Keys to profitability." Financial Analysts Journal: pp. 30-41.

Thøgersen, J. and F. Olander (1995). "Understanding of consumer behaviour as a prerequisite for environmental protection." Journal of Consumer Policy **Volume 18**(4): pp. 345-385.

Van Autenboer, A., P. Van den Bossche, et al. (2006). "SUBAT: An assessment of sustainable battery technology." Journal of Power Sources **162**: pp. 913-919.

Zhou, M., R. Caudill, et al. (1999). "Multi-lifecycle product recovery for electronic products." Journal of Electronics Manufacturing **9**(1): pp. 1-15.

NEWSPAPER ARTICLE

Deiters, E. (2009). Elektrisch rijden raakt eindelijk een klein beetje ingeburgerd. De Pers. Amsterdam.

REPORT

Cherry, C., J. Weinert, et al. (2007). The environmental impacts of e-bikes in Chinese cities. Working Paper, UC Berkeley Centre for Future Urban Transport.

VNA (2007). Groei autoleasemarkt houdt aan. Jaarcijfers 2007, Vereniging van Nederlandse Autoleasemaatschappijen.

THESIS

De Brito, M. P. (2003). Managing Reverse Logistics or Reversing Logistics Management. Erasmus Research Institute of Management. Rotterdam, Erasmus University Rotterdam. **PhD**.

WEB PAGE

athloncarlease.com. "Leasemaatschappij Athlon Car Lease: over ons." Retrieved May 8, 2009, from <http://www.athloncarlease.com/athlon-nl/Over-ons/Bedrijfsprofiel/Athlon-Car-Lease/>.

auto-leasen.nl. "Leasevormen." Retrieved March 4, 2009, from <http://www.auto-leasen.nl/>.

autotrack.nl. "Energy label car." Retrieved March 3, 2009, from http://www.autotrack.nl/owa_dima/owa/att_na_zoeken.searchform.

bike4travel.nl. "Fietsbanden." Retrieved April 27, 2009, from http://www.bike4travel.nl/article_info.php?articles_id=89.

blog.eco-movement.com. "HTM rijdt op elektrische scooters." Retrieved June 14, 2009, from <http://blog.eco-movement.com/?p=141>.

BOVAG.nl. "E-bikes niet aan te slepen, fabrieken draaien overuren." Retrieved January 13, 2009, from <http://www.bovag.nl/smartsite.shtml?ch=TER&id=62040>.

CBS.nl. "Hoeveel auto's staan er in uw buurt?" Retrieved February 3, 2009, from <http://www.cbs.nl/nl-NL/menu/themas/dossiers/nederland-regionaal/publicaties/artikelen/archief/2008/2008-2504-wm.htm>

CradletoCradle.nl. "CradletoCradle.nl stopt ondanks succes?" Retrieved June 10, 2009, from http://www.cradletocradle.nl/home/1335_cradletocradlenl-stopt-ondanks-succes.htm.

CradletoCradle.nl. "X-lijst." Retrieved January 13, 2009, from http://www.cradletocradle.nl/home/939_x-lijst.htm.

DePers.nl. "In 2040 rijdt iedereen in Amsterdam elektrisch " Retrieved June 14, 2009, from <http://www.depers.nl/economie/294970/In-2040-rijdt-iedereen-in-Amsterdam-elektrisch.html>.

DutchLease.nl. "Dutchlease." Retrieved March 3, 2009, from <http://www.dutchlease.nl/?Dutchlease.html=&mId=7&pId=483>.

eb-lease.nl. "Elektrische fiets lease specialisten." Retrieved April 20, 2009, from http://www.eb-lease.nl/dealer_links.htm.

eco-movement.com. "Motivate to move eco-friendly." Retrieved January 5, 2009, from <http://www.eco-movement.com/>

eco-mover.com. "Eco-mover technical specs." Retrieved January 13, 2009, from <http://www.eco-mover.nl/category/techniek>.

elektrischefietswinkel.nl. "Fietsen." Retrieved Jun 13, 2009, from <http://www.elektrischefietswinkel.nl/fietsen/>.

elektrischescooterwinkel.nl. "Scooters." Retrieved January 13, 2009, from <http://www.elektrischescooterwinkel.nl/scooters>

energielabel.nl. "Energie label en BPM." Retrieved March 3, 2009, from <http://www.energielabel.nl/pagina?onderwerp=EnergieLabel%20auto>.

energieraad1.nl. "Brandstofmix Essent het groenst." Retrieved February 18, 2009, from <http://www.algemene-energieraad.nl/newsitem.asp?pageid=3038>

energieraad2.nl. "KEMA verkoopt Nederlandse energiekennis aan China." Retrieved February 18, 2009, from <http://www.algemene-energieraad.nl/newsitem.asp?pageid=2461>.

epyon.nl. "Technology." Retrieved June 23, 2009, from <http://www.epyon.nl/technology>.

- Europadecentraal.nl. "WEEE-richtlijn." Retrieved April 14, 2009, from http://www.europadecentraal.nl/menu/806/WEEE_richtlijn.html.
- EVN.nl. "Green transport today, blue skies tomorrow." Retrieved June 4, 2009, from <http://www.elektrischvervoernederland.nl/>.
- fd.nl. "Over de elektrische auto wordt vooral veel gepraat." Retrieved May 29, 2009, from <http://www.fd.nl/artikel/11133016/elektrische-auto-wordt-vooral-veel-gepraat>.
- FietsNED.nl. "Algemeen." Retrieved May 5, 2009, from <http://www.fietsned.nl/index.php?id=31>.
- fleetmotive.nl. "Leasemaatschappijen." Retrieved February 26, 2009, from <http://www.fleetmotive.nl/leasing/leasemaatschappijen/>.
- gazelle.nl. "Elektrische fietsen." Retrieved April 29, 2009, from <http://www.gazelle.nl/nl/producten/collectie/elektrische-fietsen.html?collectie/2009/elektrische-fietsen/#122>.
- green2.nl. "Transport." Retrieved January 13, 2009, from <http://www.green2.nl/category/transport/page/4/>.
- grootste-opstapdag.nl. "Opstapdag Leeuwarden." Retrieved June 15, 2009, from <http://www.grootste-opstapdag.nl/>.
- hertz.nl. "Hertz elektrische City scooter." Retrieved May 4, 2009, from https://www.hertz.nl/rentacar/specialoffers/index.jsp?targetPage=NL_Hertz_scooters.jsp&Category=K&TabLink=tlink4.
- IKEA.com. "IKEA roept TÄNDA afstandsbediening terug." Retrieved April 7, 2009, from http://www.ikea.com/ms/nl_NL/recall/recall_tanda.html.
- INGcarlease.nl. "Over leasing." Retrieved March 3, 2009, from <http://www.ingcarlease.nl/eCache/ENG/8/486.html>.
- IOScooter.nl. "Lease bij IOScooter." Retrieved January 26, 2009, from <http://www.ioscooter.nl/lease.html>.
- leaseofferte.nl. "Welke leasevorm past het beste bij uw organisatie." Retrieved February 3, 2009, from <http://www.leaseofferte.nl/index.php?page=lease-advies#financielelease>.
- leasetrader.nl. "Lease nieuws." Retrieved May 8, 2009, from http://www.leasetrader.nl/nieuws?id=84&t=de_13_grootste_lease_mythes.
- leaseunlimited.nl. "Re-lease." Retrieved March 4, 2009, from http://www.leaseunlimited.nl/re_lease.php.
- lening&krediet.nl. "Lease/Leasing." Retrieved January 26, 2009, from <http://www.lening-en-krediet.nl/lease-leasing.html>.

- Linkedin.com. "My profile." Retrieved May 18, 2009, from <http://www.linkedin.com/myprofile?goback=.hom>.
- masterlease.nl. "Full Operational Lease." Retrieved May 8, 2009, from http://www.masterlease.nl/contentPagesNetherlands/Producten/Full_Operational_Lea.asp.
- MBDC.com. "Cradle-to-Cradle Certification Criteria." Retrieved January 12, 2009, from http://www.mbdc.com/docs/V2_criteria_matrix.pdf
- mdekoningautolease.nl. "Leasevormen." Retrieved March 3, 2009, from <http://www.mdekoningautolease.nl/producten.php?item=leasevormen>.
- Metaefficient.com. "LiFePO4 batteries: A breakthrough for electric vehicles." Retrieved January 13, 2009, from <http://www.metaefficient.com/rechargeable-batteries/innovative-LiFePO4-batteries-electric-vehicles.html>
- miton.nl. "Miton Accu's en Batterijen: elektrische scooter." Retrieved June 18, 2009, from http://www.miton.nl/elektrische_scooter.html.
- ND.nl. "Leaseauto's leggen het loodje." Retrieved February 6, 2009, from <http://www.nd.nl/artikelen/2009/februari/06/leaseauto-s-leggen-het-loodje>
- NU.nl. "Amsterdam presenteert plannen elektrisch vervoer." Retrieved April 29, 2009, from <http://www.nu.nl/algemeen/1938226/amsterdam-presenteert-plannen-elektrisch-vervoer.html>.
- PeoplePlanetProfit.be. "Herman Miller gaat Cradle-to-Cradle stoelen ook leasen." Retrieved April 8, 2009, from <http://www.peopleplanetprofit.be/artikel.php?IK=1165>.
- peugeot.nl. "Lease." Retrieved March 3, 2009, from <http://www.peugeot.nl/lease/>.
- postbus51.nl. "Verkeer, voertuigen en wegen." Retrieved June 16, 2009, from <http://www.postbus51.nl/nl/home/themas/verkeer-voertuigen-en-wegen/verkeersregels/bijzondere-voertuigen/wat-is-een-elektrische-fiets-elobike-en-wat-zijn-de-verkeersregels.html>.
- scooterleaseplan.nl. "Het Scooterplan." Retrieved January 26, 2009, from <http://www.scooterleaseplan.nl/>
- scooterplan.nl. "Service en onderhoud." Retrieved May 5, 2009, from <http://www.scooterplan.nl/Service-en-onderhoud.html>.
- scooterrentals.nl. "BOKA scooter lease." Retrieved January 26, 2009, from <http://www.scooterrentals.nl/scooter-leasen.html>
- supplychainlogistics-consulting.co.uk. "Reverse Logistics: The hidden value." Retrieved January 26, 2009, from <http://www.supplychainlogistics-consulting.co.uk/reverse-logistics.html>

- terbergleasing.nl. "Leasing ABC." Retrieved March 4, 2009, from <http://www.terbergleasing.nl/frames/frameset.php?page=http%3A//www.terbergleasing.nl/leasing/leasingabc.php>.
- vna-lease.nl. "Over de VNA." Retrieved March 3, 2009, from <http://www.vna-lease.nl/VNA/show.do?ctx=1346,1356&anav=-1>.
- VROM.nl. "MIA en Vamil." Retrieved June 5, 2009, from <http://www.vrom.nl/pagina.html?id=6551&ref=http://www.belastingdienst.nl/zakelijk/investeringsregelingen/investeringsregelingen-04.html>.
- WHSolutions.nl. "WH Solutions: Connecting the world." Retrieved April 23, 2009, from <http://www.whsolutions.nl/>.
- wiki.eco-movement.com. "Eco-movement b.v.: Mission and ambition." Retrieved June 1, 2009, from http://wiki.eco-movement.com/index.php/Main_Page.
- zibb.nl. "Zakelijk of privé rijden." Retrieved March 3, 2009, from <http://www.zibb.nl/10229549/Subnavigatie/Advies/Partner-informatie/CBA/De-persoonlijke-zaak-artikel/Zakelijk-of-priv-rijden.htm>.

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I Cradle-to-Cradle certification criteria

Table I.1: Basic, Silver, Gold, Platinum

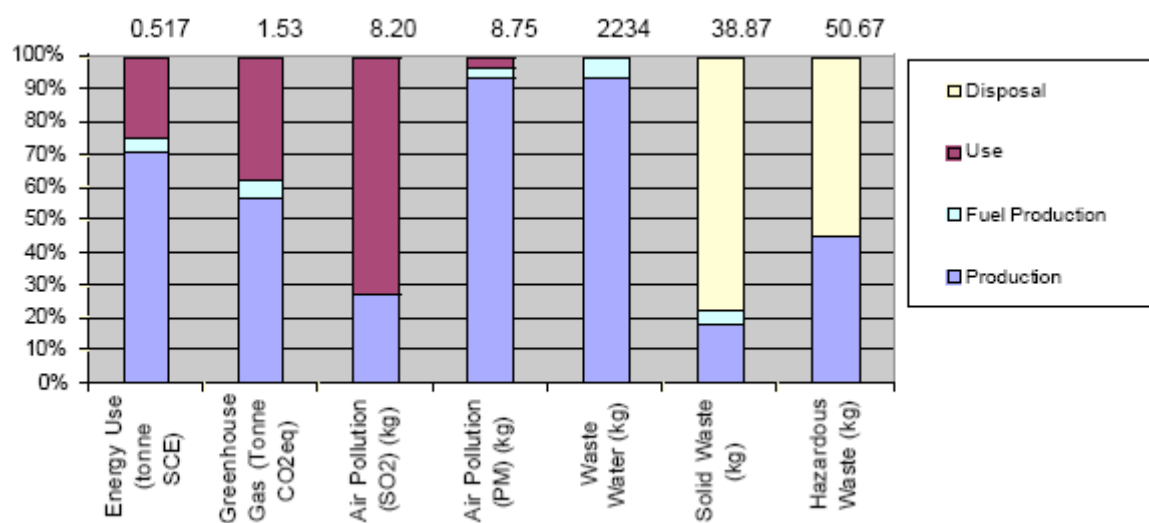
CRADLE TO CRADLE CERTIFICATION ^{CM} CRITERIA				
	Basic	Silver	Gold	Platinum
1.0 Materials				
All material ingredients identified (down to the 100 ppm level)	•	•	•	•
Defined as biological or technical nutrient	•	•	•	•
All materials assessed based on their intended use and impact on Human/Environmental Health according to the following criteria:				
<u>Human Health:</u>				
Carcinogenicity				
Endocrine Disruption				
Mutagenicity				
Reproductive Toxicity	•	•	•	•
Teratogenicity				
Acute Toxicity				
Chronic Toxicity				
Irritation				
Sensitization				
<u>Environmental Health:</u>				
Fish Toxicity				
Algae Toxicity				
Daphnia Toxicity				
Persistence/Biodegradation				
Bioaccumulation				
Ozone Depletion/Climatic Relevance				
<u>Material Class Criteria:</u>				
Content of Organohalogenes				
Content of Heavy Metals				
Strategy developed to optimize all remaining problematic ingredients/materials	•	•		
Product formulation optimized (i.e., all problematic inputs replaced/phased out)			•	•
No wood sourced from endangered forests			•	•
Meets Cradle to Cradle emission standards			•	•
All wood is FSC certified				•
Contains at least 25% GREEN assessed components				•
2.0 Material Reutilization/Design for Environment				
Defined the appropriate cycle (i.e., Technical or Biological) for the product and developing a plan for product recovery and reutilization	•	•	•	•
Well defined plan (including scope and budget) for developing the logistics and recovery systems for this class of product			•	•
Recovering, remanufacturing or recycling the product into new product of equal or higher value				•
Product has been designed/manufactured for the technical or biological cycle and has a nutrient (re)utilization score >= 50		•	•	•
Product has been designed/manufactured for the technical or biological cycle and has a nutrient (re)utilization score >= 65			•	•
Product has been designed/manufactured for the technical or biological cycle and has a nutrient (re)utilization score >= 80				•
3.0 Energy				
Characterized energy use and source(s) for product manufacture/assembly	•	•	•	•
Developed strategy for using current solar income for product manufacture/assembly		•	•	•
Using 50% current solar income for product final manufacture/assembly			•	•
Using 50% current solar income for entire product				•
4.0 Water				
Created or adopted water stewardship principles/guidelines		•	•	•
Characterized water flows associated with product manufacture			•	•
Implemented water conservation measures				•
Implemented innovative measures to improve quality of water discharges				•
5.0 Social Responsibility				
Publicly available corporate ethics and fair labor statement(s), adopted across entire company		•	•	•
Identified third party assessment system and begun to collect data for that system			•	•
Acceptable third party social responsibility assessment, accreditation, or certification				•

II Material analysis & LC energy and emissions

Table II. 1: Material analysis
(eco-mover.com)

Scooter component		Material
Frame	→	aluminium alloy, steel
Seat (cover)	→	leather, Miller/Rohner textile
Seat (stuffing)	→	soy foam, cotton, wool
Seat (base)	→	wood, bamboo, amylum
Handlebars	→	leather, cork
Hood (standard)	→	polycarbonate, bamboo, NPSP composite
Hood (transparent)	→	PMMA

Table II.2: Life Cycle Energy and Emissions electric scooter in China 2007 (lead-acid battery).
Adopted from (Cherry, Weinert et al. 2007).



III Leasing: table of differences

Table III.1: Differences operational and financial lease

	Operational lease	Financial lease
comparable to:	renting	funding/ loan
economic property:	lease company	customer
legal property:	lease company	lease company
type of financing:	'off-balance'	'on-balance'
effect on business ratio:	no	yes
use:	temporary	also after lease term
sales tax:	included in periodic payment	pay in advance
investment allowance:	n/a	at company car
risk of depreciation:	lease company	customer
after lease term:	returns to lease company	stays with customer

IV Reverse Logistics Framework

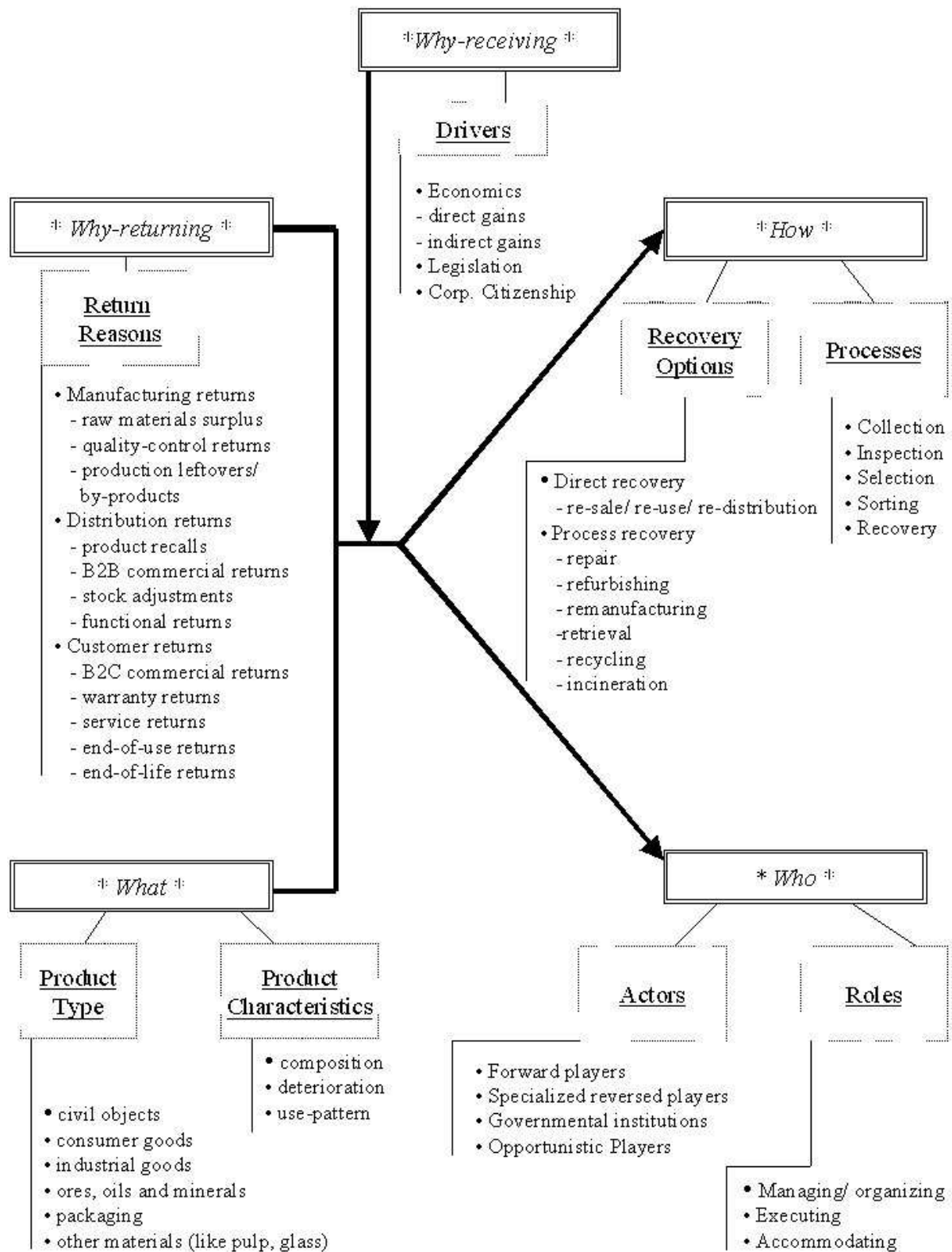


Figure IV.1: Reverse Logistics Framework

V Research methodology overview

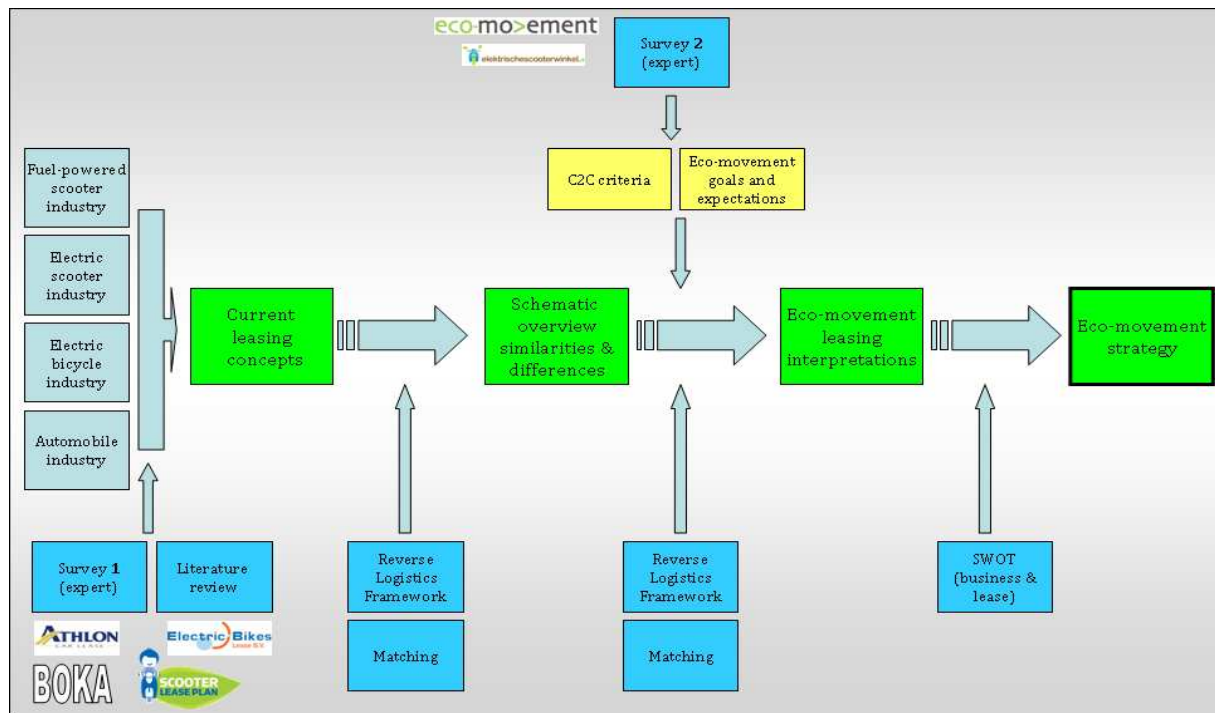


Figure V.1: Schematic overview research methodology

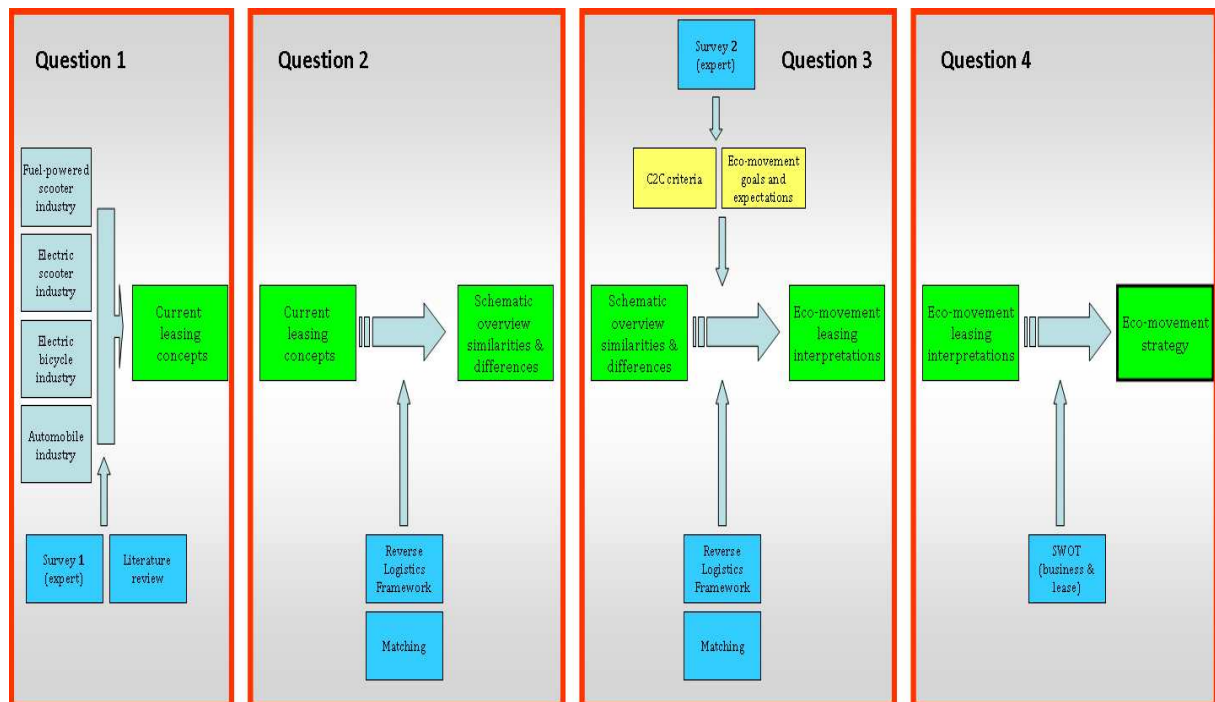


Figure V.2: Sub-questions

VI Accompanying letter for interviewees

Beste Kenan Aksular,

Allereerst, ik heb uw naam via Sebastiaan Kloosterboer (voormalig werknemer Athlon). Ik heb hem een tijdje geleden onderstaande mail gestuurd. Hij mailde mij dat u de aangewezen persoon was om contact mee te zoeken. Vandaar deze mail. Ik hoop dat u even tijd heeft dit bericht te lezen.

Ik ben student aan de Technische Universiteit Delft, faculteit Technische Bestuurskunde. Ik ben op dit moment bezig met de laatste fase van mijn studie, het afstuderen. Ik doe onderzoek naar de mogelijkheden van het leasen van elektrische scooters aan particulieren en bedrijven. Dit onderzoek kent zijn basis in het 'Cradle-to-Cradle' gedachtegoed. Een van de vereisten van dit gedachtegoed is dat het product (in dit geval de scooter), na gebruik door de consument, terug zal moeten keren naar de fabriek (zeer summier verwoord). De product componenten kunnen dan hergebruikt worden en het milieu wordt nog meer gespaard. Het concept 'leasen' kan binnen dit proces een zeer waardevolle rol gaan spelen. Vandaar ook deze mail.

Mijn onderzoek richt zich op bestaande leaseconcepten, die ik aan de hand van een zogenaamd 'reverse logistics framework' wil gaan beschrijven. Dus leaseconcepten in de auto-, elektrische fiets- en scooter industrie. Het framework dat ik daarbij gebruik beschrijft 5 dimensies:

1. waarom willen wij de producten terug?
2. waarom wil de gebruiker de producten terug geven?
3. hoe komen de producten terug?
4. wat komt er precies terug?
5. wie spelen een rol in dit proces en welke rol spelen deze actoren?

Ik ben op dit moment al in contact met bedrijven in de elektrische scooter en fiets wereld die ook het concept van leasen hebben geadopteerd.

Athlon is daarentegen een van de grootste bedrijven in Nederland op het gebied van auto leasen. Het spreekt voor zich dat Athlon dan ook niet mag ontbreken in mijn onderzoek. Jullie hebben een hoop kennis op het gebied van leasen. Graag zou ik dan ook een aantal vragen stellen aan een van jullie over de 5 dimensies van het bovenstaande framework in combinatie met Athlon. Dat kan middels de mail, maar misschien ook wel mondeling door het afnemen van een interview op jullie kantoor. Staan jullie eventueel open voor medewerking aan dit onderzoek?

Bij voorbaat dank,

Floris Peters

VII Interview lay-out passenger mobility industries

Geachte Johan Brouwer,

Zoals ik in mijn eerdere mail al heb aangegeven gaat mijn focus voornamelijk uit naar de invulling door Electric Bikes Lease b.v. van de 5 dimensies van het 'reverse logistics framework' dat ik gebruik voor mijn onderzoek.

Deze dimensies zijn:

1. *Why receiving?* waarom wil EB-Lease de producten (fietsen) terug? Waarom dus leasen?
2. *Why returning?* waarom wil de gebruiker de elektrische fietsen terug geven? En niet gewoon kopen bijvoorbeeld.
3. *How are products recovered?* hoe komen de producten terug? Zijn er meerdere collectiepunten? Leasen jullie alleen aan zakelijke klanten, of ook aan particulieren?
4. *What is being returned?* wat komt er precies terug? Hoe is de staat van de teruggekomen fietsen over het algemeen?
5. *Who is doing the recovery?* wie spelen een rol in dit proces (naast de dealers en EB-Lease) en welke rol spelen deze actoren?

Op de volgende pagina's ga ik kort in op de verschillende dimensies. De bedoeling van dit digitale interview is dat ik een beeld krijg van de manier waarop EB-Lease voor zichzelf dit framework (zie laatste pagina) zou kunnen invullen. Misschien is het wel zo dat een bepaalde dimensie onderdelen mist of totaal niet in te vullen is door jullie. Dat is geen probleem. Commentaar op het framework is welkom. Het framework is dan ook zeker niet allesomvattend. Onderstaande beschrijvingen van de 5 dimensies dienen als een korte uitleg, zodat jullie een idee hebben wat het framework voorstelt en wat ik er mee wil bereiken. Na elke beschrijving volgen een aantal vragen. Het zou geweldig zijn als u die vragen zou kunnen beantwoorden in de daarvoor bestemde antwoordvakken.

Ik hoop dat het allemaal duidelijk is en anders kunt u mij natuurlijk gewoon mailen.

Bij voorbaat dank voor de medewerking!

1: Why receiving?

De eerste dimensie beschrijft de drijvende krachten achter de beslissing, die bedrijven als EB-Lease nemen, om te kiezen voor 'reverse logistics' (in dit onderzoek wordt leasen gezien als 'reverse logistics'). Waarom EB-Lease dus bijvoorbeeld niet gewoon elektrische fietsen verkoopt.

Deze krachten kunnen worden georganiseerd in drie categorieën:

- Financiële krachten (direct en indirect): directe baten door bijvoorbeeld het verminderen van de operationele kosten, indirecte baten door bijvoorbeeld het exploiteren van het 'groene imago'.
- Wetgeving: wetgeving omtrent milieu, zowel bestaande als eventueel toekomstige regels
- Bedrijfsuitstraling: duurzaamheid is een hot item en kan dus door bijvoorbeeld het (ver)leasen van elektrische fietsen deels worden bewerkstelligd. Kiest EB-Lease voor leasen van elektrische fietsen in plaats van verkopen om principiële redenen als respect voor de natuur en omgeving?

VRAGEN:

1: Kunt u aangeven welke van deze krachten (of een combinatie van 1 of meer krachten) een rol spelen bij EB-Lease, in het geval van het aanbieden van 'elektrische fietsen lease' als optie voor de klant? Gaat het bijvoorbeeld puur om de financiële baten of spelen wet- en regelgeving en het belang van duurzaamheid (bedrijfsuitstraling) ook een rol?

2: Hoe spelen deze krachten een rol? Welke verdeling tussen bovengenoemde krachten kan worden onderscheiden?

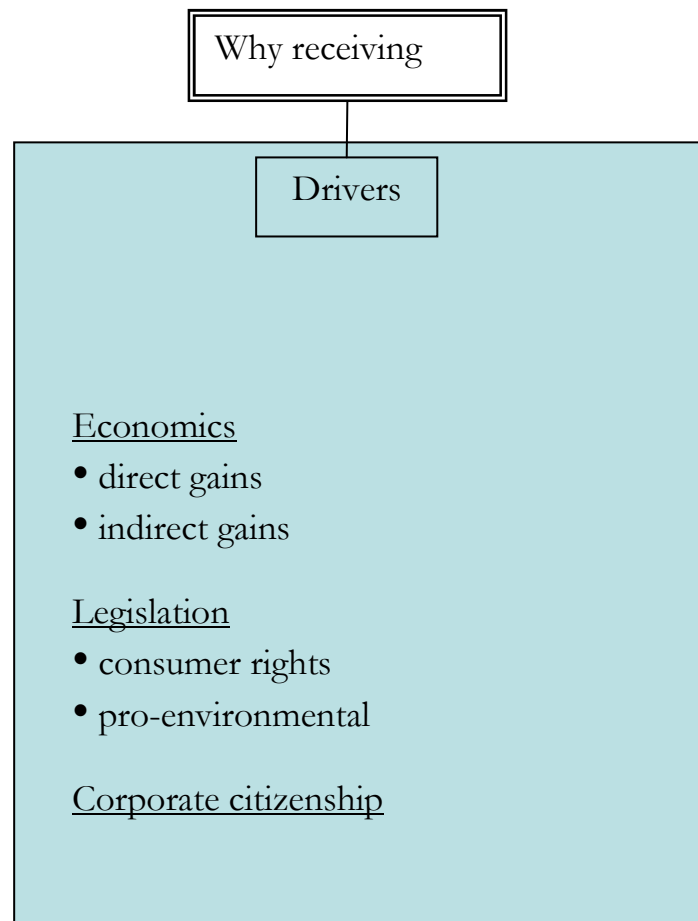
Op de volgende pagina vindt u een antwoordkader. Antwoorden kunnen gegeven worden in de grijs gearceerde vlakken.

ANTWOORDEN EB-LEASE:

VRAAG 1:

VRAAG 2:

Onderstaande Figuur 1 representeert een schematische weergave van de dimensie 'why receiving'.



Figuur 1: Why receiving dimensie

2: Why returning?

De tweede dimensie beschrijft de redenen waarom producten (in dit geval elektrische fietsen) worden teruggebracht. Deze dimensie kan worden opgedeeld in 3 groepen die elk een afzonderlijk deel van de supply chain beschrijven. Welke van deze returns komen bij EB-Lease voor?:

- Productie returns: dit zijn returns die voorkomen tijdens de productie en dus waarschijnlijk weinig te maken hebben met EB-Lease. Returns zoals elektrische fietsen die niet door de kwaliteitscontrole komen, nadat ze van de productieband rollen.
- Distributie returns: dit zijn returns zoals de terugroepactie van Philips voor een groot deel van de verkochte Senseo's onlangs.
<http://www.nu.nl/economie/1948701/terugroepactie-senseo-kost-philips-miljoenen.html>.
- Klanten returns: hieronder valt EB-Lease denk ik ook. Deze klanten returns zijn bijvoorbeeld de end-of-use lease fietsen returns.

VRAAG:

1: Welke van deze returns hebben betrekking op de leasemogelijkheden bij EB-Lease? Krijgen jullie alleen end-of-use (einde lease contract) fietsen terug of ook service, reparatie, end-of-life en garantie returns? Of komen de fietsen alleen maar terug bij de dealer en verzorgen jullie alleen het lease contract?

(Voor de returns zie ook Figuur 2 op pagina 7)

2: Welke returns, zoals weergegeven in Figuur 2, komen het meest voor bij EB-Lease?

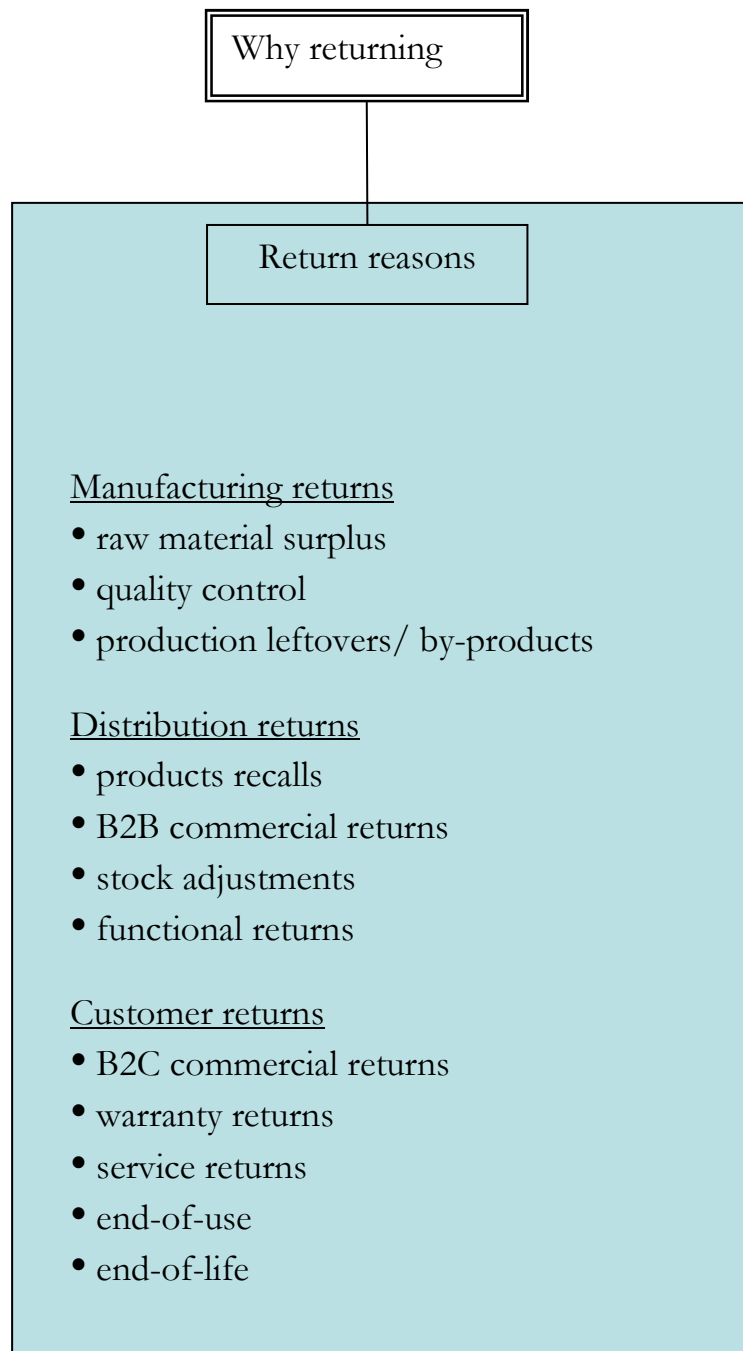
Op de volgende pagina vindt u een antwoordkader. Antwoorden kunnen gegeven worden in de grijs gearceerde vlakken.

ANTWOORD EB-LEASE:

VRAAG 1:

VRAAG 2:

Onderstaande Figuur 2 representeert een schematische weergave van de dimensie 'why returning'.



Figuur 2: Why returning dimensie

3: How are products recovered?

De derde dimensie beschrijft in feite hoe reverse logistics werkt. Hoe komen de elektrische fietsen terug en wat gebeurt er daarna met deze fietsen? Dit gebeurt aan de hand van het beschrijven van 5 cruciale processen:

- Collectie: hoe worden de elektrische fietsen van de klant teruggebracht naar EB-Lease (of gaan ze direct naar de dealer) en andersom?
- Inspectie/testen: worden teruggekomen fietsen door jullie geïnspecteerd en getest? Of doet de dealer dat?
- Selectie: selecteren jullie zelf de fietsen voor bepaalde herstel werkzaamheden?
- Sorteren: idem voor sorteren
- Herstellen: hebben jullie een eigen afdeling die herstelwerkzaamheden uitvoert?

Nadat de elektrische fietsen zijn 'verzameld' worden ze op hun kwaliteit gecontroleerd. Mocht het zo zijn dat ze er nog 'zo goed als nieuw' uitzien dan zouden ze eventueel vrijwel direct weer door geleased kunnen worden. (Of worden ze na elk lease contract alleen nog maar verkocht?) Dit valt binnen het framework onder 'direct recovery'. Is de teruggekomen elektrische fiets echter van mindere kwaliteit dan gaat deze binnen het framework de 'process recovery' kant op. De elektrische fiets zal dan meerdere herstelwerkzaamheden ondergaan. Dit kan op 6 niveaus:

- Product niveau (herstel gaat verder dan alleen onderstaande modules, componenten of onderdelen)
- Module niveau (herstelwerkzaamheden van bijvoorbeeld het frame)
- Component niveau (herstelwerkzaamheden van bijvoorbeeld het accupack)
- Onderdeel niveau (boutjes en moertjes, remkabels en dergelijke)
- Materiaal niveau (rubber van de banden, materiaal van het frame)
- Energie niveau

VRAGEN:

1: Ligt de verantwoordelijkheid van bovenstaande processen (collectie, inspectie/testen, selectie, sorteren en herstellen) bij EB-Lease of valt dit onder de verantwoordelijkheid van de desbetreffende dealer? Of een derde partij?

2: Wordt een fiets na het aflopen van het lease contract altijd verkocht door de dealer? Of zijn er ook fietsen die na het aflopen van het lease contract in zo'n goede staat zijn dat ze opnieuw geleased kunnen worden? En gebeurt dit dan ook?

3: Op welk niveau komen de meeste herstelwerkzaamheden voor bij de teruggekomen elektrische fietsen?

Op de volgende pagina vindt u een antwoordkader. Antwoorden kunnen gegeven worden in de grijs gearceerde vlakken.

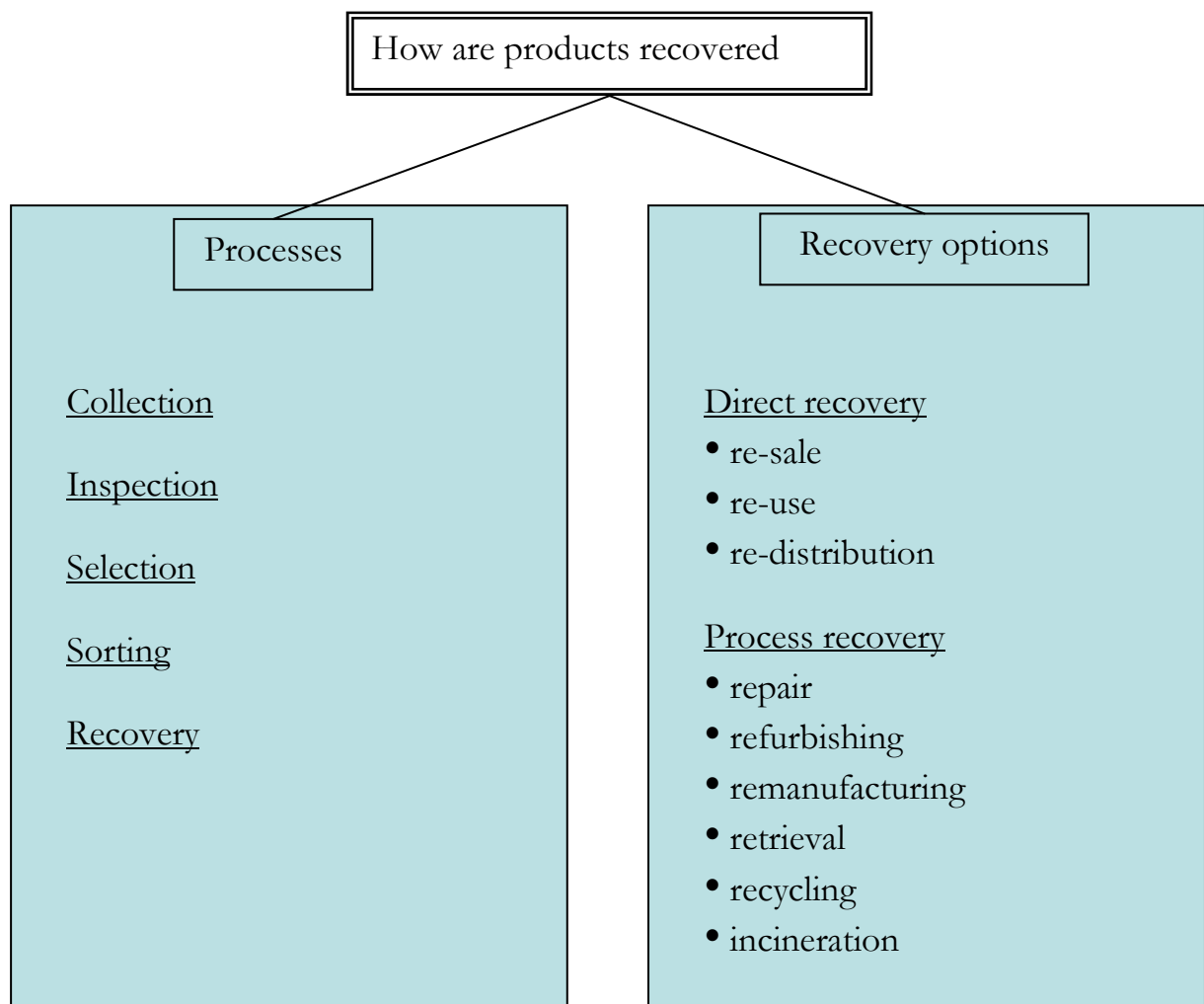
ANTWOORDEN EB-LEASE:

VRAAG 1:

VRAAG 2:

VRAAG 3:

Uiteindelijk ziet de 'how are products recovered' dimensie er als volgt uit:



Figuur 3: How are products recovered dimensie

4: What is being returned?

De vierde dimensie beschrijft de karakteristieken en types van de teruggekomen producten. Het gaat hier om wat de klant precies teruggeeft aan EB-Lease (of de dealer?). In welke staat komen de fietsen over het algemeen terug van een lease contract? Om hier een duidelijk overzicht in te genereren worden de teruggekomen producten beschreven aan de hand van 3 karakteristieken:

- Product compositie: hoe zit de elektrische fiets in elkaar? Zijn alle onderdelen makkelijk te bereiken/uit elkaar te halen? Etc. dit kan namelijk van grote invloed zijn op de herstelwerkzaamheden zoals beschreven in de vorige dimensie.
- Product achteruitgang: gaat de elektrische fiets achteruit in kwaliteit gedurende gebruik? Gaan alle onderdelen even snel achteruit in kwaliteit? Hoe waardevast is de elektrische fiets?
- Gebruik patroon: waar wordt de elektrische fiets gebruikt? (kan bijvoorbeeld van belang zijn voor de collectie na aflopen lease contract) Hoe intensief wordt de elektrische fiets gebruikt? Hoe lang wordt de elektrische fiets gemiddeld geleased? Welke lease contracten biedt EB-Lease aan en wat zijn de verschillen in kwaliteit tussen de elektrische fietsen die daarvan terugkomen?

Het framework beschrijft uiteindelijk ook nog welk type producten terugkomen. Dat zal ik het geval van EB-Lease 'consumer goods' zijn. Zie figuur 4 op pagina 13.

VRAGEN:

- 1: Zijn alle onderdelen van de elektrische fiets makkelijk te bereiken voor herstelwerkzaamheden?
- 2: Gaan alle onderdelen van de elektrische fiets even snel achteruit in kwaliteit? Of zijn er onderdelen die significant sneller/langzamer achteruit gaan in kwaliteit?
- 3: Hoe waardevast is de elektrische fiets? Wat is bijvoorbeeld het verschil in verkoopprijs tussen een nieuwe elektrische fiets en een ('tweedehands') elektrische fiets die terugkomt uit de lease?
- 4: Zijn er gegevens over de intensiteit van het gebruik van de elektrische fiets door klanten van EB-Lease? Hoe intensief wordt de fiets gebruikt?
- 5: Wat is de gemiddelde termijn van een EB-Lease contract?

Op de volgende pagina vindt u een antwoordkader. Antwoorden kunnen gegeven worden in de grijs gearceerde vlakken.

ANTWOORDEN EB-LEASE:

VRAAG 1:

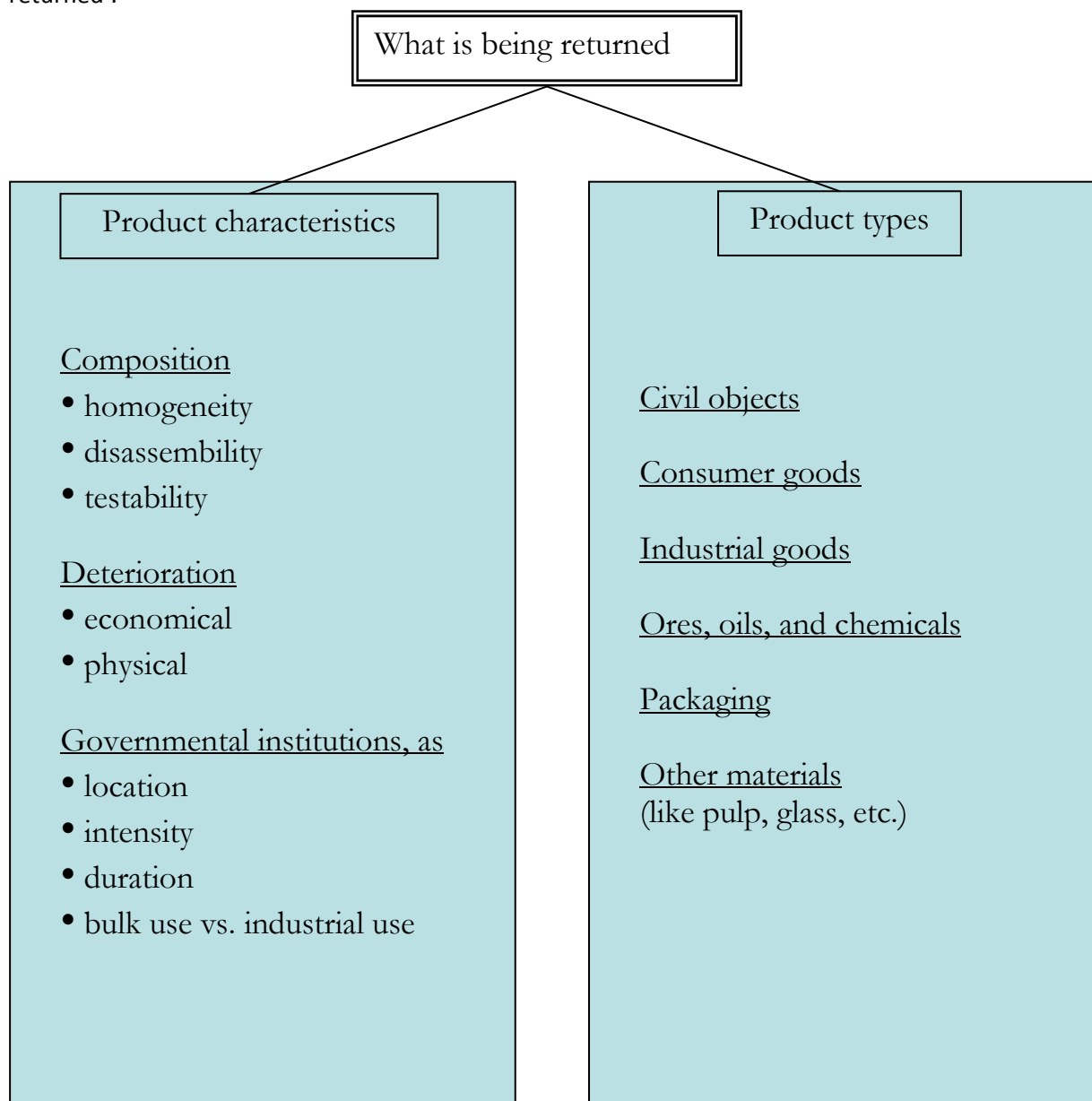
VRAAG 2:

VRAAG 3:

VRAAG 4:

VRAAG 5:

Onderstaande figuur 4 representeert een schematische weergave van de dimensie 'what is being returned':



Figuur 4: What is being returned dimensie

5: Who is doing the recovery?

De vijfde en laatste dimensie in het framework beschrijft niet alleen welke actoren er rond het 'elektrische fietsen leasen' via EB-Lease een rol spelen, maar ook *welke* rol zij spelen. Deze actoren worden ingedeeld in 4 groepen:

- Voorwaartse logistieke keten spelers: leverancier, producent, groothandelaar, detailhandelaar, sector organisaties
- Reverse logistics specialisten: recycling specialisten
- Overheden: EU, Nederlands overheid, gemeenten
- Opportunistische spelers: liefdadigheidsorganisaties, milieu organisaties etc.

Deze spelers kunnen de volgende rollen op zich nemen:

- Managen/organiseren van het lease-netwerk
- Uitvoeren van taken binnen het lease-netwerk
- Accommoderen

VRAAG:

1: Welke actoren spelen allemaal een rol rond het leasen van elektrische fietsen via EB-Lease?

2: Welke rol spelen deze actoren? (managen, uitvoeren, accommoderen)

3: Hoe heeft EB-Lease het concept van leasen ingericht? Welke bedrijfsstructuur wordt er gebruikt voor het leasen: bank gelieerd leasen, dealer gelieerd leasen, multi merk of captive leasen?

Op de volgende pagina vindt u een antwoordkader. Antwoorden kunnen gegeven worden in de grijs gearceerde vlakken.

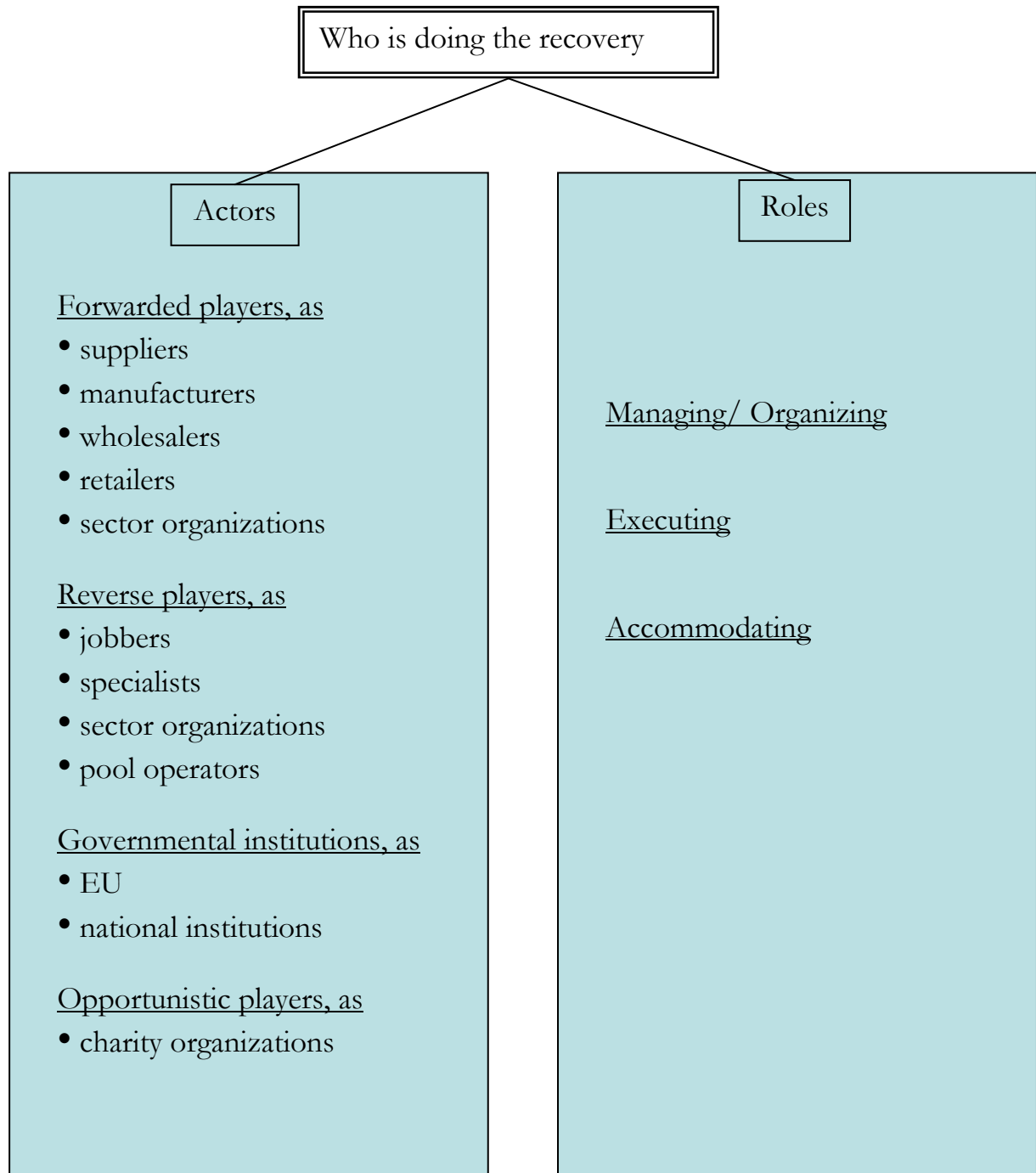
ANTWOORDEN EB-LEASE:

VRAAG 1:

VRAAG 2:

VRAAG 3:

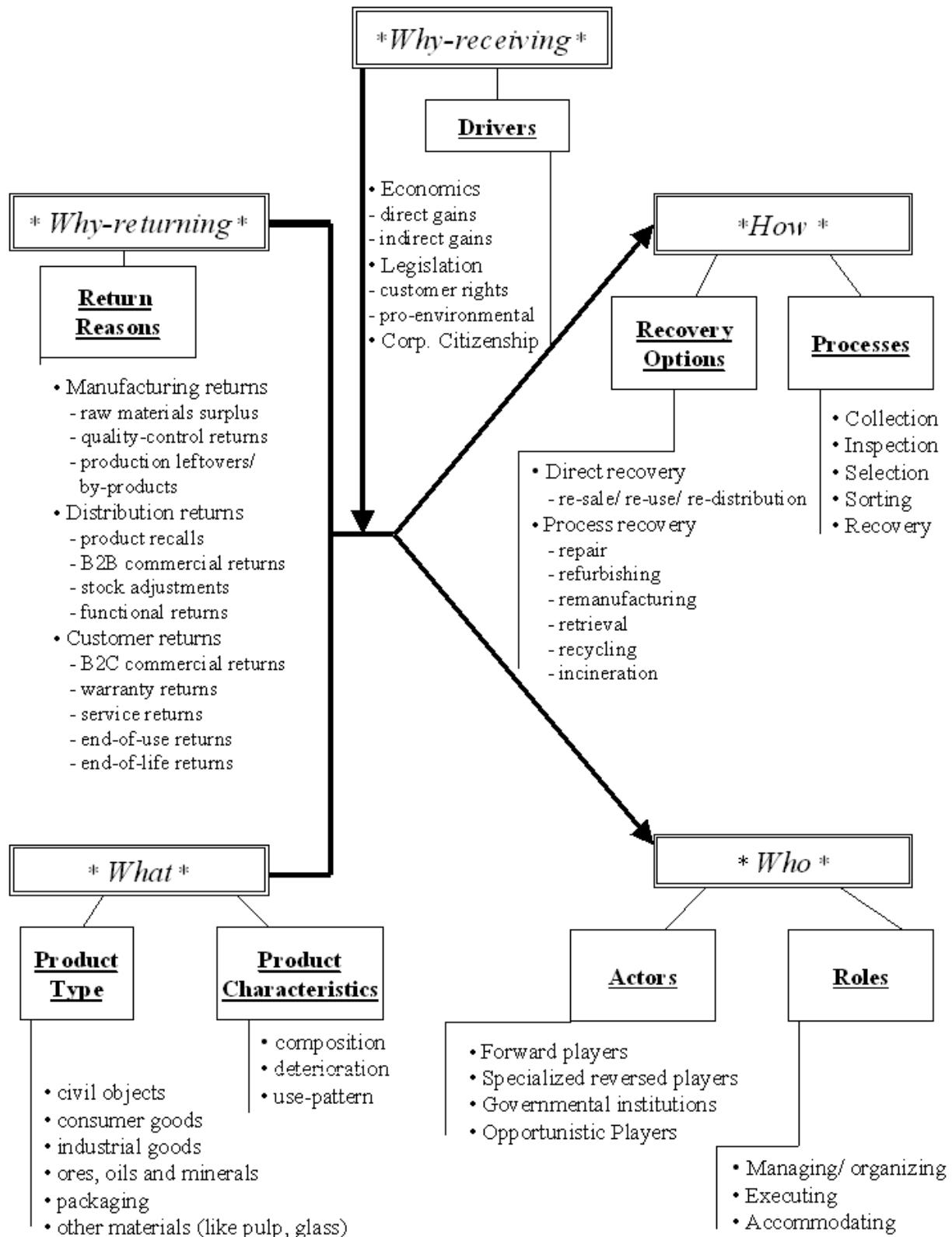
Uiteindelijk ziet de dimensie er als volgt uit:



Figuur 5: Who is doing the recovery dimensie

Alles bij elkaar: het daadwerkelijke framework!

Onderstaande figuur representeert het daadwerkelijke 'reverse logistics framework' zoals ik dat gebruik binnen mijn onderzoek. Ik zou dus graag willen weten hoe EB-Lease dit framework invult voor haar bedrijfsproces van elektrische fietsen lease.



RUIMTE VOOR OP- EN/OF AANMERKINGEN:

Einde van het interview. Dank voor uw medewerking!

VIII Interviewing: step by step

STEP 0:

Information gathering. The first step in the interviewing process, is searching for interviewees in the leasing area. Some random search key words used for this process: innovation, renewable energy, corporate social responsibility, sustainability, green transport, electric transport, operational leasing, financial leasing, electric scooter, electric bicycle, and so on. As is described in the example of Athlon, this interviewee search could for example be done by using websites like LinkedIn.com. I also received a lot of information (mail, phone numbers, background info of possible interesting interviewees) from the management team of Eco-movement and the in-house Eco-movement Wikipedia site.

Before contacting the companies, I tried to collect as much company in-house information as possible. For example from the particular website and press releases. In this way, I would come across as an interested interviewer with some knowledge about the possible interviewee.

STEP 1:

First contact. Eventually, when I found an interesting company (which to a certain extent matched the key words, I mailed them the letter of Appendix VI (usually to the general 'info mail address' of the company). When I did not receive an answer within 1 working week, I mailed them the same letter again. If I did not receive an answer within the following 1 working week, I eventually called the company and asked for a non-particular employee. This could be a random employee. By doing this, I by-passed the secretary and was redirected quicker within the company. (I experienced some (very) non-cooperative secretary employees...)

STEP 2:

Positive response. If I did receive a positive response on the first/second mail or phone call, I explained again what my research implied and, in case of a positive match with the respondent, made an appointment for the actual interview. This appointment could be made by mail, or by direct phone contact. In this mail or phone conference some first information about the purpose of the interview was presented.

The company EB-Lease stated that they preferred an interview by mail. I mailed them Appendix VII. EB-Lease answered the questions and mailed the adjusted file back to me. I elaborated the answers, and in case of uncertainty mailed them again for clarification. This worked out nicely, nevertheless it is more time consuming, because of the indirect contact.

STEP 3:

The interview itself. The scheduled time for the interview was totally depending on the interviewee's willingness and availability to cooperate in the research. The available time was set before the actual interview, so I could arrange the questions on this timeframe in advance and during the interview. All interviews are performed at the interviewees' companies.

The interview was performed along the lines of Appendix VII, and was semi-structured. The interview started with an informal welcome, explaining what I was doing (TUDelft, Eco-movement, SEPAM etc.) and a brief explanation of the objectives of the interview. The RLF dimensions were explained again, as was my goal of describing the interviewee's interpretation of these dimensions. Appendix VII was eventually used as the overall interview guide, containing questions that are mostly open-ended. These questions were designed to encourage the respondent to talk freely around each topic. In this case the interpretation of the RLF by the respondent. And the perceived value of the concept of leasing.

With the approval of the interviewee, the interviews were recorded on a digital voice recorder. During these interviews very little was written down. Sometimes I wrote down some key words, on which I wanted to come back later on in the interview. By putting them on a memo, I wouldn't forget.

The interviews without the digital voice recorder were a bit more labour intensive. Constantly listening, asking and writing at the same time. I prefer the recorder.

STEP 4:

Finalizing the interview. Time for some comments or recommendations on the research, on the interview (content related and/or process related), or on anything else. Both from the interviewee as from me. And, if relevant, a second appointment was made. For example with Athlon, a second appointment was made for a phone call consultation on the results of the interview, and the way in which I wanted to use these results in the Thesis.

STEP 5:

Elaborating on the results. In case of an interview without the digital voice recorder, I tried to write out the notes as soon as possible after the actual interview. Otherwise I would lose too much information. The recorded interviews had less rush, considering this elaborating and writing down of the results.

I also agreed with the interviewees on the fact that the Thesis will be publically available on the website of Eco-movement. I offered them the opportunity to read it in advance of publishing. So in case of uncertainties, or differences of opinion on the results, we could discuss it before everybody would have access to the Thesis.

IX Interview lay-out Eco-movement

REMARK: Throughout the interview different steps can be discussed in a non-chronological way. This is the result of the semi-structured protocol used in this interview. The interviewee can decide to discuss a topic at a different moment than I originally planned. The different steps discussed below should therefore be characterized as rough interview guide. Also important to mention: the interviewee in this case (R. van den Berg) is committed to the research area, and fully aware of the interim results.

STEP 0:

Welcome and present main goal of interview

The purpose of the interview is to present the Eco-movement objectives regarding their competitive strategy, by means of the concept of leasing, in combination with the C2C gold certification. So, an overview of the main leasing concept features (discussed in chapter 3 and 4) that could match with the Eco-movement mission and ambition.

STEP 1:

Discuss Eco-movement mission and ambition

This mission and ambition are stated on the wiki of Eco-movement. Nevertheless, it can be rewarding to discuss the specific management team interpretation of these sentences.

STEP 2:

Discuss RLF

The results of the interview will be discussed along the lines of the RLF of De Brito as much as possible. In this way the results from chapter 3 can be matched and compared in a more elaborate manner.

(this RLF information was mailed to R. van den Berg in advance of the interview)

STEP 3:

Discuss leasing features

Discuss leasing features described in chapter 3, and discuss the main similarities and differences between these leasing features described in chapter 4.

(this information from chapter 3 & 4 was mailed to R. van den Berg in advance of the interview)

STEP 4:Discuss Eco-movement competitive strategy

On the present situation in the electric scooter market:

What is the current competitive standing of Eco-movement? (liquidity)

How is the electric scooter market developing?

What strategies can be distinguished among competitors? Regarding the concept of leasing?

What competitive standing is Eco-movement pursuing?

On leasing:

Why does Eco-movement want to present the concept of leasing?

In what way are they visualizing this to themselves?

Did they already calculate a possible lease term?

What customers do they want to serve?

What timeframe should be applicable?

On C2C certification:

How important is the C2C certification for Eco-movement in respect to their competitive standing?

How important is the C2C certification for Eco-movement in respect to their corporate citizenship?

On 3rd party involvement:

What 3rd parties should be involved or are already in close cooperation with Eco-movement?

In what way does Eco-movement benefit from the cooperation with these companies? Or future cooperation?

On sharing of knowledge:

How does Eco-movement think about sharing their in-house knowledge regarding electric transport?

STEP 5:Discuss RLF interpretations Eco-movement

Some of the above discussed topics can have overlap with the RLF interpretations of this particular step. Discussing them again could clarify them even more.

Why does Eco-movement want to present the concept of leasing?

Why are scooters returned in the present situation? What kind of service is proceeded most of the times?

What is returned by the customer in the present situation? (product characteristics, product types)

How are the current product returns arranged by Eco-movement?

What 3rd parties should be involved or are already in close cooperation with Eco-movement?

STEP 6:Discuss future scenario's

This part is open for discussion. Remarks on the interview, or on the presented results can be elaborated here.

During the interview we've done some brainstorming on what the Eco-movement lease concept would look like.

X Lease company specifications

Table X.1: Summarizing Part I

	Form of leasing		Lessee		Why receiving				Why returning		
	Operational	Financial	Corporate	Private	Economic <i>direct</i>	<i>indirect</i>	Legislation	Corp. citizenship	Warranty/ service	End-of- use	End-of- life
Athlon	√		√		√	√		√	√	√	
EB-Lease	√		√		√		√	√		n/a	
BOKA	√		√		√	√			√	√	
ScooterPlan		√	√			√		√		n/a	√

	Subject of lease	Recovery option		Role played by lease company			Cooperation	Lease term	
		Direct	Process	Managing/organizing	Executing	Accommodating		months	
Athlon	2 nd hand car		√	√	√	√	fastfitter	12	minimal
EB-Lease	electric bicycle	√				√	dealer	36	fixed
BOKA	fuel-powered scooter	√	√	√	√	√	n/a	3 – 24	between
ScooterPlan	electric scooter		√	√		√	FietsNED	24	fixed

	After contract responsibility			Property structure	Extra curricular activities			Main selling area
	lessor	lessee	3 rd party		rental	MIA/Vamil	sale (after contract)	
Athlon	√			bank affiliated	√		√	nationwide
EB-Lease			√	dealer affiliated			√	Rotterdam/Utrecht area
BOKA	√	√		multi-brand	√		√	Amsterdam
ScooterPlan		√		captive	√	√		nationwide