SCOOTER LEASING: A CRADLE-TO-CRADLE SOUND STRATEGY?

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Abstract
This article investigates the application of the Cradle-to-Cradle approach to the electric scooter vehicle, and how the concept of leasing can be used as a means to make it operational. This research is a result of a research project with *Eco-Movement*, a Dutch firm currently selling electric scooters imported mainly from Asia. *Eco-Movement* is considering putting in the market its own electric scooter, branded according to the cradle-to-cradle principles.

The cradle-to-cradle concept was developed as a counter-tendency to the design of cradle-to-grave products: to design products which are not a burden to the environment but are, among others, made of renewable resources. There is an official cradle-to-cradle design certification process, and Eco-movement has the ambition to obtain the gold cradle-to-cradle certificate for its scooter.

This article first describes the Cradle-to-Cradle gold certification requirements and it provides an overview of leasing business models. For the first, we reviewed the literature and for the latter we carried out expert interviews with four passenger mobility industries: the automobile, the electric bicycle, the fueled-powered scooter and the electric scooter. After that, we investigate which type of leasing model could suit *Eco-movement* cradling ambition, by means of a SWOT analysis.

We conclude that, given the circumstances of *Eco-movement*, putting its own cradle-to-cradle electric scooter in the market, would demand a partnership with an established lease company and with a reverse logistics third party. This however has the risk associated with the low control capability inherent to outsourcing. This in itself hinders the compliance with the requirements of the cradle-to-cradle gold certificate.

We end the paper with additional recommendations for *Eco-Movement* and we finish with research recommendations.

Keywords – Cradle-to-Cradle, gold certification, product component return, leasing, electric scooter, *case study.*

INTRODUCTION

Electric motors are on the raise (specially in the motorcycle segment): the electric motorcycle global market share is expected to be two-thirds of the total market by 2011 (The Fredonia Group, 2008).

Electric scooters, have 45% less impact on the environment than combustion engine scooters, as showed by Kang-ning and Lin (2002) in a study focused on scooters produced and used in China. In other countries this advantage can even be greater. For instance, in the Netherlands the energy mix is 20-25% of coal compared to 75% coal in China (energieraad2.nl). Companies and even governments are promoting electric scooters as a being a sustainable means of transportation (Hwang, 2010). Still, these electric scooters contain environmentally unfriendly and non-renewable components, of which the battery can be considered as the most toxic component. A life cycle assessment of batteries used in electric vehicles shows that lithium batteries are the most sustainable of those available (Van Autenboer, Van den Bossche et al., 2006). Though lithium batteries are starting to be used as a power source, nowadays almost all electric motorcycles are powered by lead acid batteries (Freedonia Group, 2008).

The reuse of batteries would potentially reduce the current environmental impact of electric motorcycles, and this can be pursued via Cradle-to-Cradle (C2C) principles (see McDonough and Braungart, 2002). *Eco-Movement*, a Dutch firm currently selling electric scooters imported from Asia, is considering putting in the market its own electric scooter, branded according to the cradle-to-cradle principles. This research is a result of a research project with *Eco-Movement*, so it is case based.

Eco-movement would like to reduce the environmental burden of the sold electric scooters, and would like to have it certificated according to the C2C golden certificate (see www.mbdc.com/**c2c**/*)*. One of the main requirements of this C2C gold certification is the implementation of a proper product component return strategy. A current available return strategy, which fits the C2C philosophy is leasing. Eco-movement does not offer any form of leasing yet. Their core-business is selling electric scooters on the Dutch market.

This article investigates the application of the Cradle-to-Cradle approach to the electric scooter vehicle, and *how* can the concept of leasing be used as a means to make it operational. The focus of this article will therefore be on the possibilities of complying with the Cradle-to-Cradle body of thought by incorporating the concept of leasing, as a means for the component return strategy, by a non-leasing company like Eco-movement.

The next section will elaborate on the C2C gold certification criteria. After that we describe the methodology, followed by an explanation about the main forms of leasing. Then we go into the details of leasing cases in the mobility industry. We end with specific recommendations for *Eco-Movement* and general research recommendations

THE C2C GOLD CERTIFICATION

The C2C certification calls for the compliance with (a number of) the following requirements (MBDC.com):

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 number of requirements to comply with, depends on the level of C2C certification. There are four certification levels, increasingly demanding: basic, silver, gold and platinum. While, the silver consists of the first four criteria described above, The gold certification demands also in addition the existence and description of a *component return strategy.*

We will focus on this fifth requirement, which typifies the gold certification, which in turn is the aspiration of the *Eco-Movem*ent company.

A key environmental impact of the electric scooter is caused by the batteries. Thus the battery is an obvious choice for component reuse, if environmental impact is to be reduced. Furthermore, leasing as business strategy can accommodate the product return requirement of the C2C gold certification.

LEASING AND REVERSE LOGISTICS

The concept 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 are:

Financial leasing can be seen as a contract for financing the investment, for example a scooter. 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. This is often done for a symbolic price. The lessee 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. The table in Appendix I presents a schematic overview of the main differences between operational and financial leasing.

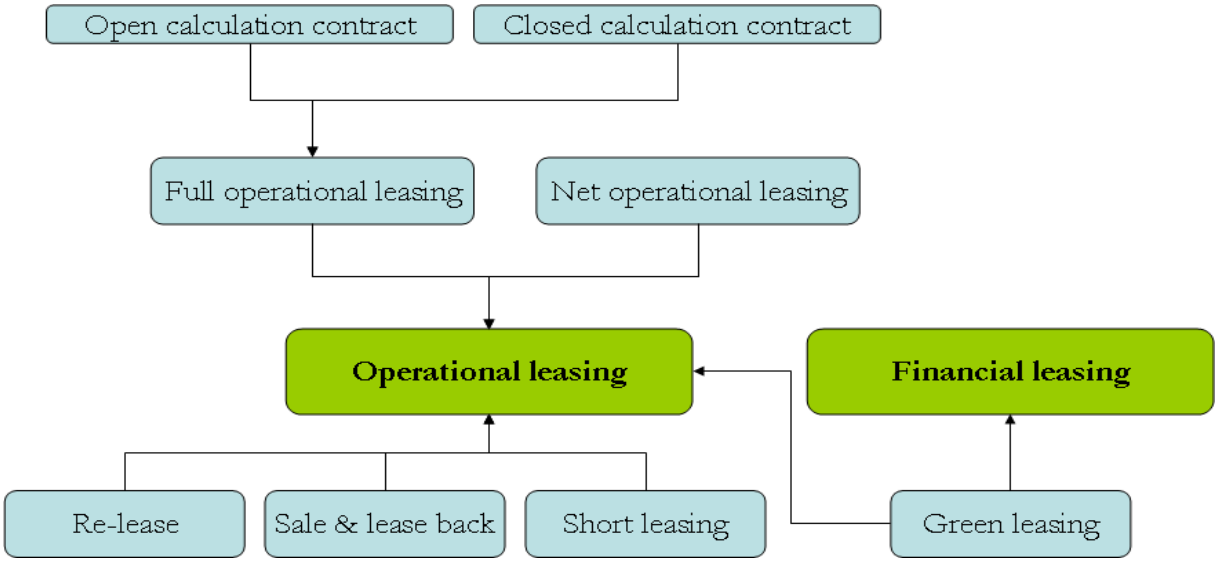

Figure 1: Schematic overview of the various forms of leasing

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 level[1] 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 I).

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.

Reverse Logistics and leasing

Leasing implies that the products are brought back. Thus leasing companies, besides having to manage the *forward stream* of vehicles to the end user, also have to have know-how on reverse logistics, to manage the reverse stream of vehicles (from end user back to the leasing company). To examine the reverse logistics of leasing, we employ the Reverse Logistics Framework (RLF) as proposed by De Brito and Dekker (2004). The framework is an helpful tool for structuring reverse logistics practices, inclusive in the context of leasing.

The RLF of De Brito and Dekker (2004) 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.

[1] A is the label for lowest energy use, G for highest energy use.

In the literature and in practice, there are several examples of leasing linked with product recovery. For instance, Mont et al. (2006) present a business model for baby prams, where customers can lease remanufactured "like new" baby prams, and do not have to deal with the hassle of having to sell it later on in the second-hand market.

DATA COLLECTION AND ANALYSIS TOOLS

Two kinds of data sources are used: secondary and primary sources. For the primaty data collection we used expert interviewing. Regarding the secondary: the internet, academic and professional literature were consulted. The topics consulted included C2C certification (see previous section), product recovery, reverse logistics and leasing (see next section).

Expert interviewing is an appropriate method for new or unknown areas, like the combination of leasing with the C2C certification. It provides quick access to information that is not from the public domain, but is restricted to a selected group of individuals (the experts). Therefore, such information would be difficult to access by other methods. An expert is someone reliable and privileged who has access to restricted information (see also Meuser and Nagel, 2005 and Stewart and Cash (2008).

We followed a semi-structured interview outline (Groenendijk and Dopheide 2003), with open-ended questions designed to encourage the respondent to talk freely around each topic. In addition room for additional interpretation or comments by the interviewee was given. Furthermore, interviewing triggered access to in-house information, like internal documents and annual reports of the organizations in question. In the course of the interviews we also paid attention to potential biases, namely we avoided interviewer bias (by carefully not inducing or suggestion answers, but always asking for further clarification when in doubt).

The aim of the interviews will be to gain sufficient information about the reverse logistics of leasing in passenger mobility industries, and to use it as basis for recommendations for the *Eco-movement* company.

Selection of the interviewee's companies

In the context of this paper, we used experts on leasing from four different passenger mobility industries: the electric bicycle industry, the automobile industry, the fuel-powered scooter industry, for the reasons presented below:

- *Electric bicycle industry*: this industry is booming and should therefore be discussed in this research. Besides, the electric bicycle plays a very competitive role in the urban electric transport environment.

- *Automobile industry*: an industry which adopted the concept of leasing long time 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).

- *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, and therefore of significant interest in discussing leasing contracts for the new Eco-movement electric scooter.

- *Electric scooter industry*: this is the subject of this research. Therefore an in-depth investigation of current available leasing concepts in this industry is crucial.

In addition, we interviewed e the management team of the Eco Movement company, as experts on the electric scooter business.

We will employ Strengths, Weaknesses, Opportunities and Threats (SWOT) as a tool for data analysis and as a basis to construct recommendations for *Eco-movement*. We briefly explain it next.

SWOT analysis

The input for the SWOT analyses is 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.

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

The SWOT analysis consists of the following four basic steps (Groenendijk and Dopheide 2003): 1) external analysis: to identify opportunities and threats; 2) internal analysis: to identify strengths and weaknesses; 3) generating alternative strategies; 4) formulation of strategic choice .

LEASING CASES IN THE MOBILITY INDUSTRY

The information on the cases was gathered by consultation of secondary data (e.g. company's websites) and by conducting interviews with the companies. The names of the companies have been disguised for confidentiality purposes. For an overview of the characteristics of the lease operations of the four companies, we refer to Appendix II.

THE CASE OF CARLEASE-X

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.

CarLease-X is a powerful and diverse corporate lease company with over 120.000 lease cars in their portfolio, being one of the largest lease companies in the Netherlands, with 600 employees. *CarLease-X* also offers rental contracts via their own rental department Rental Services.

CarLease-X 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. To this end, *CarLease-X* has a program to offer sustainable and clean mobility solutions and it leases electric vehicles. This program is regrettably still in its infancy and not fully operational. CarLease-X also re-leases. This model is based on full operational leasing and embraces the idea of second-hand use of cars. *CarLease-X* offers 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 *CarLease-X*, has the following operational design (in short): the customer can either choose a car from the list presented by *CarLease-X*, or can propose one him/herself. *CarLease-X* 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 to stand out.

ELECTRIBIKY

For information about the implementation of the concept of leasing in the electric bicycle industry an interview is performed within the company *Electribiky*, a company with decades of experience within the Dutch bicycle business. Their main goal is to partner with companies, mitigating problems in the area of (car)parking facilities, high refunding of travelling expenses and stressed employees. *Electribiky* offers a full operational electric bicycle lease contract, serving only corporate clients. 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 Electribiky, has the following operational design: a customer (company) chooses an electric bike dealer.[2] Next a choice will be made on the specific electric bike for the company from the dealer collection. Finally the lease contract will be settled by the dealer and Electribiky. 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 Electribiky, but will return to the dealer. The dealers, which are associated with Electribiky, committed themselves (by means of a contract) to repurchase the bikes from Electribiky after the lease contract. The repurchased bikes can then be resold again by the dealer. Electribiky 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 customer who purchases the bike after the lease contract will therefore still benefit from this bike for the following years.

FUELSCOOTY

FuelScooty is originally a company that only rents out scooters in the city of Amsterdam. They copied 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. *FuelScooty* states that the city of Amsterdam still does not adopt the scooter enough as a useful inner-city transport modality.

Not that long ago *FuelScooty* decided to also offer lease contracts. While rental contracts exist for both corporate and private customers, scooter lease contracts are only for

[2] dozens of electric bicycle dealers are associated to *Electribiky*. .

corporate customers. The full operational lease contract covers maintenance, repair and insurance.

The operational lease concept, as it is offered by *FuelScooty*, has the following operational conditions: it is a sort of an extended rental contract. The minimal term of the lease contract is 3 months, so a rather short term lease contract. The maximum term of the lease contract is 24 months. *FuelScooty* 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.

ELECTRISCOOTY

Electriscooty offers corporate lease contracts for electric scooters, next to selling the electric scooters. In its maketing campaign, Ectriscooty focus on the environment in an attempt to attract consumers willing to green their mobility. The customer can both buy and lease the electric scooter at Electriscooty. For the moment, leasing is only available for corporate customers

Electriscooty uses the concept of financial lease. withthe following operational design: the customer (a company) chooses an electric scooter from the list of scooters offered. Electriscooty (the lessor) subsequently provides the purchase investment. Insurance, maintenance and repair can be taken care of by Electriscooty, but these costs will then be charged to 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 done. No end-of-lease scooters will therefore return to Electriscooty. This said, Electriscooty does offer the opportunity for customers to hand in the end-of-life batteries at their facilities. When so, Electriscooty looks after the safe disposal of these batteries.

KEY LEARNINGS FROM THE LEASING CASES

1. The concept of leasing, as discussed in the different 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.

2. The corporate citizenship driving force may be present indirectly. The electric feature of the electric scooter for example, is often presented as a 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 cannot be connected automatically. It is dependent on what exactly is being leased.

3. 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.

4. 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.

5. 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?

6. 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?

SWOT & RECOMMENDATIONS FOR ECO-MOVEMENT

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. The operational leasing form can therefore be of specific interest for EcoMovement. 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).

Thus, summarising, the general 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.
- their business competitiveness: Eco-movement does not operate a liquidity rate which supports the pre-financing of electric scooters in case of financial lease.

Next, we proceed to the SWOT analysis of having Eco-movement implementing the concept of leasing within their business plan,

ECO-MOVEMENT LEASING SWOT

Strengths

The main reason for Eco-movement to also present the concept of leasing is becoming attractive to a **bigger market section**. E.g. the corporate business segment is declaring that they would like to lease the electric scooters, instead of buying them. This is not surprising as it softens the financial investment. In addition, the possibility to outsource the corporate fleet operational management (for damage, break down and insurance) is also favoured by many corporate customers.

Weaknesses

Eco-movement is a web based electric scooter store. with **little knowledge** of 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.

There may be some cannabalisation from the rental market: 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 per day.

Opportunities

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 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.

Threats

Though it is growing, 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, it is still to be seen the real increase.

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 leasing scooters.**. Will the lessee feel any responsibility for the leased scooter, considering driving behaviour, care about scooter components, theft prevention, and 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.

RECOMMENDATIONS

The following recommendations (Peters 2009) are given to Eco-movement in its pursue to put a cradle-to-cradle scooter by implemmenting operational lease in their business plan .

First of all, it is important to recall that the drivers for incorporating the concept of leasing 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 as well, by attempting to comply with the C2C body of thought.

The customer returns, warranty/service and end-of-use (end-of-lease), can be dealt with by either Eco-movement, or the associated service facilitators of FietsNED (FietsNED.nl). The customer will eventually choose for one of these service options. Outsourcing the total 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. FietsNED only strives for an optimal servicing network, and will never get involved in selling the electric scooters themselves. FietsNED is therefore a safe partner for Eco-movement.

One of the main components of the electric scooter is the battery. Eco-movement is offering the customer[3] 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 will be organized in cooperation with an ISO-certified battery recycling company (Van Den Berg 2009).

Incorporating the concept of operational lease can have financial risks caused by the Eco-movement (non) control over the repairs executed by FietsNED, and the uncertainty about the exact number of service returns. Eco-movement will therefore first have to accomplish a higher liquidity rate and a more transparent operational relation with FietsNED.
Although Eco-movement states that cooperating and sharing in-house knowledge, regarding electric transport, could have perverse effects, they will keep the option of cooperating with an established lease company open (Van Den Berg 2009).

[3] The (ex)customer can also return the end-of-life batteries after the lease contract term.

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 electric scooter 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 (Peters 2009).

The most important component of this concept 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 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 (not finance) the electric scooters and the service facilitating department. The established lease company will arrange and finance 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 of electric scooter importers to check the market whether new and/or better scooters are available. Eco-movement also 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, the financial means 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 operational electric scooter lease.

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. They are lacking the in-house knowledge about operating the concept of leasing in practice, and they do not have a supporting liquidity rate to pre-finance the lease scooters independently. The Eco-movement goal of striving for a C2C gold certification for their new electric scooter should therefore be altered or postponed (Peters 2009). 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 should 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.

Eventually, when they are financially independent and mature, Eco-movement could incorporate a lease concept in close cooperation with the service network of FietsNED. 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 product component return requirement. But the maintenance and service returns can be arranged by both parties.

CONCLUSIONS

Focussing on the discussed case study, the following conclusions can be drawn on the possibilities of observing the C2C body of thought by incorporating the concept of leasing, as a means for the return strategy of the product components, by an originally non-leasing electric scooter company.

The main drawback of the mediator role, played for example by Eco-movement in case of cooperation with an established lease company, can be the loss of control over in-house activities and intended C2C goals. If a non-leasing company still wants to strive for the C2C gold certification, they will have to arrange this directly with the cooperating established lease company. The non-leasing company 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, and the resulting product component return requirement. It will be the established lease company who arranges the operational lease processes with the lessee. The way in which, and at what level, the C2C body of thought will be complied with by the cooperation, will therefore mainly depend on the established lease company's specific goals and expectations regarding the design of these processes.

If the non-leasing company decides not to cooperate with an established lease company, or this potential lease company does not want to cooperate, the non-leasing company will find itself in a difficult situation while trying to incorporate the concept of leasing. A supporting liquidity rate, and the relevant leasing knowledge, are both crucial components for a successful implementation of the concept of leasing. The non-leasing company will have to reconsider its C2C goals again, and especially the way in which they want to achieve these goals.

In the end operational leasing can be considered as a concept which perfectly fits the C2C gold certification requirement of product component return. Nevertheless, an originally non-leasing oriented electric scooter company will first have to gain a significant amount of leasing knowledge and financial support in order to incorporate this concept to its full potential. We believe similar results will apply to small and medium mobility enterprises willing to innovate throghout cradling their vehicles.

RESEARCH RECOMMENDATIONS

Little is known about electric scooters and consumer motivations and behaviour. There is a need for a study 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 small and medium enterprises productively react on these factors? What enablers and necessary conditions should be

contacted or created by companies like Eco-movement in order to speed up the take-off of the electric scooter market?

Second, the research approach was primarily focussing on the corporate playing field. The customer preferences and behaviour towards the scooter 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?

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APPENDIX I: OPERATIONAL AND FINANCIAL LEASE: A COMPARISON

	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

APPENDIX II: LEASE COMPANIES SPECIFICATIONS

	Form of leasing		Lessee		Why receiving				Why returning		
	Operational	Financial	Corporate	Private	Economic *direct*	*indirect*	Legislation	Corp. citizenship	Warranty/ service	End-of-use	End-of-life
CarLease-X	√		√		√	√		√	√	√	
Electribiky	√		√		√		√	√		n/a	
FuelScooty	√		√		√	√			√	√	
Electriscooty		√	√			√		√		n/a	√

	Leased vehicle	Recovery option		Role played by lease company			Cooperation	Lease term	
		Direct	Process	Managing/organizing	Executing	Accommodating		months	
CarLease-X	2nd hand car		√	√	√	√	yes	12	minimal
Electribiky	electric bicycle	√				√	dealer	36	fixed
FuelScooty	fuel-powered scooter	√	√	√	√	√	n/a	3 – 24	between
Electriscooty	electric scooter		√	√		√	yes	24	fixed

	After contract responsibility			Property structure	Extra activities			Main selling area
	lessor	lessee	3rd party		rental	MIA/Vamil	sale (after contract)	
CarLease-X	√			bank affiliated	√		√	Nationwide
Electribiky			√	dealer affiliated			√	Rotterdam/Utrecht area
FuelScooty	√	√		multi-brand	√		√	Amsterdam
Electriscooty		√		captive	√	√		nationwide