

Changes in Corporate Sustainability

-A constructivist grounded theory research-

Master Thesis

Environmental Management and Sustainability Science Master

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“We can’t solve problems by using the same kind of thinking we used when we created them.”

Albert Einstein (1879-1955)



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Preface and Acknowledgements

This master thesis is the outcome of the research undertaken during the 4th and last semester of the Environmental Management and Sustainability Science Master within the Department of Development and Planning at Aalborg University. The paper gathers, on the one hand, theoretical insights and methodological knowledge obtained during the 1st and 2nd semesters, and on the other hand, practical knowledge achieved during the 3rd semester of professional development. This balanced mix was a valuable enforcement to enter into the selected problem area of changing trends in corporate sustainability, which the researcher tried to tackle during the available four months.

The period of the thesis development represented for the researcher an assembly of many challenging moments and transformative changes, but which in the end have been very welcomed since they strengthened her analytical and critical skills.

The development of this research would not have been possible without relevant support from Kristian Henriksen and Tanja Bisgaard, who guided this researcher during her collaboration with the Danish Business Authority, and without constructive comments from the supervisors Stig Hirsbak and Henrik Riisgaard, professors in the Department of Development and Planning at Aalborg University.

I am grateful for your inputs and I thank you for your help.

Abstract

In recent years the field of business has come under an unprecedented level of criticism in light of its role in a number of social, environmental and economic issues present in today's society. Even though a paradigm shift that would radically improve its environmental and social performance has been strongly evoked, there has been little empirical analysis and theoretical discussions around the characteristics of such a change.

This research identifies such a paradigmatic change, and using a constructivist approach to grounded theory methodology sets its theoretical basis under the name of *Valuedecentrism*. Furthermore it develops a tool using the concepts of business model and eco-innovation, concepts which actually guided the way towards defining the new paradigm as well.

Through the obtained conceptual results this work intends to offer, on the one hand, a solution to motivate the business practitioners to take action in the background of the current environmental challenges and, on the other hand, to help environmental researchers enhance a higher degree of collaboration with the business sphere.



I. Introduction and Problem Formulation

The sphere of business has recently attracted an unprecedented level of criticism in light of its role in a number of social, environmental and economic issues present in today's society. The contribution of business to problems of climate change, social inequity and the economic recession has led to questioning the fundamental guiding forces of business and their commensurability with a more sustainable form of development (Broughton, 2009). Although this criticism has gain momentum in recent years, it is hardly new. Since the mid-1990s, scholars have advocated a shift in underlying worldview of the private sector (Waddock & McIntosh, 2009), discussing about alternative approaches meant to harmonize economic, environmental and social endeavors (Colby, 1989; Egri & Pinfield, 1999; Gladwin, Kennelly & Krause, 1995; Hart, 1995, Starkey & Crane, 2003).

Over the past several years, momentum has been building due in part to:

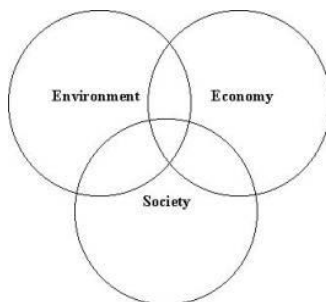
- Recognition of natural resources constraints that are driving supply and demand imbalances;
- Catastrophic events due to climate change resulting in unprecedented environmental and economic damages;
- Global trends associated with growth in population and consumption;
- The financial crisis and its implications in the need for transparency and governance by environmental and financial regulators, investor groups, and shareholders (Deloitte, 2012).

Even though management researchers, environmentalists and governmental institutions have pushed for a paradigm shift at the business organizational level that would radically improve the environmental and social performance, and scholars tend to agree on the need for change, few have studied what could determine such a change and what would it imply (Freeman et al, 2008). In other words, there has been little empirical analysis of whether there are signs of an emerging paradigm and little theoretical discussion around the nature of such a paradigm shift have been noticed (Andersen, 2010).

Environmental, and the broader sustainability performance, is an important business issue that is increasingly impacting business decisions. There is a compelling financial, regulatory, and market place opportunity to evolve a company's activities to mitigate environmental risks and enhance opportunity (Deloitte, 2012). An important question companies should be asking today more than ever is how do environmental risks affect their financial performance, earning activities and organizational structures, and how can they be transformed into business opportunity? A key challenge for companies is therefore going to be ensuring profitability through environmentally sustainable methods (Freeman et al, 2008), but also a big potentially first step towards the much needed change.

Since seeing business through environmental and social lenses didn't offer the expected outcomes, maybe seeing the environment and social spheres through business lenses might generate better results. Therefore the stakeholders that are driven by the economic leg of the circle might offer the solution.

There seems that a new paradigm regarding the business sphere response to the environmental challenges is actually emerging and is not currently covered by theoretical foundations, therefore the thesis intends to set the grounds for new theory in this field.



This work is built through a grounded theory methodology which crosses the borders of issues exclusively related to environmental management, approaching the wider grounds of the business and economic spheres, but this is absolutely necessary taking into consideration the up mentioned criticism. In the end the most valuable solutions come from bridging different study fields and building the necessary combinations of theories and ideas, to make potential breakthroughs possible.

Figure 1. The three pillars of sustainability (source: UNGA (2005))

Like Hoffman and Ehrenfeld (1998) stated, an encompassing understanding of corporate environmentalism requires an integration of the philosophies and theories from a wide group of disciplines such as sociology, organizational behavior, economics, environmental management, engineering and so on. It is this integration that will generate theoretical base from which business sustainability must, by necessity, be studied.

Apart from theoretically defining the observed emerging phenomenon and discussing its implications, this research also creates a tool that is aimed to help companies approach it. A very important role is played by the concept of “eco-innovation”, which is the innovation process specifically targeting sustainability issues, rather than embedding sustainability principles in core innovation process (Blowfield et al, 2007). In this way environmental concerns are not seen as activities outside or additional to the core business, but they capture economic value, incentivizing companies to take action without stakeholder/regulatory intervention. Therefore this research starts from the following research question:

How can companies be motivated to further lower their environmental impact? What does this imply and how can it be translated into practice?

This research identifies the fact that the current paradigm for the global economy – focused on throughput of resources, consumption of products and limited measures of prosperity – is slowly being discarded and the ‘new normal’ (Lawrence et al, 2010) is starting to be defined by new business activities focused on value creation rather than material throughput, but keeping the growth objective in mind.

After this introduction, the thesis opens its theoretical framework discussion with a fundamental issue for any business activity, but which generates the most environmental problems in the same time, namely the resources used to create value for the company’s shareholders and stakeholders. The resource aspect is discussed from two sides: efficiency and sufficiency. After this, the discussion goes further in detailing what exactly is eco-innovation, why did this concept received so much attention in the last years, but also which are the major paradigms that have been defined in order to explain corporate sustainability behaviors. The chapter ends through exposing an element which is seen as having an important role to play in corporate sustainability and might become a variable of indicating the environmental performance of any company.

The theoretical discussions offer a solid base for the methodology (III) and analysis (IV) chapters, as they constantly overlap in the process of constructing the results of the research.

The hope of this study is that its theoretical discussions and the conceptual tool which has been developed provide a critical view towards what a ‘future normal’ might be, and help the students and managers who want to develop theories, and organizations that better enable sustainability. Therefore this work tries to reach both the academic and practitioner audience, and intends to contribute to the efforts that are currently made to intersect the circles of business professionals and environmental researchers.



II. Theoretical Framework

This chapter exposes the main concepts which had an influence on the process of elaborating the grounded theory for the identified emerging paradigm and the accompanying tool, properly described in chapter IV of this work.

II.1. Resources and their implications

Human society has always built its development on the extraction and utilization of natural resources. However, since the industrial revolution and especially in the last few decades, world material use has reached unprecedented levels. Worldwide resource extraction and resource use increased in the period from 1980 to 2007 by 62% (SERI, 2010). There is a great recognition that the inefficient and wasteful use of natural resources, including energy, water and materials, lies at the heart of the key environmental challenges (EC, 2008; UNIDO).

Various environmental assessments (EEA, 2010; WWF et al., 2010) illustrate that already at current level of global consumption, the natural resource base the human society is built on is in severe danger of overexploitation and – potentially - collapse. In this direction, sustainable management of natural resources and efficient use of raw materials has gained importance with respect to environmental, social and economic aspects (Von Geibler et al, 2011).

On the global and European level, material use is a key issue in the transition towards more sustainable production and consumption patterns. On the industry and business level, reducing material costs and avoiding material scarcity are increasingly important aspects for economic success (UNIDO, 2011).

II.1.1. The efficiency side

Resource efficiency has become an ‘umbrella’ issue included in various policy and business agendas and contexts. The Europe 2020 strategy for a smart, sustainable and inclusive growth regards resource efficiency as key for achieving both economic and environmental objectives. The flagship initiative for a resource-efficient Europe points the way towards sustainable growth and supports a shift towards a resource-efficient, low-carbon economy (EC¹). This kind of economy is characterized by:

- Cost reductions (production and product costs as well as the reduction of costs during the use-phase);
- Securing material supply;
- Decreasing environmental impacts during the entire lifecycle of the products delivered by companies (Von Geibler et al, 2011).

Improving resource efficiency is necessary in order to minimize the pressures on the environment caused by natural resource extraction and consumption (Von Geibler et al, 2011). Such pressures include biodiversity loss, emissions, waste generation and many others.

So far resource efficiency has been linked mainly to cleaner production methods, and UNIDO² and UNEP³ motivate their support towards them because they generate multiple benefits that are relevant to many of today’s most pressing global challenges, including:

- Mitigation of GHG emissions and adapting to climate change;
- Response to increasing scarcity of water, fuels and other materials;
- Provision of jobs; and
- Halting environmental degradation.

¹ European Commission (<http://ec.europa.eu/resource-efficient-europe/>)

² United Nations Industrial Development Organization (<http://www.unido.org/index.php?id=o4460>)

³ United Nations Environment Programme (<http://www.unep.fr/scp/cp/>)

Manufacturing industries account for a significant part of the world's consumption of resources and generation of waste. Nevertheless they have the potential to become a driving force for the creation of sustainable society (OECD, 2009). Global pressure to increase resource efficiency and the efforts to improve sustainability are becoming an important source of innovation and a valuable asset for industry's competitiveness (EC, 2008). These aspects have come to the attention of the companies, and as a response their focus has turn from cleaner production practices towards improving environmental performance through lifecycle thinking and integrated environmental strategies and management systems, as well as through accepting larger environmental responsibilities. Furthermore, efforts to create closed-loop, circular production systems have tried to revitalize disposed products into new resources for production, for example by establishing eco-industrial parks where synergies between traditionally unrelated industrial producers can be harnessed (OECD, 2009).

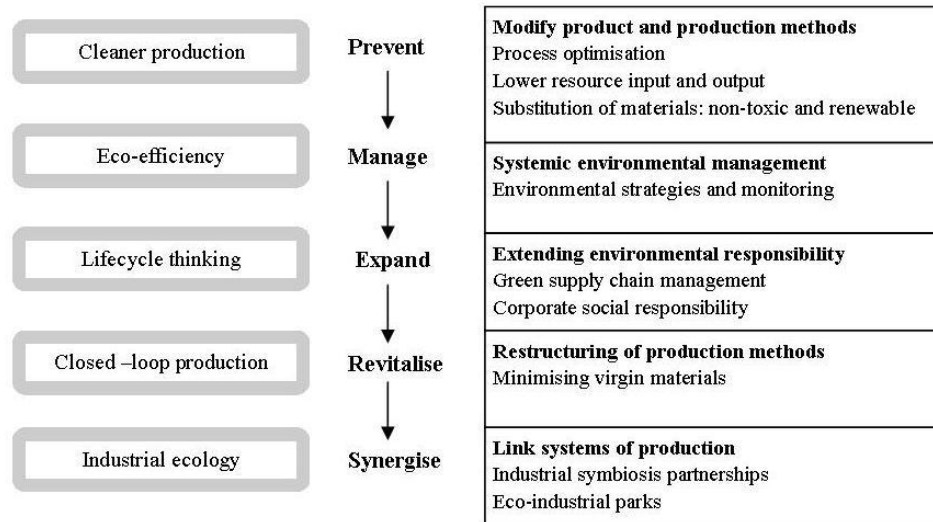


Figure 2 The evolution of resource efficient manufacturing concepts and practices
(source: inspired from OECD (2009))

The 'Resource Efficiency Atlas' (Von Geibler et al, 2011) is a broad collection of good practice examples including technologies, products and strategies for increasing resource efficiency. Overall, the global mapping of the study resulted in almost 100 examples located mainly in Europe, Asia and North America. The share of identified measures is highest in technologies, followed by products and strategies.

However, the resource efficiency gains made so far have not been enough to change the trend in the absolute consumption of natural resources, which continues to increase in Europe and globally.

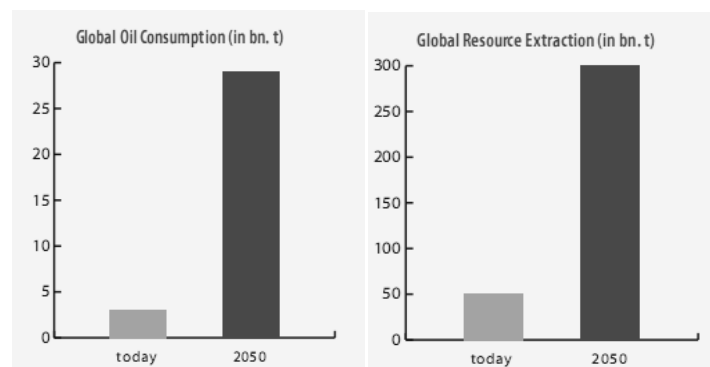


Figure 3. Worldwide demand for raw materials in 2050 without increasing efficiency levels (Hennicke, 2006)

The trends towards sustainability through resource efficiency may improve sustainability at the margins, but they are still rooted in a model of consumption that is itself often viewed as unsustainable. Many of the actions undertaken by businesses have positive, clear bottom line implications in the near to mid-term – reducing energy use and its cost, reducing material use and its costs, and reducing carbon dioxide generation. But even though these initiatives have benefits to individual businesses, the greater prize – sustainability across value chains remains elusive (Lawrence et al, 2010).

Both large gains in efficiency and a significant change in the way materials and resources at large are used, re-used and managed are needed (E-IO, 2011b). This change can only be possible through a combination of technological and non-technological solutions, new approaches to the way business are run and the way goods and services are consumed and used. Industries have to design and implement integrated sustainable practices, and develop products and services that contribute to better environmental performance. This requires a shift in the performance and understanding of industrial production and the adoption of a more holistic approach to conducting business (Maxwell et al., 2006).

This holistic approach needs to go beyond company limits in order to allow the development of mechanisms which have the power to engage the stakeholders that a company comes in contact with, especially the consumers. A strong guiding force for this can be the concept of sufficiency.

II.1.2. The sufficiency side

“Efficiency without sufficiency is counterproductive – the latter has to define the boundaries of the former. A society in balance with nature [...] can be approximated only through a twin-track approach: intelligent rationalization of means and prudent moderation of ends [...] an efficiency revolution remains without direction if is not accompanied by a sufficiency revolution” (Sach, 1999, p.80).

As exposed previously, the goals of institutions and companies are to ‘improve’ the environment, to use resources more efficiently, to mitigate impacts, to ‘green’ consumption and not necessarily to live within regenerative capacities (Princen, 2003).

Sufficiency as an idea is simple and intuitive, arguably ‘rational’, since it represents the sense that, as one does more and more of an activity, there can be enough and there can be too much (Princen, 2003).

According to Wolfgang Sachs (1999) nothing is more irrational than rushing with maximum efficiency in the wrong direction. But he also states that a ‘sufficiency revolution’ can’t be programmed or engineered, because it involves a balanced mix of subtle and rapid changes in the cultural outlook of the society.

Building the concept of sufficiency into economic theory and practice is predicted to be a very difficult process, but even more difficult can be to continue to operate in a society where there is no such thing as enough (Daly & Townsend, 1993; Princen, 2005).

Critiques of economic and environmental trends insist that economic expansion and growth can’t continue, and that the society must accept that enough is enough. They suggest that the consumers must return to the old virtues, frugality and moderation in their life styles, simply assuming that these notions are self-evident by themselves, let alone meaningful in the modern, industrial and post-industrial backgrounds (Princen, 2003).

In order to tackle the habits of over consumption and plentiful life style, the idea of sufficiency has to become a principle of management (Princen, 2003). And this transition takes place through introducing a structure for action which goes beyond the simple sensory perception of ‘too much’, and introduces an incentive to approach the notion of excess in an innovative way.

Even though the concept of sufficiency mainly addresses the consumer side and their behaviors, these are strongly influenced by the business sphere. Companies have the power to make their customers embrace sufficiency, without disadvantaging profits.

Approaching both efficiency and sufficiency in a profitable way implies that a company embraces an innovative approach of delivering value. An innovative approach with environmental, social and economic benefits.

II.3. Eco-Innovation

The pressure of climate change, resource scarcity and the threats represented by waste have created a kind of ‘perfect storm’ for innovation, but it is not the first time in history this has happened (Nogrady & Moody, 2010).

The Russian economist Nikolai Kondratiev first postulated major cycles of innovation in 1925 (Solon, 2011). The five previous major innovation cycles have been defined as the industrial revolution; the age of steam and railways; the age of steel and electricity; the age of oil, cars and mass production and the age of information and communication. Each of the ages range from 40 to 60 years, and it was predicted that the next cycle will be defined by resource efficiency (Nogrady & Moody, 2010). The new wave is heralded by big shifts in the market, societal institutions and technology, and all reinforce each other in a process aimed at decoupling economic growth⁴ from resource consumption, known as *green growth* (OECD, 2011a). Weizsacker et al. (2009) also emphasize on the innovation periods and outline that a ‘Green Kondratiev cycle’ might well be approaching. They also mention that benefits of such a breakthrough would likely be felt most strongly in countries that have a strong business infrastructure to support innovation.

Innovation that reduces the use of natural resources and decreases the release of harmful substances across the whole life-cycle has been named *eco-innovation* (Kemp & Foxon, 2007).

Eco-innovation was promoted until recently in the European Union primarily through the Environmental Technologies Action Plan (ETAP), which aimed at supporting the development and use of environmental technologies (technologies whose use is less environmentally harmful than relevant alternatives) in order to reduce use of the natural resources, improve quality of life and stimulate economic growth (EC, 2004).

Even though the promotion of eco-innovation has focused mainly on environmental technologies, there is a tendency to broaden the scope of the concept, to include socio-economic innovations that focus less on products functions and more on the environment and people (OECD, 2009). Eco-innovation is thus seen as an overarching concept which provides direction and vision for pursuing the overall societal changes needed to achieve sustainable development through resource efficiency (Machiba, 2010).

As a result, in December 2011 the Eco-Innovation Action Plan (EcoAP) replaced ETAP, and with it the notion that eco-innovation is only about new technologies:

“Eco-Innovation is any form of innovation resulting in, or aiming at significant and demonstrable progress towards the goal of sustainable development, through reducing impacts on the environment, enhancing resilience to environmental pressures, or achieving a more efficient and responsible use of natural resources” (EC, 2011, p.2).

Eco-innovation is also mentioned in the Europe 2020 strategy under the flagship initiative ‘Innovation Union’. The flagship devotes support to eco-innovation among its strategic commitments for action and states that the eco-innovation challenge is to further improve the resource and energy efficiency of the society and to ensure that the benefits of the new solutions are widely disseminated (EC, 2010).

The approaches through which eco-innovation is applied can be roughly categorised into incremental, disruptive and radical/systemic changes. Incremental eco-innovation primarily contributes to relative decoupling, while the

⁴ It is important to distinguish between ‘relative’ and ‘absolute’ decoupling. ‘Relative decoupling’ refers the situation where resource impacts decline relative to the GDP; impacts may still rise, but they do so more slowly than the GDP. The situation in which resource impacts decline in absolute terms is called ‘absolute decoupling’. There is no doubt that this latter situation is essential if economic activity is to remain within ecological limits (Jackson, 2009)



other two types tend to have larger potential for making absolute resource decoupling possible (OECD, 2011b; EIO, 2011a):

Incremental eco-innovation

- The type of eco-innovation which aims at modifying and improving existing technologies or processes to raise efficiency of resources and energy use, without fundamentally changing the underlying core technologies.

Disruptive eco-innovation

- Eco-innovation which changes how things are done or specific technological functions are fulfilled, without necessarily changing the underlying technological regime itself.

Systemic (or radical) eco-innovation

- Type of eco-innovation which involves a full-scale shift in the functioning regime of an economy, and can lead to fundamental changes in the economy's enabling technologies. This type of innovation is often complex and is more likely to involve non-technological changes (like organizational and institutional changes) and diverse actors.

The figure below illustrates the relationship between the evolution of resource efficiency manufacturing practices and their relation to eco-innovation. Although drawing boundaries between different levels of eco-innovation activity is not necessarily easy and incremental changes are in fact sometimes part of, or even necessary prerequisite for disruptive and radical changes, it has been tried to make a differentiation among the different sustainable manufacturing practices and their belonging to the three types of eco-innovation.

The waves spreading towards the right upper corner of the figure illustrate higher potential for environmental benefits.

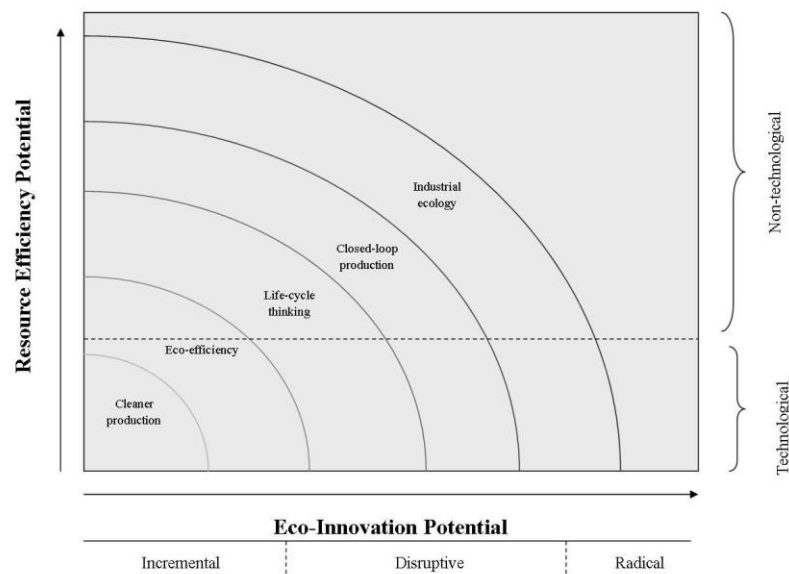


Figure 4 The relationship between resource efficiency and eco-innovation in terms of the evolution of industry sustainability (source: composed by the author inspired from Machiba (2010))

More and more severe environmental challenges and resource constraints have led to growing worldwide demand for environmental harmless business activity. Eco-Innovation should be used as a strategic tool to overlap business and environmental interests (EC, 2011), in order to permit companies to better satisfy customer needs based on the

sufficiency principle, increase profits, safeguard the environment and help solve resource scarcity problems through exponentially improving resource efficiency all at the same time.

Keeping this ambitious objective in mind, an objective that has been set at international level, the only question that arises on the lips of micro level actors of the economy, the ones that actually have to take initiative and reach this goal is *how*? This has been mentioned as being possible through a paradigmatic change, but it seems rather a paradigmatic conflict, since none of the established theoretical paradigms which affect the environmental performance of a firm seem to sustain the fulfillment of these objectives. The next section illustrates which are the paradigms related to business activity's environmental impact that have been mentioned in the literature over the years.

II.4. Established Paradigms

There is a general wave of firm behavior that has abandoned a reactive orientation to proactive pursue of social and environmental practices, since more than 80% of businesses report sustainability information online, more than one-third use Global Reporting Initiative standards and 86% of companies have sustainability websites (Blackwell, 2008; SIRAN). Whereas a reactive orientation is defined as the “response to changes in environmental regulations and stakeholder pressures via defensive lobbying and investments in end-of-pipe pollution control measures”, a proactive orientation is defined as “anticipating future regulations and social trends and designing or altering operations, processes, and products to prevent (rather than merely ameliorate) negative environmental impacts” (Aragon-Correa & Sharma, 2003, p. 73).

Numerous management scholars are making the call for the need of organisations to embrace an environmental paradigm to enable them to respond to the environmental crisis of today's society (Egri & Pinfield, 1999; Kilbourne et. al, 2002).

A paradigm or worldview is a “constellation of beliefs, values, assumptions, and concepts that organize language, thoughts, perceptions, and actions to give shape and meaning to the world a person experiences and acts within” (Norton, 1991, p.75). They rarely take the form of highly developed systematic philosophies, typically remaining sets of background assumptions that tend to organize language, thoughts, perceptions and actions (Morgan, 1980; Scott & Rothman, 1994). They are usually fragmented or poorly developed, and most of the times they are not even recognized by their holders. Many forces in the society, however, work consciously or unconsciously to cohere the central structure of a paradigm/worldview, through norm formation, filtering, structuration, and so on (Kuhn, 1970; Norton, 1991). Such self-reinforcement adds to the explanation of why paradigm shifts take so long to accept and gain full acceptance (Gladwin et al, 1995). In this background it is worth mentioning the opinion of Hoffman and Ehrenfeld (1998) related to the difficulty of identifying a collective identity based on environmental risk. This can be justified with the explanation of Schnaiberg & Gould (1994), who state that humans will forever lack the motivation or intellectual sophistication to evolve beyond existing societal structures unless a cataclysmic event forces a significant adjustment, or this researcher may add, unless there is a strong motivational factor behind the change.

The following is a brief characterisation of the three main paradigms recognized as having an influence on the adopting company focus and behavior regarding its view of the environment and its relation with it. For a detailed discussion about these paradigms see Gladwin et. al (1995) or Egels (2005).

Technocentrism: this paradigm assumes that the Earth has no limits, that there are no irresolvable issues, and that the humanity's ingenuity can solve any problems. This paradigm also assumes that profit maximization and growth can continue ad infinitum, and all that matters to humanity are material possessions.

Sustaincentrism: it perceives that the Earth's limits are being reached, that the environmental problems will take many decades to be solved, and the humans can only replace some, not all natural processes. This paradigm favours quality of human life as being the primary measure of success, and indicates that the humanity should



move beyond materialism; a sustaincentric view states that the role of growth is not unquestionably good but should be subject to question.

Ecocentrism: takes a position that is at the opposite end of the spectrum to technocentrism. This paradigm assumes that the planet's limits are already being exceeded, that the environmental problems are potentially catastrophic; and that humanity needs to work with nature to restore a balance. It also states that humanity should not be materialistic and that growth should be eliminated (Gladwin et. al, 1995).

This typology is simply schematic, not photorealistic, because worldviews in practice are typically taken for granted, and no company or institution would strictly hold the assumptions within only one paradigm. Furthermore, Ecocentrism and Sustaincentrism require shifts in human thinking, and the extended mental and moral embrace required may be difficult to obtain, especially in the modern society where material possessions are strongly linked to social status. Along with cognitive transformations, these paradigms also require profound value change toward stewardship, equity, humility and sufficiency (Gladwin et al, 1995).

A heterodox⁵ approach to environmental problems and resource scarcity is needed, and some say that it will only take place when organizations learn to challenge and overcome today's institutional influences by undergoing a deep transition in culture (Haugh & Talwar, 2010; Jermier, 2008). But this transition in culture is unlikely to happen unless it brings value primarily to the shareholders and afterwards to the stakeholders.

Therefore to be able to further discuss this transition, a better explanation of the value delivering system of a company is offered in the next section.

II.5. The Business Model

Researchers examining firms in a proactive orientation tend to neglect organisational sustainability holistically or at multiple levels and instead focus on operational elements of sustainability practices (Sharma and Henriques, 2005). This approach can't be used in understanding how and why firms adopt a more paradigmatic shift in evolution (Valente, 2012).

This section presents a concept that is regarded as providing the necessary broad perspective and a perfect base for further discussions on environmental guided business paradigm change.

Although business models have been integral to economic behavior since pre-classic times (Teece, 2010), the business model as a concept emerged in the literature in the mid-1990s and there have been many different opinions towards the concept, being described in multiple ways using various more or less explicit definitions and interpretations. Basically the business model explains how value is created for the customers and how value is captured for the company and its stakeholders (Zott, 2010).

Adrian Slywotzky (1999) states that a business (model) design is the totality of how a company selects its customers, defines and differentiates its offerings (or responses), defines the tasks it will perform itself and those it will outsource, configures its resources, goes to market, creates utility for customers and captures profits. It is the entire system for delivering utility to customers and earning a profit from that activity.

Markides (1999) pointed out that the identification of the "who", "what" and "how" forms the core elements of a business model. "Who" is the target group and the customers and what are their needs? "What" is the company's value proposition to the targeted segment? And "how" is the company configuring its business operations, using which types of product and process technology, and which kind of interactions with other supply chain elements?

Alexander Osterwalder stated in the book *Business Model Generation* (2010) that a business model describes the rationale of how an organization creates, delivers, and captures economic, social and other forms of values.

⁵ Heterodox = which is not in accordance with the established or accepted doctrines or opinions (<http://www.thefreedictionary.com>)

The well known literate John Elkington, who coined the term “Triple Bottom Line”, compares the business model to the DNA of business (Elkington, 2004). From this position the business model is the decisive factor for corporate behavior which can have high or low environmental and social impacts (Ludeke-Freund, 2009).

A company’s business model can be illustrated in different ways and many different tools have been developed to analyze business model concepts. To mention two of them, the *Innovation Radar* by Professor Robert Wolcott at Kellogg School of Management (for details see (Jana, 2006)), and the *Ten Types of Innovation* by Doblin Research (for details see (Carlson, 2004)). They are examples of models or frameworks which reveal the key elements of a business.

However, the business model canvas tool developed by Alexander Osterwalder and Yves Pigneur (2010) is an intuitive way of understanding the business model concept and is a good starting point for analyzing how a company creates and captures value.

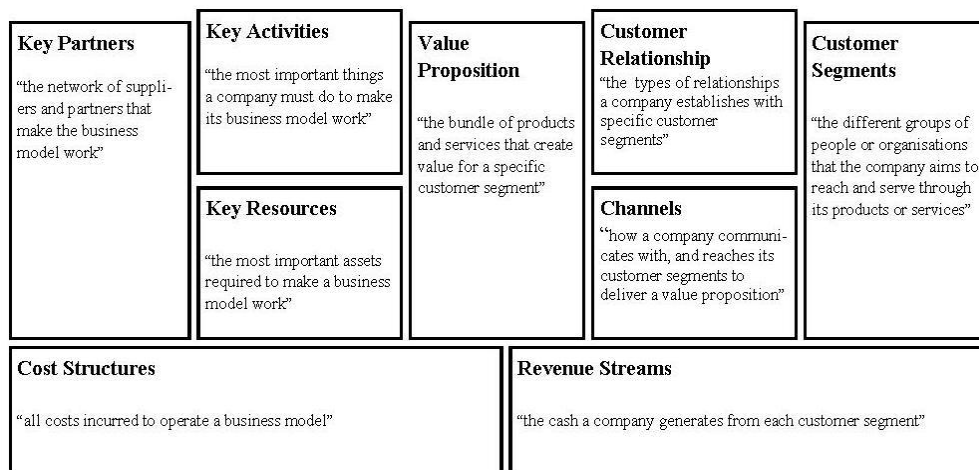


Figure 5. The building blocks of the business model canvas (Osterwalder & Pigneur, 2010)

Although the canvas has a simple structure, it forms a complex system of interdependencies between the different elements (building blocks). Any changes to any of the included elements can affect the others element and the whole system.

The central issue of any business model is the value proposition. A business model proposes a certain value not only for customers, but also for the focal firm itself and its value chain partners (Ludeke-Freund, 2009). From the perspective of company’s environmental impact a typical question arises: what kind of value is proposed and created, and which issues have to be accentuated in this context? (Elkington, 2004).

Resource efficiency should no longer be a matter of increasing efficiency in production processes and products, but about making fundamental changes in the way business is done, and this involves rethinking business models and supply chains across industries and redefine value over the coming years (Lawrence et al, 2010), to empower consumers towards sufficiency but keeping the economic growth in the picture.

III. Research Design

The process of undertaking a study is characterised by a fluid interplay that occurs between the researcher's philosophical position, the chosen methodology and the appropriate methods (Birks and Mills, 2011), which is simply illustrated in the crossover between each of these areas in the figure 6.

Philosophy was traditionally being claimed, at least in large part, as being consistent in the investigation of the nature of reality (Winch, 1958). And this is because all research is interpretative, and guided by the researcher's set of beliefs and ideas about the world and how this should be understood and studied (Denzin & Lincoln, 2005). Taking a constructivist perspective enabled this researcher, through a qualitative approach, to study and enter the phenomenon of interest, gain multiple views of it, locate it in its network of connections and constraints and construct a theory of its interpretation.

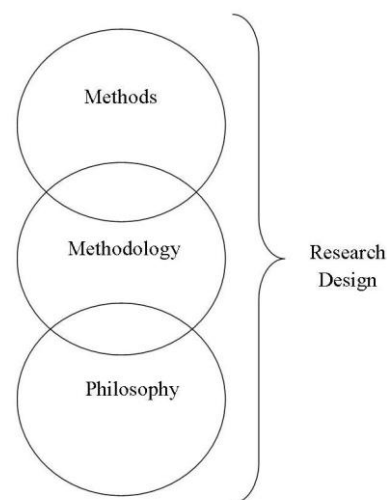


Figure 6. Components of the research design
(Birks and Mills, 2011)

III.1. Methodology

This section provides an overall perspective of the methodology used for answering the research question stated in the first chapter of the thesis. The study has been guided by the perspectives from grounded theory methodology (Glasser and Strauss, 1967) and Mode 2 knowledge production process (Gibbons et al., 1994). Both of these approaches are valuable for analyzing a new developing area as the one addressed in this thesis.

Grounded theory methodology differs from other approaches to research in that it serves to explain the phenomenon being studied. The strategies used in data collection and analysis result in the generation of theory that explains a phenomenon from the researcher perspective (Birks & Mills, 2011), who constructed theoretical results from the material of the interactions both witnessed and lived (Charmaz, 2006). Grounded theory methodology was chosen as a basis for this research as it is the most appropriate for areas where little is known about the topic, and because the aim of the dissertation is to move the analytical process beyond simple description through exploration. Also, as a fluid methodology it allowed an evolution of the research design during the research period.

It should be noted that this dissertation makes use of a less pure form of the grounded theory methodology (Vintergaard, 2006) though, in comparison to the forms in which this has previously applied. This refers to the use of literature in the initial stages of a grounded theory methodology that has generated much debate (Birks & Mills, 2011), since some authors believe that this might contaminate the analysis of data (Strauss and Corbin, 1990). However, the approach in this dissertation is in line with the view of Cathy Urquhart (2007) which sees the literature review of the topic as an effective means of guiding the researcher through the studied field and an indication of the current knowledge and work. Consistent with this approach, literature review, data collection, coding and analysis are overlapping operations which blur and intertwine continually, from the beginning to the end of the research (Glasser and Strauss, 1967).

Grounded theory methods are referred to as inductive in that they are the process of building theory up from the data itself. The logic of abduction is also much more recognized in the literature about grounded theory methods (Charmez, 2006; Reichertz, 2007). When using abductive reasoning, the researcher “has decided...no longer to adhere to the conventional view of things... Abduction is therefore a cerebral process, an intellectual act, a mental leap, that brings together things which one had never associated with one another: a cognitive logic of discovery” (Reichertz, 2007, p.220).

The Mode 2 model of knowledge production was developed by Gibbons et al. (1994), and was intended to support the changes in the practice of the natural and social sciences. In Mode 2, the knowledge is formed in the context of the application, and is therefore characterized by transdisciplinarity and heterogeneity, in contrast with Mode 1 which is organized homogeneously (Vintergaard, 2006).

‘Mode 2 is more socially accountable and reflexive. It includes a wider, more temporary and heterogenous set of practitioners, collaborating on a problem defined in a specific and localized context’ (Gibbons et al, 1994, p.3). This approach is compatible with the grounded theory methodology, and it represented an important guiding direction for the thesis research.

Therefore, the knowledge production in the thesis is characterized by inter-disciplinary contexts of collaboration, and this is assuring the knowledge claims are suited to the realities of social and environmental change related to corporate sustainability. Through following an open-ended, but still planned methodological approach, this researcher engaged in several activities to contextualize the held knowledge and meet the criteria of a Mode 2 researcher, which implies a relation both scientific and nonscientific communities (Nowotny et al, 2001).

In addition to the affiliation of this researcher to the academic sphere through Aalborg University, the following is an illustration of the non-academic contexts through which the researcher was able to collect data:

- Affiliation to the Copenhagen Resource Institute as a research assistant – lead institution in the European Topic Centre for Sustainable Consumption and Production;
- Affiliation to the Danish Business Authority (DBA) as collaborator in the project “Green Business Model Innovation”.

III.2. Methods and data collection

This part of the dissertation exposes the hybrid utilization of essential grounded theory methods and the relevant data collection processes undertaken during the research period. Their illustration in figure 7 was chosen in order to better schematize their interplay in the study.

Annex 1, 2 and 3 contain the agendas from the two workshops which are indicated as milestones in the figure (phases 2 and 5), and a list of experts from the business and sustainability spheres which had an influence on the third phase of the analysis.



The process of coding has allowed the data distillation

The codes permitted to select areas to explore during subsequent data collection (selection of analytical categories)

Analytical approach of the data begins to take form

In this stage the connections between the categories have been made sufficiently clear to permit the formation of a substantive theory to explain the phenomenon that has been studied

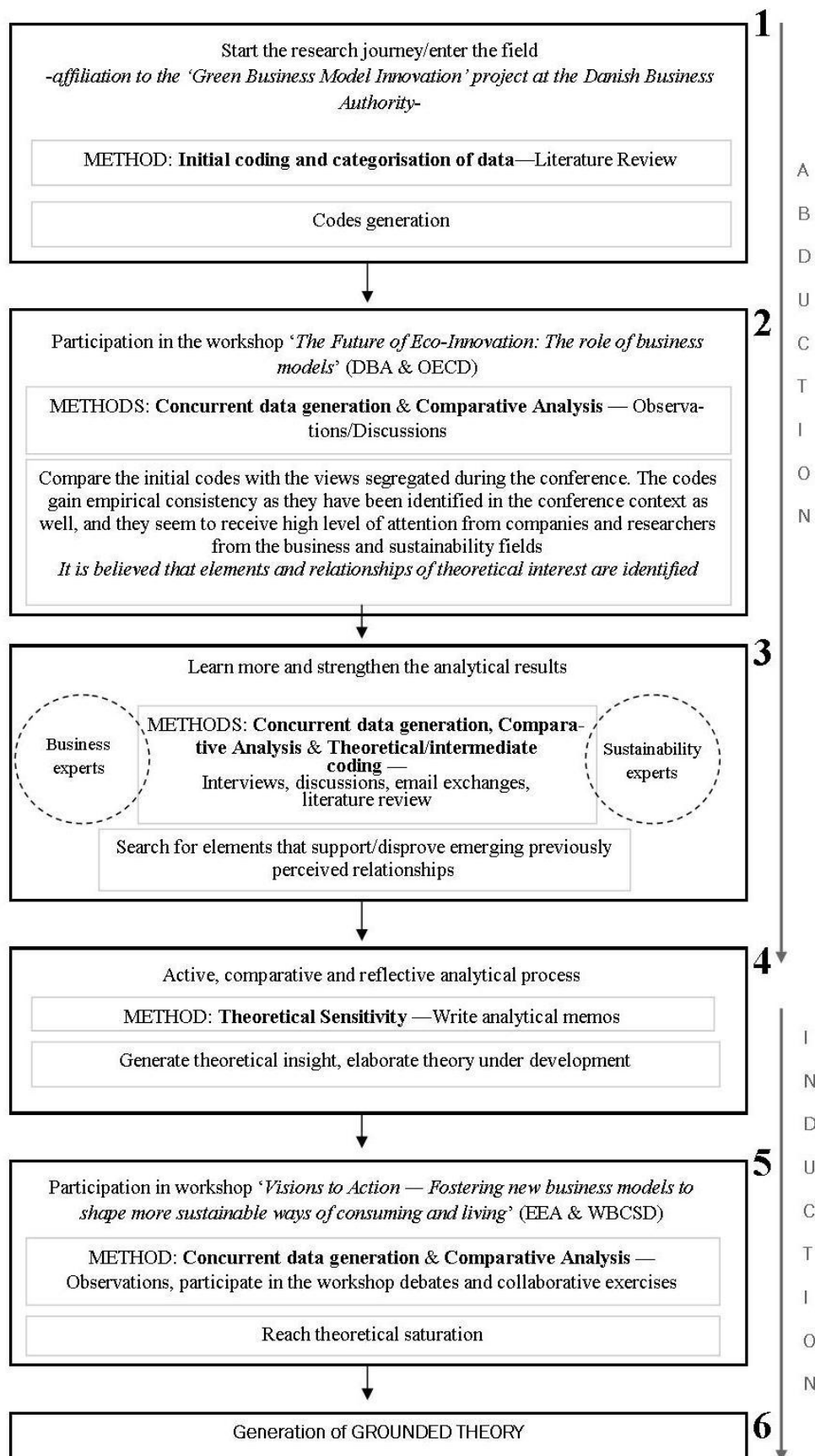


Figure 7. The logical scheme of the research and the methods applied to obtain the results (source: composed by the author)

For the sake of clarity, the grounded theory methods utilised in this research are briefly explained as follows (Black, 2009; Birks & Mills, 2011):

- **Initial coding and categorisation of data:** implies identifying elements of interest – these may include single words, incidents, phrases, interpretations;
- **Concurrent data generation:** it is this process, which implies that the researcher partly analyses the primary data before more data is generated, that differentiates grounded theory from other types of research design;
 - **Comparative analysis:** this is part of the concurrent data generation process, and is represented by the constant comparison of codes from different data sources;
- **Theoretical/intermediate coding:** the second major stage of data analysis following from initial coding. Initial coding is often said to segment the data, whereas intermediate coding reconnects the data in more conceptually abstract ways;
 - **Theoretical sensitivity:** the researcher is the totality of everything she experienced (insight into the researched areas, intellectual history, etc); this process acknowledges this fact and accounts for it during the research period. As the researcher becomes immersed in the data, the theoretical sensitivity level to analytical possibilities increases;
 - **Generation of theory:** the final result of the study is an integrated grounded theory generated by the researcher and which explains a process/scheme associated with a phenomenon.



IV. A Grounded Theory

This chapter represents the analysis part of the master thesis and intends to set the grounds of a new theory using the grounded theory methodology previously exposed. The first part of the chapter will explain how was the paradigm of *Valuedecentrism* identified and formulated, and the second part proposes a tool which can be use by companies which want to approach this paradigmatic change.

IV.1. An emerging paradigm: Valuedecentrism

The constructivist approach to grounded theory methodology enabled this researcher to take the study beyond description, through setting connections between the previous concepts and theories, current settings and the expected consequences of the processes related to business sustainability.

The current approaches to sustainability are opened to wide interpretation. Such diversity in definitions is to be expected during the emergent phase of any potentially big idea of general usefulness (Gladwin et al, 1995). As Kuhn (1970) stated, new paradigms tend to emerge from entirely new fundamentals and, at first, without a full set of concrete rules or standards. Over time, as their rhetoric, norms, and objectives become clearer, the movement solidifies into a strengthened whole and drives towards a unified goal (Hoffman & Ehrenfeld, 1998).

There seems that a new paradigm regarding the business sphere response to the environmental challenges is emerging and is not currently covered by theoretical foundations, therefore this part intends to set the grounds for new theory in the field of corporate sustainability.

Research on environmental issues has hitherto been dominated by business neoclassical approaches (Andersen, 2008), where development is linked to the dominant economic discourse, with social and environmental challenges only considered to the extent that they align with the firm's economic interests (Newton, 2002), even if the company adopts a proactive approach in this regard. Literature reveals a stringent need for new ideas, concepts and theories that allow seeing business and the environment in a joint perspective rather than a conflicting one. But there are voices which say that existing concepts and practices should not be discarded and replaced by a set of new ones, but they should be brought to a more realistic understanding of the behavior of the firm (Hoffman & Ehrenfeld, 1998). In other words, allow solving social and environmental challenges through financially appealing solutions.

As discussed previously in the thesis, regulative institutions and researchers agree that companies need to take a holistic approach in reconsidering their understanding of resource efficiency, sufficiency and make better use of eco-innovation. They have to go beyond company limits to connect efficiency in the production side with sufficiency on the consumption side, and find the business case for this. Driven by the opportunity of value creation on both sides, companies can become more motivated in taking action, and the results in terms of lower environmental impact can become widely spread, compared with the results from a proactive attitude, where the firm responds mainly to the stakeholder requirements without having, in most of the cases, any financial benefits from this approach. Frequently, a proactive approach is only driven by an image motivation, and it might be perceived as a cost.

This research has identified that the up-mentioned issues make the base of a paradigmatic change, one which is not covered by the available literature. The Valuedecentrism paradigm has been defined through grounded theory methodology, by analysing data that the researcher gathered through several social contexts.

The following scheme is the illustration of obtaining the theoretical ground for the identified paradigmatic change. Figure 8 does not contain information about the mechanisms which determined the phases of the research, since they are integrated in figure 7 from the Research Design chapter. For a holistic view of the research flow, it is indicated that this scheme is understood simultaneously with figure 7.

The circumstances of the third semester professional development period determined this researcher to start a collaboration with the Danish Business Authority, which is identified in the context of this thesis as entering the



research journey. Through consulting several strategic European documents related to the state of the environment and the future visions for the business sphere in this regard, different analyses by international organisations and reports on the current sustainability practices adopted by companies (an activity which was undertaken in the background of the up-mentioned collaboration), several initial codes have been identified. The codes have been perceived as epicenters around which the discussions related to corporate sustainability evolve. The codes can be seen in figure 8.

The next phase of the research was defined by the identification of these codes in a unified framework, during a workshop context where the spheres of sustainability and business/management researchers and practitioners merged. This helped the researcher understand that the codes are all integrated in the bigger frame of *change*. The second phase of the research made the researcher assume that all the codes are interlinked in a series of interdependencies in this frame, which determined the start of the third phase of the research, in trying to see which exactly are the links.

The third phase was very challenging and complex, and it was the most time and energy consuming. The search for the interdependencies between the codes materialised in an attempt to research the context of the National Industrial Symbiosis Program (NISP⁶) in the UK. NISP is a network of companies which tackle profitable businesses opportunities with environmental benefits (by exchanging by-products). In this background, the NISP context was perceived by the researcher as a favorable background to understand the codes and their interplay. This approach determined the researcher to realise that there are no links between most of the codes, and the emerging change in corporate sustainability intends to CREATE the links, which meant that they have to be created on a theoretical level as well. The next step was to find theoretical categories and try to group the initial codes as much as possible according to the available links, a process which ended up in the distillation of three main theoretical categories: the codes for Ecocentrism, for Technocentrism and Sustaincentrism.

The fourth stage was defined by the attempt to analyse the possibilities of further interlinking the codes and categories, and if this would make the feasible base for the frame of change. Therefore a synthesis of the identified theoretical paradigms was realised. The synthesis encompasses all the codes, creating the links which determined the creation of a new framework.

Even though this new framework was grounded into data, a context to confirm its emergence was still needed. This happened within the second workshop, where the researcher was able to identify all the codes and the need for their linkage on the road towards change in corporate sustainability. This context helped the researcher to reach theoretical saturation and set the grounds for a new theory, namely the *Valuedecentrism*.

⁶ National Industrial Symbiosis Program (<http://www.nisp.org.uk/>)



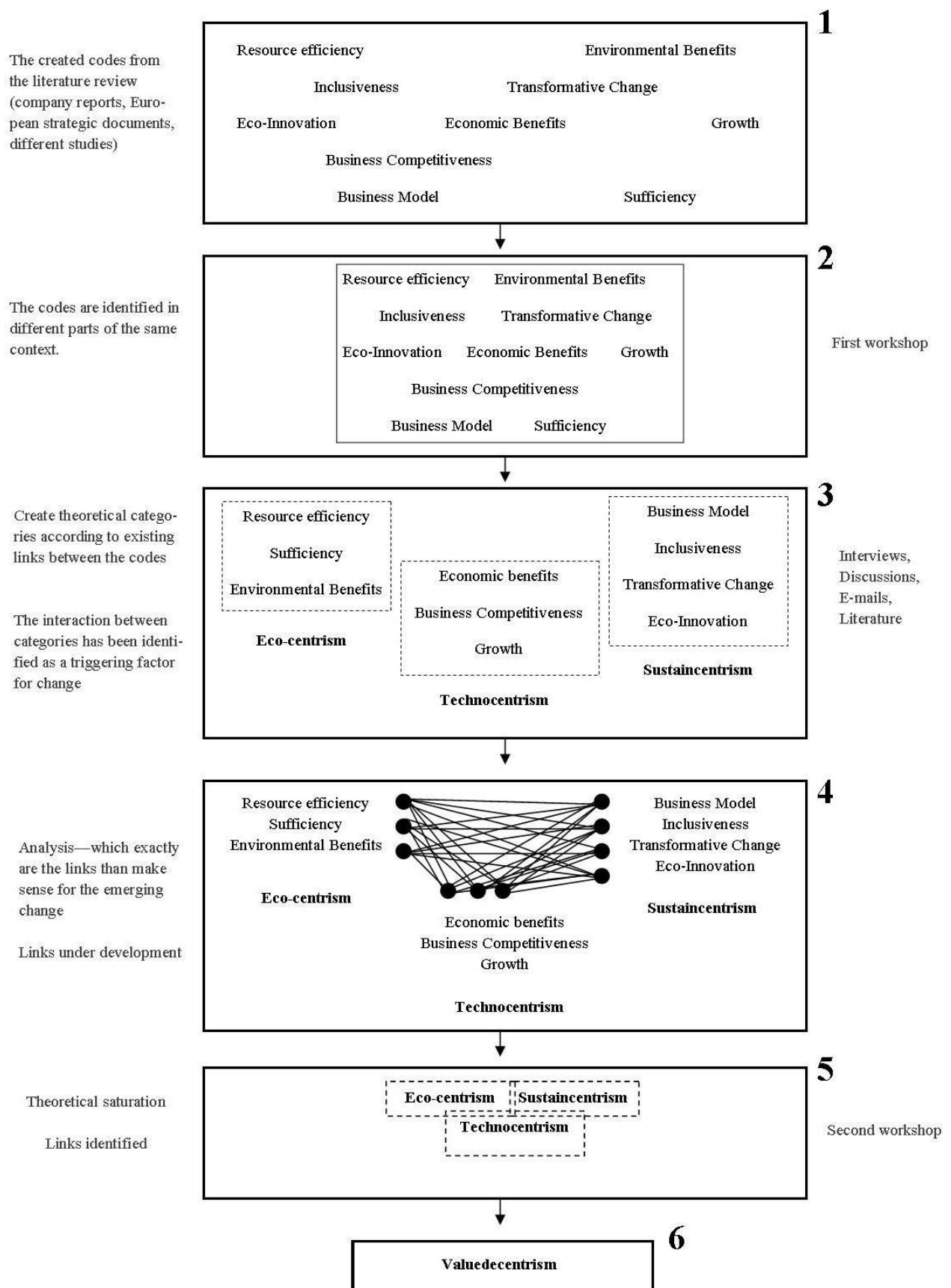


Figure 8. Dissertation logic scheme based explanation of obtaining the grounded theory (source: created by the author)

Valuedecentrism is identified by the current research as being the paradigm that is currently taking shape in relation to the business sphere response to environmental challenges. Once adopted this paradigm has the power to offer value to the firm itself (economic growth), to the customer (fulfillment of a need) and to the society as a whole (lower environmental damage).

It should be made clear that the adoption of Valuedecentrism by a company goes beyond a proactive attitude to stakeholder pressure regarding environmental challenges, and allows the creation of a business case to tackle them, ensuring in this way the motivation from the business side and the wider spread of this practice.

The following is a characterisation of this emerging paradigm as a synthesis of the previously defined paradigms, namely technocentrism, sustaincentrism, ecocentrism, which have been described previously (Gladwin et. al, 1995)

Technocentrism: this paradigm assumes that the Earth has no limits, that there are no irresolvable issues and that the **humanity's ingenuity can solve any problems**. This paradigm also assumes that **profit maximization and growth** can continue ad infinitum, and all that matters to humanity are material possessions.

Sustaincentrism: it perceives that the Earth's limits are being reached that the environmental problems will take decades to be solved, and the humans can only replace some, not all natural processes. This paradigm favors **quality of human life as being the primary measure of success**, and states that the **humanity should move beyond materialism**; the role of growth is not unquestionably good but should be subject to question.

Ecocentrism: takes a position which is at the opposite end of the spectrum compared to technocentrism. This paradigm assumes that **the planet's limits are already being exceeded**, that the **environmental problems are potentially catastrophic** and the humanity needs to work with nature to restore a balance. It also states that humanity should not be materialistic and that growth should be eliminated.

Valuedecentrism – is the emerging paradigm identified and structured in this research, and it is focused on using humanity's ingenuity for the maximization of profit and growth through moving beyond materialism and ensuring quality of human life. The adopters of this paradigm are aware that the environmental problems can be catastrophic and that the planet's limits are already being exceeded, therefore they find the business case behind mitigating these problems, aspect which enhances their motivation to take action.

The name of this paradigm has been created in order to illustrate the main principle behind it, and that is the decentralization⁷ of value in the value creation system of a company. Valuedecentrism implies that the company creates value for itself (economic) by creating value for the environment and the society. Through this rationalization it is clear that the paradigm has the potential to generate the change implied for obtaining green growth.

But despite the benefits of adhering to Valuedecentrism, paradigmatic discussions remain theoretical and, in the light of little transformative change in current economic approaches (Egri & Herman, 2000), it is normal that doubts persist about whether these 'new orders' (Newton, 2002) are even feasible at the firm level (Valente, 2012). Even though finding the business case behind resource efficiency and sufficiency articulates a way to move towards reconciling the gap between industries and environment, little is known about what firms need to do to make this happen. The next section proposes a tool that can help companies start taking action.

⁷ Decentralize – to cause to withdraw or disperse from a center of concentration (www.thefreedictionary.com)



IV.2. A tool for Valuedecentrism

In order to approach Valuedecentrism, a firm should first of all see itself as a potential eco-innovator, rather than as a polluter (a notion which dominated the environmental research of the last decades) (Andersen, 2008). Or better said, as an eco-innovator to reduce pollution. This perception change can be easier by using the process of value migration. The process has been described by Adrian Slywotzky (1999) and it refers to an outside-in approach to change. It requires thinking from the environment back into the company's capabilities and direction. He describes value migration as a different perspective, one that would help managers and business leaders to address the issue of sustained long-term growth.

After value migration (perceived value), using eco-innovation beyond single function strategies, enhances a differentiated way of further creating and delivering value in response. In this way the company perspective towards resources becomes more than an indicator of company environmental performance, shaping the core business of the organisation. The rationale of doing this is that resource efficiency has a strong value dimension and is currently part of non-core business issues that strongly affect the core business of the organization (Baas, 2005).

As the discussion has arrived at the value system of a company, it seems normal to import the concept of business model from the second chapter of this dissertation where it has been properly described.

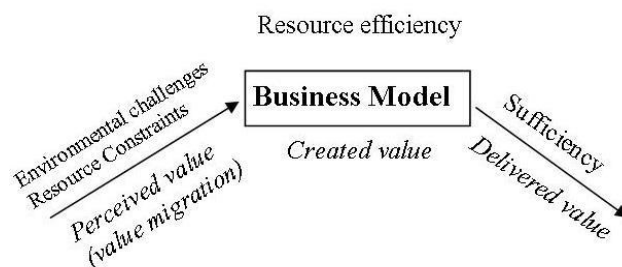


Figure 9. Value system of a company (source: created by the author)

Changing the core business of a company means changing the value delivering system, in other words the business model. But as Kuhn (1970) stated, as in any value shift, the development of a new value system might conflict with the dominant structures in place. Therefore taking a holistic approach to change and making the right adjustments to all the parts of a company is seen by this research as a favorable strategic response.

Since change which generates sustainable development through reducing impacts on the environment, enhances resource efficiency and enables resilience to environmental pressure (EC, 2011) is the objective, eco-innovation will be used as a defining power for the proposed value system change.

Machiba (2010) suggests that eco-innovation should be seen from three dimensions:

- 1) **Targets** –referring to the basic focus of eco-innovation, which in his vision may be: products, processes, marketing methods, organizations and institutions.
- 2) **Mechanisms** –which relates to the method by which the change in the eco-innovation target takes place or is understood, and four basic mechanisms are identified:
 - Modification – through small and progressive adjustments (*INCREMENTAL eco-innovation*);
 - Re-design – materialized in significant changes (*INCREMENTAL eco-innovation*);
 - Alternatives – which can fulfill the same function or operate as substitutes for the original state of the targets (*DISRUPTIVE eco-innovation*);
 - Creation - and introduction of entirely new and innovative solutions for the targets (*RADICAL eco-innovation*).
- 3) **Impact** – referring to the eco-innovation's effect on the environment.

Since the clear focus for change in this research has been mentioned before as being the business model, in the process of creating the tool for adhering to Valuedecentrism the up-mentioned targets are replaced by the building blocks of Osterwalder's and Pigneur's (2010) business model canvas. In this way the eco-innovation targets proposed by Machiba (2010) are transformed into business model target blocks.

Potential environmental impacts stem from the combination between eco-innovation's target blocks and change mechanisms, and their interplay under the business model canvas umbrella. Given a specific target block, the potential magnitude of the environmental benefit tends to depend on the eco-innovation's mechanism, as more radical changes, such as alternatives and creation, generally embody higher potential benefits than modification and re-design (Machiba, 2010). Therefore in this dissertation's approach, the environmental impact is not a third dimension of analysis but a variable determined by the chosen combination of target blocks and mechanisms, to approach business change.

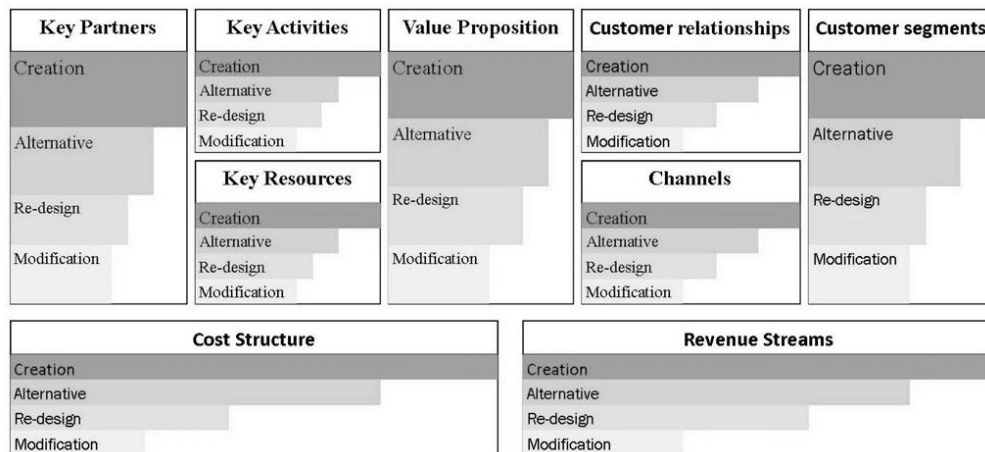


Figure 10. Business Model Eco-Innovation – a tool to adopt Valuedecentrism (source: created by the author)

The Business Model Eco-Innovation tool should be regarded as a map of possible combinations which can be approached by a company adopting the Valuedecentrism paradigm. Each firm and industry perceives value from its external environment and further translates it into created and delivered value in many different ways, explaining why the tool offers an open-ended approach toward change.

Literature reveals a recognized importance of a holistic view when considering any improvements in terms of sustainability performance of a company. A very good example is Life Cycle Management, which encompasses a dynamic process during which organisations may start with small goals and objectives with the resources they have and get more ambitions over time (Jensen & Remmen, 2006). It should be made clear that there is an essential difference between a model like Life Cycle Management and the Business Model Eco-Innovation tool, since the former still perceives environmental and social concerns outside the core business of a company, whereas the latter suggests their integration in it, allowing them to shape the driving force of the firm.

V. Discussions

In the background of a collaboration with the Danish Business Authority dealing with eco-innovation potential of different current corporate sustainability practices, this study took a point of departure in grounded research methodology and committed to answer the following:

How can companies be motivated to further lower their environmental impact? What does this imply and how can it be translated into practice?

The attention offered to corporate sustainability, and the environmental and business dimensions of the use of resources created a good foundation for this study focused on the necessity to redefine what sustainability might become for a company.

This thesis makes two main contributions to the current research and literature related to corporate sustainability and environmental management, and has hopefully helped move the field further forward. Firstly it identifies a paradigm which has already started to evolve but which was not been given a theoretical identity, and secondly it proposes a dynamic tool that can be used to make the first steps (referring to those who didn't consider it yet) towards this paradigm.

This part discusses the characteristics of the results obtained by the research drawing upon the four evaluative criteria for theories produced through grounded theory methodology proposed by Kathy Charmaz (2005, 2006): credibility, originality, resonance and usefulness.

The researcher has aimed for **credibility** through demonstrating familiarity within the proper context in studying the changes that occur in the business sphere in terms of its reaction to the environmental challenges. Furthermore, the claims that have been made are considered to be sufficiently grounded in data, and this is demonstrated by the transparency of the research process exposed in chapters III and IV.

By offering a conceptual view to the studied phenomenon, and by providing theoretically significant insight to current ideas, concepts and practices, the resulted grounded theory of Valuedecentrism demonstrates **originality**.

The **resonance** of the proposed theory is assured by the comprehensiveness of the study which embeds ideas and concepts from several different domains, drawing lines between larger collectivities of researchers and business practitioners. Through analytical interpretations, this research offers deeper insides into their worlds, and hopefully a **useful** approach for their everyday work. It is desired that the theory of Valuedecentrism will generate further research, and contribute to make a better society, and the tool for Business Model Eco-Innovation has the potential to open the way.

This research goes beyond the descriptive, taking a prescriptive approach in chapter IV in its intent to shape and transmit the message which results from the analysed data. The results have a blended nature which originate in both a normative and a shareholder perspective, and suggests an approach which maximizes the notion of value through decentralizing it. Considering the above discussions, it is believed that the research question raised in the first chapter has been successfully answered.

V.1. Limitations

There are not so many examples of the application of grounded theory methodology to study macro level processes (Black, 2009), and this might have been a discouraging factor for the thesis, but the identified phenomenon is considered to be of a too high importance and potential to be overlooked. The researcher is aware of the necessary magnitude of a study of this nature, which goes beyond the limits imposed on current work (time, paper length, resources), but it is considered that this can be a first step towards exploring the subject in a PhD research.



V.2. Future Research

Future research that can take this thesis as a starting point can be structured on a case study methodology, in order to reveal the circumstances under which a company considers turning towards Valuedecentrism, or which can be the mechanisms to increase the awareness of the business sphere related to the benefits and implications of this paradigmatic change.

Another approach that can represent an interesting study angle is the specific characteristics of this paradigm change in the context of different industries, which might result into customized strategic guidelines and display of the expected effects (economic and environmental). The environmental effects are of specific interest since the challenges of this nature are the main reason behind the change of paradigm.

This researcher is aware of the fact that bigger corporations are very reluctant when it comes to change, therefore future research can be focused also on possible partnerships or the creation of smaller branches which are aimed to test any change desired by the incumbent company, a method that would ensure a decrease in financial risks implied.



VI. Conclusions

Environmental considerations are very often viewed as barriers to profitability, as necessary evils, costs to be minimized or regulations with which to comply. Even if a company abandons the reactive approach to the environment, choosing to have a proactive attitude towards its challenges, these are rarely considered central to business strategy. Furthermore, models and theories of business haven't been integrated so far with environmental concerns.

This research has indicated that the first step towards companies really facing the challenges related to environmental degradation is for them to understand how these issues affect their own businesses and how profitability might be enhanced through solving them. Since the magnitude of the problems has reached unprecedented levels and they can't be solved anymore through philanthropy or good deeds, the solution comes from taking the world's problems and turning them into business opportunities. The following might be criticised as a too radical view point, but change will not come from the business sphere continuing to play the Corporate Social Responsibility card. In a capitalist background, change can only come together with profit and solutions need to be created keeping this in mind.

This researcher identified that such a paradigmatic change is slowly starting to take shape, but it doesn't have a theoretical basis in the available literature, therefore this has been the main focus of the current work. In order to be able to set the grounds of new theory, a set of already existing concepts have been firstly explored. This enabled the researcher to link her work to existing research in the field of corporate sustainability, but in the same time permitted to create a framework which prepares the reader for the discussions in the analysis part. Furthermore, the detailed concepts can be identified also as some of the codes used as a methodological step in the background of the grounded research methodology.

In order to offer a clear image of the research process, on both pragmatic and conceptual levels, this researcher revealed the mechanisms behind the obtained results in the form of two logical schemes. The schemes have the same structure and they have been accompanied by explanatory comments. It is this research's believe that the illustrations in any research paper have the power to better 'speak' to the reader. The simultaneous understanding of both schemes gives the reader a holistic view of this work.

Besides identifying the change and theoretically defining it, the thesis also suggests that through approaching this paradigm, companies can be motivated to further lower their environmental impact. But in order not to risk having a too theoretical approach directed purely to the academic sphere, the research also developed a conceptual tool addressed to business practitioners, or rather a map of combinations that allow them to eco-innovate their business model and approach the paradigmatic shift towards *Valuedecentrism*.

Clearly this is not the 'holy grail' that everybody is expecting in terms of changes that have the potential to radically shake the structure on which the modern society is built upon, but it can definitely be a push forward from the current state of incremental improvements behind which several societal actors hide. And this step forward doesn't have to mean that they need to cut their activity, or approach a radical perspective towards rather resource efficiency or sufficiency, but a balanced combination of the two through changes in the methods of value maximization.

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Annex 1.

OECD/European Commission/Nordic Innovation Joint Workshop

THE FUTURE OF ECO-INNOVATION: The Role of Business Models in Green Transformation

12.00-13.00	Registration and refreshments
13.00-13.15	WELCOME AND OPENING <i>Betina Hagerup, Director General, Danish Business Authority</i> <i>Patrick O’Riordan, Sustainable Industrial Policy Unit, DG Enterprise and Industry, European Commission</i> <i>Dirk Pilat, Head, Structural Policy Division, OECD Directorate for Science, Technology and Industry</i>
SESSION I: SETTING THE SCENE This first session will set the scene for the workshop in reviewing the latest perspectives on green growth and the critical role of eco-innovation from the perspective of academic and industry experts. The preliminary findings from the OECD project will also be presented to provide a framework for understanding new developments in eco-innovation and to share the objectives of the workshop with participants.	
13.15-14.00	KEYNOTES: Green growth and the role of innovation and business <i>The role of radical and systemic changes for green transformation</i> <i>Fred Steward, Policy Studies Institute and University of Westminster, United Kingdom</i> <i>The role of business models for greening industry</i> <i>Josh Suskewicz, Principal, Innosight, United States</i>
14.00-14.30	FRAMING DISCUSSIONS: OECD work on green growth and eco-innovation <i>Overview of the OECD project and objectives of the workshop</i> <i>Tomoo Machiba, Project Manager, Green Growth & Eco-Innovation, OECD</i> <i>Preliminary findings and analysis from OECD case studies</i> <i>Michal Miedzinski, Technopolis Belgium (consultant for the OECD project)</i>

SESSION II: SHOWCASING GOOD INDUSTRY PRACTICES (1)

Following the plenary talks, the workshop will turn to actual practices, experiences and messages from leading eco-innovators which were involved in the OECD and NI case studies. Each case study will highlight the main characteristics of the relevant business model, the potential impacts on eco-innovation and for scaling up, the obstacles that had to be addressed, and any other lessons that could have implications for policy. The session will explore some of the key areas of eco-innovation explored in the OECD and NI studies.

14.30-15.30	<p>NEW BUSINESS MODELS 1: Transport and mobility</p> <p>Presentation from innovators</p> <p><u><i>Better Place, Israel/US/Denmark</i></u> Johnny Hansen, CEO, Better Place Denmark</p> <p><u><i>SkyCab, Sweden</i></u> Åke Åredal, President & CEO</p> <p>Comments from experts Vassilios Kefalas, National Technical University of Athens, Greece Mattias Lindahl, Linköping University, Sweden</p> <p>Discussion with the floor</p>
15.30-15.50	Coffee break
15.50-16.50	<p>NEW BUSINESS MODELS 2: ICT-based facilitation and optimisation</p> <p>Presentation from innovators</p> <p><u><i>Intelen (Energy monitoring through social network), Greece</i></u> Vasillis Nikolopoulos, CEO and Co-founder</p> <p><u><i>TaKaDu (Water infrastructure monitoring), Israel</i></u> Hagai Scolnicov, Chief Technical Officer</p> <p>Comments from experts Martin Charter, Centre for Sustainable Design, University of Creative Arts, UK Søren Cajus, Danish ICT and Electronics Federation</p> <p>Discussion with the floor</p>
16.50-17.50	<p>NEW BUSINESS MODELS 3: Eco-housing and cities</p> <p>Presentation from innovators</p> <p><u><i>Hammerby Sjöstad, Sweden</i></u> Erik Freudenthal, Communication Manager, GlashusEtt (Information Centre for Hammerby Sjöstad)</p> <p><u><i>DigiEcoCity, Finland/China</i></u> Juha Lipiainen, Chief Operating Officer</p>
	<p>Comments from experts Dimitris Raidis, Architect & Urban Planner, KARD Architects and Board Member, Greek International Business Association, Greece</p>



	<p>Christer Lindström, CEO, Encitra Inc. and Co-founder, General Transportation Fund, Sweden/US</p> <p>Discussion with the floor</p>
17.50-18.00	<p>Conclusions</p> <p><i>Dirk Pilat, OECD</i></p>
18.00-19.30	<p><i>Cocktail and networking opportunity</i></p>

Annex 2.

EEA / WBCSD Workshop

Visions to Actions - Fostering new business models to shape more sustainable ways of consuming and living.

Formulating messages for Rio+20

Copenhagen, 2-3 May 2012

2 May 2012

- 15.30 - 16.00 *Check-in and coffee.*
- 16.00 – 16.30 **Keynotes.**
Opening speeches by Jacqueline McGlade, Executive Director, EEA, and Gary Sharkey, PwC Global Sustainability, member of the WBCSD.
- 16.30 – 17.00 **Welcome and introduction to the two days.** Plenary.
By Lars Mortensen, EEA, Head of group Sustainable Consumption and Production and Michael Kuhndt, ETC/SCP (CSCP)
- 17.00 – 18.00 **Translating sustainability and resource efficiency into daily lives.** Interactive group session.
What does a sustainable way of living mean for an individual's daily life? How is this influenced by the economic situation of a person? What are the desires of a person that would need to be met?
- 18.00 - 20.00 *Reception and networking.*

3 May 2012

- 8.30 – 9.00 *Check-in.*
- 9.00 – 9.10 **Introduction to the day and explanation of the agenda.**
By Michael Kuhndt, ETC/SCP (CSCP).
- 9:10 – 9.40 **Presentations of discussion results.** Plenary presentation.
- 9.40 - 13.00 **Identifying resource efficient business models that foster more sustainable lifestyles.** Interactive group sessions.
What business models are needed to enable more sustainable ways of living for the personas discussed the previous day? How to meet their desires in a sustainable way?

How can we achieve a more sustainable lifestyle in different living areas (such as in a bathroom, a kitchen, an office or on the way from home to work and back)?
- 13.0 – 14.00 *Lunch break.*
- 14.00 – 15.00 **Elaborating messages to be sent to Rio.** Workshop.
What would need to happen to realise new business models that support more sustainable and thereby resource efficient ways of living of people? What should



producers do and what their suppliers? What are the political and legal frameworks needed?

15.00 – 15.15 *Coffee break.*

15.15 – 16.15 **Formulating messages for Rio+20.** Panel discussion.

By Eva Ahlner, Swedish Environment Protection Agency; Barbara Bernard Vukadin, Slovenian Environment Agency; Staf Laget, Umicore; Dax Lovegrove, WWF UK; Per Stoltz, IKEA.

16.15 – 16.30 **Outlook to Rio event and closing.**

Annex 3.

Kristian Henriksen – Ministry of Business and Growth

Tanja Bisgaard – Novitas Innovation/Danish Business Authority

Markus Bjerre – Ministry of Business and Growth

Peter Laybourn – National Industrial Symbiosis Programme

Birgitte Kjær – Copenhagen Resource Institute

Nikola Kiørboe – Copenhagen Resource Institute



