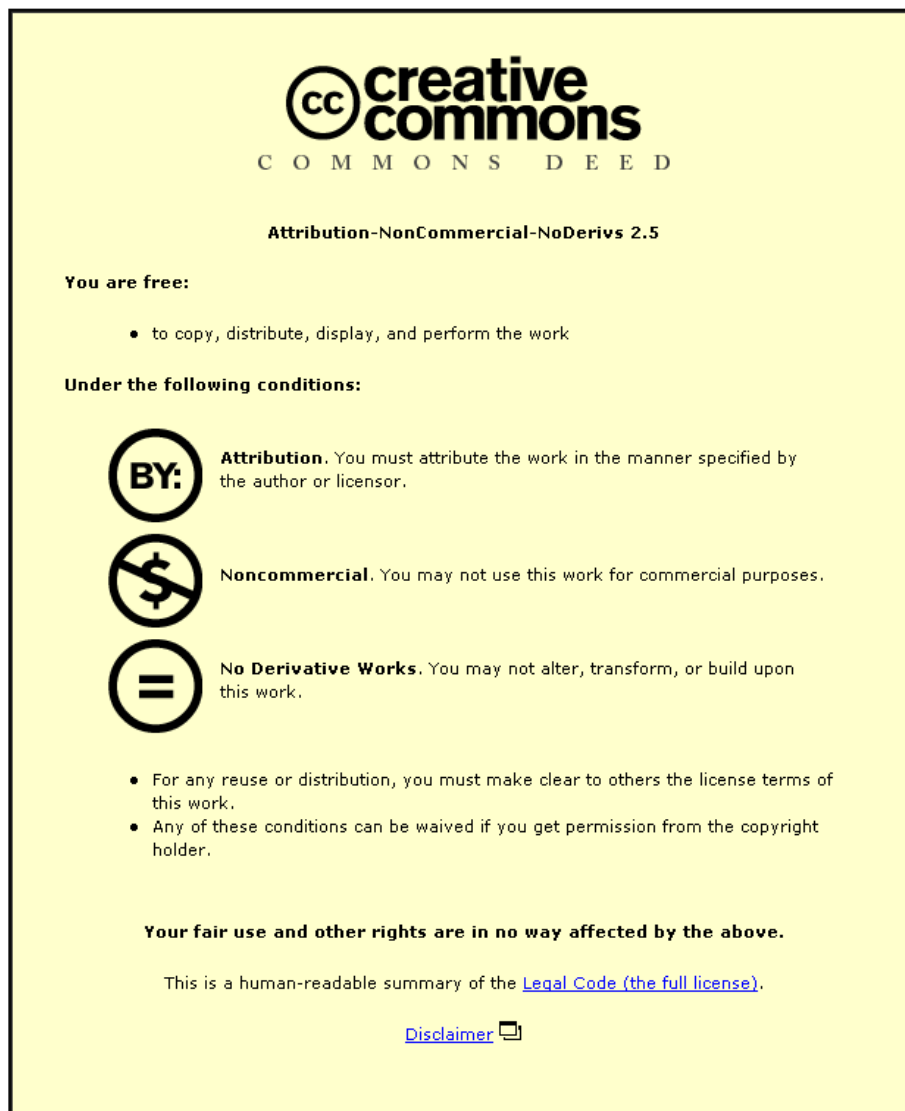


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**A Consumer-Focused Design Approach for
Businesses to Leverage Sustainable Consumption**

By:

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A Doctoral Thesis

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Abstract

Increasing economic, social and environmental problems around the world have shown that current models of economic development cannot be sustained. Thus, new patterns of consumption are needed. According to the literature, global companies are well placed to attempt leveraging sustainable consumption, as their production lines; supply chains; products and services extend across many continents, and as such the cumulative effect of their actions are wide reaching.

This research sets out to better understand the intertwined factors that companies in two different contexts (Mexico and the UK), need to consider in order to leverage sustainable consumption. Through the literature review it was seen that sustainable consumption requires a multitude of changes, which have to occur at a 'systems level'. In response to this, user-centred design (UCD) principles were seen as a valuable approach to give a broader account of the complexities around consumption and consumer's behaviour that could be communicated to higher management.

A series of interviews, a focus group and a document analysis was undertaken to collect qualitative data. The findings led to the construction of a theoretical framework supported by UCD principles. The theoretical framework was then translated into the Sustainable Consumption Leveraging (SCL) Model and its toolkit. The SCL Model is a mechanism that takes into account the interaction of elements in a specific business context to identify areas of opportunity to leverage sustainable consumption through a consumer-focused approach.

During a series of workshops, the SCL Model and its toolkit were tested to distinguish further opportunities of improvement and to understand where global companies stand with regards leveraging sustainable consumption. The research concludes by saying that companies need to work in collaboration with other actors to build a strong sustainability and innovation strategy that could help them to find new ways of doing business that can enhance more sustainable lifestyles.

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“Nature as a design tool offers insight into systems that are whole, complete, that give life, create value, allow progress, transformation, change.” (Brittany Trilford – Rio +20 Earth Summit Opening Ceremony, 21 June 2012)

1 Introduction

This chapter gives an overview of the research context; presents the aim and objectives of the research and concludes by framing the overall structure of the thesis.

1.1 Research Context

It is recognized that increased levels of consumption in industrialized countries is one of the main factors causing continual environmental degradation (Green & Vergragt, 2002; Tukker *et al.*, 2006). Developed economies account for 20% of the world population, and are responsible for 80% of the lifecycle impacts of consumption (WBCSD, 2008; Schor, 2005). Thus, it is recognized that old models of economic development cannot be sustained and as such new patterns of consumption are needed (WBCSD, 2010). These new patterns of consumption should allow the well-being of all human kind and at the same time respect the limits of the planet's natural resources (Mattar, 2011). Some scholars such as Hans Rosling (2011) argue that our concerns should be directed towards the consumption patterns of the world's richest consumers, while providing the means for people living in extreme poverty to have the same opportunities as the developed world. In fact in recent years, economic growth in developing countries has accelerated, which has helped to reduce the number of people living under \$US1.00 per day (PEP, 2012). According to the World Bank (2009), the proportion or percentage of people living on less than \$US1.25 a day will have fallen from 40% in 1990 to 15% by 2015. Despite the fact that economic conditions are improving for some people in developing countries, there are still 1.3 billion people living in extreme poverty experiencing deprivations in education, health and living standards (UNDP, 2011).

When considering sustainable patterns of consumption, population growth must be taken into account, as increased population often equates to increased consumption. It is expected that global population will increase up to 9 billion people by 2050, and the majority of this growth will occur in developing countries (UN, 2011).

It has been argued that environmental impacts are not due to overconsumption patterns in developing countries (PERL, 2010). However, increased population and accelerating economic growth has resulted in a population that is reaching the living standards of those that live in developed countries. As such, achieving more sustainable consumption and lifestyles should not just be a goal for the developed world (UNEP, 2009c).

Developed and developing countries must reduce material consumption not just by improving resource efficiency through reducing waste, investing in sustainable resources, technologies and infrastructures but also by dematerialising economic consumption (Royal Society, 2012). This requires a radical change in consumption patterns in developed countries whilst creating a model for long-term prosperity in developing countries (WEF, 2010).

Sustainable consumption seeks to achieve efficient use of resources without affecting our overall wellbeing (Lorek, 2010). Current approaches towards achieving sustainable consumption have focused on public governance and policy making, targeting consumer behaviour and behavioural change based on technological, economical and regulatory instruments (Seyfang, 2009; Jackson & Michelis, 2003; Jackson, 2005b). However, recent studies have argued that sustainable consumption requires systemic changes aligned with sustainability principles, such as: resource efficiency, limits in resource use, waste minimisation, lifecycle thinking, quality of life, well-being amongst others (Mont & Plepys 2008; Shove, 2003; Weber *et al.*, 2006; Konrad *et al.*, 2006, WEF, 2012a).

Businesses can leverage more sustainable consumption (WBCSD, 2008). The proposal of the Millennium Consumption Goals (*see MCGI, 2011 for a detailed description of this proposal*) launched in 2011, the Driving Sustainable Consumption Project from the World Economic Forum (WEF) revised by Krantz (2010), and the UN Guidelines for consumer protection (*see UN, 1999 for a detail description of these guidelines*); made clear that businesses have a role to play in leveraging sustainable consumption.

The contribution of business towards sustainable consumption will require setting in place new business models which take into account the complex factors that govern consumer behaviour including: aspirations, habits, needs, lifestyles, and the context in which goods and services are delivered (Charter, 2006; Seyfang, 2009; Mont & Plepys, 2008). To address these complex, interrelated issues and leverage sustainable consumption, a mix of educational, marketing and technological interventions are needed (WBCSD, 2008). Such interventions can enable disruptive changes by encouraging consumers to reduce consumption of goods in favour of services through innovating in the business model, product, or service with the overall aim of achieving systemic changes (Nilstand & Boks, 2008). However, to positively leverage sustainable consumption, the benefits afforded must be clearly articulated and understood at a strategic level, if businesses are to engage in this matter (WBCSD, 2008).

Businesses in general are central to the creation of technology and innovation, which have an important role to play in moving towards sustainable consumption (Michaelis, 2003; Málovics *et al.*, 2008). Innovation and Research and Development (R&D) have a strong link to design because design is considered to be a creative and innovative discipline responsible for delivering solutions (Verganti, 2009). Design has an important role to play in a move towards sustainable consumption, as it is an interface between consumers and consumption (Fletcher *et al.*, 2001; Tischner & Charter 2001). To achieve more sustainable consumption through design it is essential to focus on the consumer and their needs (Bhamra *et al.*, 2008). Design has been related to the ability to understand users through different design approaches under the umbrella of user-centred design (UCD), e.g. interaction design, experience design, user interface design, inclusive design and human-centred design, amongst others (Moggridge, 2007; Nilstad & Boks 2008; IDEO, 2009). Though not all of these approaches are necessarily based on social values or aim to contribute towards sustainability, they have recently been seen as viable approaches to leverage sustainable consumption because they use strong emotional connections to influence people and their context (Fulton-Suri, 2004; Nilstad & Boks 2008; Haines, *et*

al., 2010; Weever *et al.*, 2008). Thus, the research was built upon UCD principles as it is considered as an appropriate approach for communicating consumers' wants, needs, habits, interactions, activities, practices and behaviours to higher management (Lofthouse & Lilley, 2006), and developed to enable the consideration of a more holistic and strategic consumer focused-approach.

Finally, the research focus was on multinational companies and the role they could play in leveraging sustainable consumption. This was because multinational companies are well placed to leverage more sustainable consumption as their production lines; supply chains, products and services extend across multiple continents. They also have considerable capacity to innovate, which can drive government intervention towards sustainable consumption and consumer demand for sustainable products, services and business models (Munasinghe *et al.*, 2009).

In addition, it is recognized that in order to survive in the long term, multinational companies must look for solutions to resource scarcity and address environmental challenges that they can integrate into their core strategy and operating models (WEF, 2012a). In a report by the World Resource Institute and ATKearney (2008) it is argued that by 2018 up to 47% of multinational companies' earnings before tax and interest could be at risk if they do not mitigate against environmental risks including those caused by consumption.

Two different contexts were chosen to study the role that global companies could play in leveraging more sustainable consumption in developing and developed countries. Mexico was chosen as the scenery to investigate global companies in a developing country. This set was chosen, because the researcher is familiar with the Mexican context, because of her access to Mexican companies through a personal network, and because of her language capability to conduct research in Spanish.

The UK was chosen as the place to study global companies within the context of developed countries as there are many multinational companies based in the UK that are leading the path of implementing measures to

leverage sustainable consumption as part of their activities. However, it was assumed that global companies would take similar strategic approaches to leverage sustainable consumption no matter where they operate, as businesses tend to build strong global strategies to maintain a balance between local and central authority when taking decisions (De Kluyver, 2010).

1.2 Aim and Objectives

The aim of this doctoral research is to build a holistic theoretical framework supported by user-centred design principles that can guide companies to leverage sustainable consumption.

Paap and Katz (2004) defined leveraging as the extent in which an improvement is perceived as valuable. As such within the context of this research, leverage means to have an impact through inspiring and enabling change towards creating more sustainable ways of living, whilst at the same time generating more inclusive and sustainable growth. This will only be achieved through investing in environmental and low-carbon developments, and on projects with the capacity of enhancing well-being.

In order to achieve this aim, the following objectives were set:

1. To build an understanding of the different interpretations around sustainable consumption, to establish the focus of research.
2. To draw together and expand upon current research exploring the complex factors which influence sustainable consumption from current literature, in order to develop a more holistic understanding of the challenges that global companies face to leverage sustainable consumption.
3. To explore and build upon the relationship between user-centred design principles and sustainable consumption theory through qualitative research methods, to draw out opportunities for global companies to leverage sustainable consumption.
4. To develop a model and appropriate tools, to enable global companies to set tangible actions towards leveraging sustainable consumption.

5. To evaluate and elicit reactions to the model and appropriate tools, in order to distinguish further opportunities for improvement.
6. To evaluate the potential of the model and tools towards motivating sustainable consumption.

1.3 Thesis Structural Overview

This thesis is organised in eight further chapters, which are briefly described below.

Chapter 2: Literature Review

The aim of this chapter is to provide an extended overview to the background of the research topic in order to fully understand the context of the research problem. It also establishes the focus of research.

Chapter 3: Methodology

This chapter outlines the research phases and the methodology conducted to attain the aims and objectives described in *Chapter 1*. The chapter first describes the research purpose and research questions and justifies the research strategy. The chapter then gives an understanding of the doctoral research structure by describing the research phases and gives a detail description of the data collection, analysis techniques, the validity and reliability of the data obtained for the appropriate research phases (Phases 1 and 4), and will finally explain the ethical issues undertaken for each phase.

Chapter 4: Findings of Phase 1: Theory Building

This chapter reports on the research findings of Phase 1: Theory building. The chapter explains how the findings accounted for a more holistic and strategic consumer-focused approach, in which through different comparisons of data, a series of conditions, strategies based on user-centred design principles and drivers were obtained. The cross triangulation of findings also helped the researcher to relate these conditions, strategies based on user-centred design and drivers to three key concepts: communication, collaboration and innovation, which formed the theoretical framework, which is also reported in this chapter.

Chapter 5: Phase 2 – Development of the Model

This chapter explains how the Sustainable Consumption Leveraging (SCL) Model came about as a mechanism that could assist companies to motivate more sustainable patterns of consumption. The development of the model comprises Phase 2 of this research.

Chapter 6: Phase 3 – Development of the Toolkit and Workshops

This chapter reports on how the Sustainable Consumption Leveraging (SCL) Toolkit was developed as a tool to assist the implementation of the SCL Model. In addition, the chapter describes the development of two workshops: 'Refinement of the Consumer-focused Strategies Workshop' and 'SCL Model Evaluation Workshop', to evaluate perceptions of the SCL Model and its Toolkit. As the research methodology followed an iterative process, in which findings from one phase informed other phases, the chapter also reports the findings of the 'Refinement of the Consumer-focused Strategies Workshop' and how this affected the development of the 'SCL Model Evaluation Workshop'. The development of the toolkit and workshops comprises Phase 3 of this research.

Chapter 7: Findings of Phase 4: Model Evaluation

The chapter reports on the findings of the SCL Model Evaluation Workshop conducted as part of Phase 4 of this research.

The chapter reports on the three pilot workshops carried out in Mexico and then on the findings of the main workshop carried out in the UK. The chapter concludes by making a comparison between the general findings, which emerged from the pilots and those of the Main Workshop.

Chapter 8: Discussion

This chapter gives a bigger picture of the role of businesses in leveraging sustainable consumption. It includes a discussion of why innovation should happen at all levels of the business to enable structural and cultural changes, that support systemic changes towards more sustainable lifestyles. In addition, cultural implications regarding different regions and companies, and

the influence of these implications on the SCL Model are discussed. The chapter also includes a discussion of the holistic consumer-focused approach of the SCL Model and features a critical review of the benefits of the SCL Model, its toolkit and workshop compared to existing tools to influence sustainable consumption. Finally, the importance of facilitation is outlined and the limitations of the SCL Model encountered through applying the SCL workshop explored.

Chapter 9: Conclusions and future work

This chapter brings together all the previous chapters, which comprise this doctoral thesis. This is achieved through outlining how the research aims and objectives were met and by summarizing the overall conclusions. The limitations of research are also discussed. The chapter concludes by outlining the contribution to knowledge made by this research, and some recommendations for future work.

2 Literature Review

2.1 Introduction

This chapter explores different interpretations about the subject of consumption and sustainable consumption, the role of business and design towards sustainable consumption, and the different approaches that try to address the issues of sustainable consumption. The chapter concludes by outlining the identified gaps in the existing knowledge, and how the research will address those gaps.

The chapter responds in particular to the first two research objectives stated in Chapter 1:

- To build an understanding of the different interpretations around sustainable consumption, to establish the focus of research.
- To draw together and expand upon current research exploring the complex factors which influence sustainable consumption from current literature, in order to develop a more holistic understanding of the challenges that global companies face to leverage sustainable consumption.

2.1.1 Scope and boundaries

The scope and boundaries of research were intended to be broad, given that the study of consumption and sustainable consumption references a range of disciplines and subject areas. *Figure 2-1* depicts the subject areas incorporated as part of this literature review.

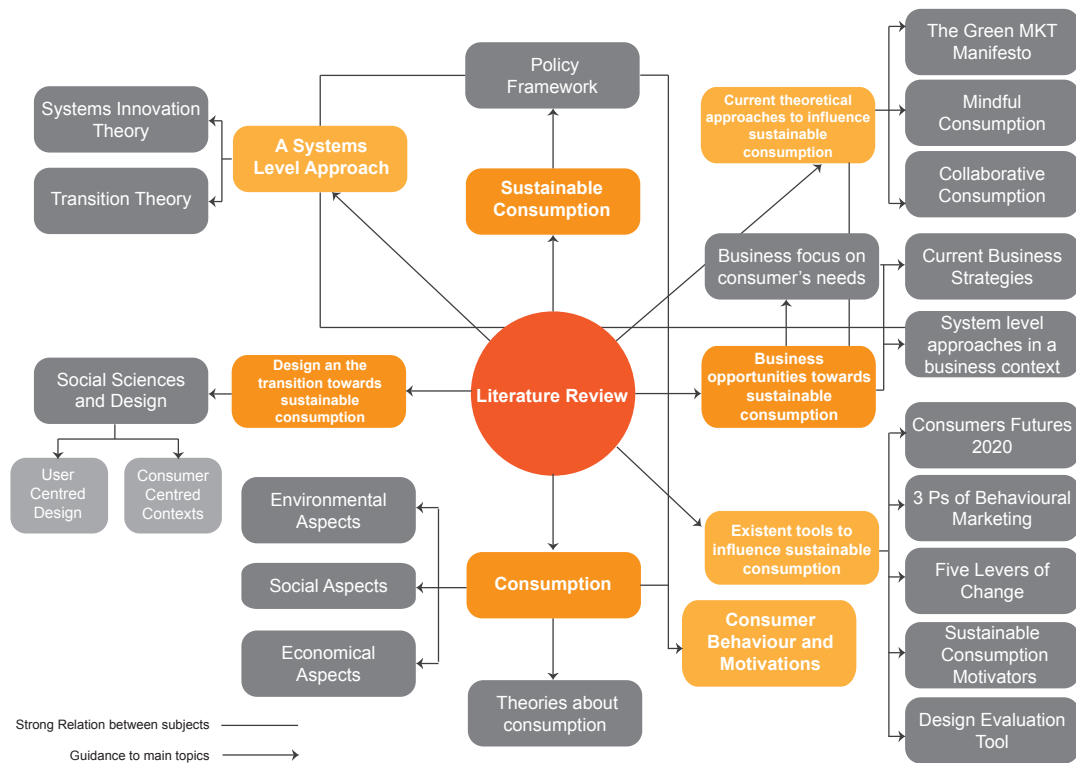


Figure 2-1 Literature review subject areas

To face the challenges and issues around sustainable consumption, the literature review first focused on making a distinction between the different interpretations of sustainable consumption, and drew a consumption-production dichotomy to establish the focus of research (see *Figure 2-2, p14*).

It also questioned the implications of actual consumption patterns, and gave an understanding of the facts by looking to the origins of consumption and its different interpretations. In addition, the review looked through the economic, social and environmental aspects of consumption; and analysed the current sustainable consumption policy framework and its failures regarding influencing consumer's behaviour.

Subsequently, the review analysed different views to achieve sustainable consumption and from the discussion, it was recognized that systemic changes are needed in the innovation process, given that businesses have followed an economical model that is constrained by socio-technical infrastructures (Seyfang, 2009). As such, different transition processes based on systems level approaches towards sustainable consumption were discussed. This discussion led to an exploration of the role of design towards

these transitions and acknowledgement of how design researchers and practitioners have started to apply new forms of practicing design in which they are focusing on understanding consumers and their interactions with the objects that surround their everyday life. This new way of practicing design, has led design researchers and practitioners to encompass issues of behavioural impacts into their discipline. An example of this is design for sustainable behaviour (DfSB), which explores how design can encourage shifts in consumer behaviour by linking behaviour with positive and negative environmental or social consequences (Lilley, 2009). Though DfSB could be of interest given the subject matter of this research, its focus on design as the sole means of effecting behavioural change is limited, as it does not take into account the full complexities around consumption.

By considering that transitions towards sustainable consumption have to happen at a systems level, the research considered different design approaches e.g. interaction design, experience design, user interface design, inclusive design, human-computer interaction, practice-orientated design, consumer contexts, and human-centred design, amongst others, that could help designers to better understand consumers and their interactions with the world that surround them (Moggridge, 2007; Nilstad & Boks, 2008; IDEO, 2009; Saffer, 2006; Abras *et al.*, 2004, Shove *et al.*, 2007). These different approaches fall under the umbrella of user-centred design (UCD).

UCD is a design process and philosophy in which the designer focuses on users' needs, wants, and limitations through the planning, design and development stages of a product (UPA, 2011). Gould and Lewis (1985), recommend three principles of UCD: The first principle is having an early focus on users and tasks - to understand who the users are by studying their cognitive, behavioural, anthropometric and attitudinal characteristics; and under which conditions they perform certain activities. The second principle is empirical measurement – in which real users' interact with simulations of prototypes of the product being developed. Their performance and reactions are observed, recorded and analysed. The third principle is iterative design – which involves a cycle of designing, testing, measuring and re-designing, repeated as necessary.

There are different techniques that can be applied to gain insights into the complex factors of users and record diversity in behaviours and actions (Bhamra & Lofthouse, 2007). These include; interviews, participant observation, usability testing, cultural probes, collage making, personal narratives, photo journal assignments, cognitive map making, context of use maps, storyboards, scenarios of use, personas and co-design, amongst others (Bhamra & Lofthouse, 2007; Manzini *et al.*, 2004, Fulton-Suri, 2004; Evans *et al.*, 2002).

Through the use of these techniques, UCD involves users in one way or another in the design process. The way in which users participate can vary from relatively little involvement of users in interviews or participant observations, to intensive involvement of users in co-design, in which the users become partners in the design process (Abrams *et al.*, 2004).

UCD's major advantage is that a deeper understanding of user's practices, habits and behaviours emerge from the involvement of users in this iterative design process. The involvement of users assures that the product will be suitable for the intended purpose in the environment in which it will be used. It also helps to communicate user's expectations to higher management and incorporate these concerns into the design process, as user experiences are taken into account in the early stages (Abrams *et al.*, 2004; Lofthouse & Lilley, 2006). In addition UCD principles have been seen as viable approaches to leverage sustainable consumption as they focus on influencing people and their context (Nilstad & Boks 2008; Haines, *et al.*, 2010; Weever *et al.*, 2008). UCD principles have also been shown to deliver different advantages to businesses i.e. an ability to develop easy-to-use products/services, satisfy consumers, decrease expenditures on technical support and training, advertise ease-of-use successes, and ultimately increase market share (Vredenburg *et al.*, 2002). Despite this, it has not been explored at a systems level to aid businesses to place the consumer at the heart of the business strategy to leverage sustainable consumption. As such, the researcher took inspiration from UCD principles as they give a broader account of the complexities around consumption and consumer's behaviour that could be communicated to higher management, and at the same time build a holistic

account of the different issues to be consider towards leveraging sustainable consumption.

The review then outlined the business opportunities towards sustainable consumption, including different current strategies that global businesses have begun to implement towards leveraging sustainable consumption. These strategies include examining product/service lifecycles, sustainable product/service design, collaborating with other stakeholders, creating strong partnerships along the value chain, and consumer communication strategies. The review also emphasises the need to focus on consumers and explores the meaning and practicalities of employing a system level approach in a business context. Finally a description of the current approaches and tools towards leveraging sustainable consumption is included.

2.2 Sustainable Consumption

Sustainable consumption was defined at the Sustainable Development Symposium in Norway as:

“The use of goods and services that respond to basic needs and bring better quality of life, while minimising the use of natural resources, toxic materials and emissions of waste and pollutants over the lifecycle of the service or product, so as not to jeopardize the needs of future generations (Ministry of Environment Norway, 1994).”

Despite this definition, several authors have agreed that there is a discrepancy regarding what sustainable consumption means (Jackson & Michaelis, 2003; Marchand & Walker, 2008; Dolan, 2002). Different interpretations on the subject exist due to the wide applications of the concept (Jackson & Michaelis, 2003; Robins, 1999). For example, sustainable consumption can refer to the extraction of natural resources as raw material, or to the consumption, use and disposal of goods and services (Robins, 1999). This discrepancy occurs because of the difficulty of drawing boundaries between consumption and production (Jackson & Michaelis, 2003).

2.2.1 Consumption and production dichotomy: Focus of research

To explain the ambiguity within sustainable consumption, the lifecycle of a product or service is suggested to describe the boundary between

consumption and production. The lifecycle of a product or service is recognized as a means of evaluating environmental impacts, as there is a continual input of resources and energy, and a continual output of pollution and waste during all stages of the lifecycle (UNEP, 2009a).

By looking at the lifecycle of a product or service, the research distinguished between production and consumption by creating a dichotomy, which draws an imaginary line to indicate the focus of research (*Figure 2-2*). The boundary between consumption and production was drawn according to Princen (1999) and Stø *et al.*, (2006). They suggested working within a consumption-production dichotomy focusing on the product use, which means examining not just purchasing decisions (planning, buying) but also post-purchasing (using, disposal) and non-purchasing decisions (consumers' reasons for not purchasing certain products/services among others) to measure the environmental impacts of consumption. This boundary was drawn to look into what companies can do to leverage sustainable consumption. This is because large companies especially fast moving consumer goods (FMCG) companies had embarked on measuring the impacts of their products. For example, a company who had measured the impacts of 70% of their products through their lifecycle, revealed that the biggest environmental impacts comes from consumer use, accounting for 68% of the greenhouse gas footprint of their portfolio (Early, 2011; Forum for the Future, 2011).

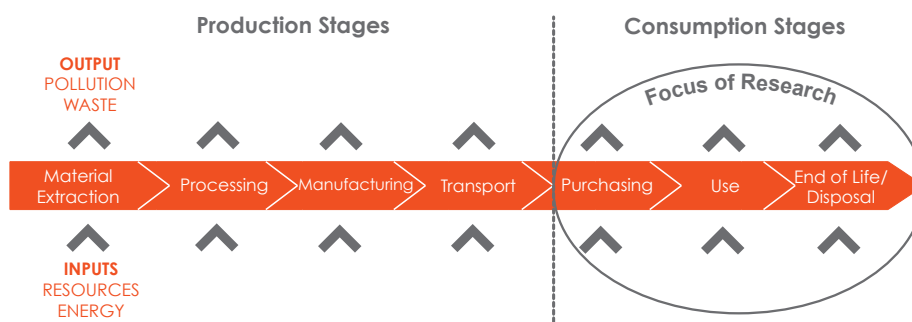


Figure 2-2 Focus of Research. Consumption - production dichotomy

2.3 Consumption

Consumers have a decisive part to play in the process towards sustainable consumption (DEFRA, 2008; Sto *et al.*, 2006). As such, it is important to understand the origins of consumption and its different interpretations. *Table 2-1* presents some of theories that exist in different disciplines related to the study of consumption.

Table 2-1 Description of different disciplines that had studied consumption. Sources: (Fine, 1993; Wilk, 2002; Heap & Kent, 2000; Seyfang, 2009; Røpke, 1999; Lipsey, 1992; Jackson & Michaelis, 2003; Lury, 1996; Sanne, 2002).

Discipline	Description of consumption
Economic theory	Consumption is seen by economists as the generation and maximisation of utility (Fine, 1993; Wilk, 2002; Heap & Kent, 2000), which attempts to provide wellbeing while individuals purchase goods and services in free markets to satisfy a hierarchy of unlimited needs and wants (Seyfang, 2009; Røpke, 1999; Lipsey, 1992). It is seen as a personal, rational choice based on consumer sovereignty, in which economists do not take into account the motivations, which lead the person into the purchasing decision (Seyfang, 2009; Jackson & Michaelis, 2003; Wilk, 2002).
Anthropology and social theories	Anthropologists and Sociologists see consumption with a social meaning (Heap and Kent, 2000). Individuals value goods in respect of what they represent to them and to others (Jackson & Michaelis, 2003). However, it is still considered that purchasing decisions are taken from an individual basis (Seyfang, 2009).
Cultural theory	Cultural studies explore the relationship between the material goods and the individuals (Lury, 1996). Cultural theories see consumption as an expressive act loaded with meaning, allowing consumers to construct narratives and rituals to make sense of their lives (Jackson & Michaelis, 2003; Wilk, 2002). Consumption is considered to be a signal of self-understanding and own mind (Sanne, 2002). Terms like ideology, semiotics, custom, and worldview are well known to explain consumers' culture, which is based on the contemporary belief that self-identity is an asset or possession (Wilk, 2002; Lury, 1996).
Systems/Infrastructures of provision theory	Consumption practices are seen as a response to social and institutional norms, which are convenient, habitual, and practical for individuals (Jackson & Michaelis, 2003). Sanne (2002) and Røpke (1999) argue that consumers are trapped into social structures that foster actual consumption patterns and lifestyles.
Psychology theory	Psychology studies are focused on the individual and collective motivations of consumption, which are related to self-expression and identity, personal histories and the sense of providing security (Wilk, 2002).

2.4 Environmental, social and economic aspects of consumption

Concerns about further capacity for human progress and economic prosperity had been underpinned by the exploitation of the environment, and the failure to increase wellbeing (Schor, 2005). As such, sustainability is not just about improving the actual environmental situation but also learning how to live better and how to improve the quality of existing social structures. This learning process will have an impact on our current patterns of consumption. As such, it was considered necessary to study the environmental, social and economic impacts and aspects of consumption.

2.4.1 Environmental aspects

The environmental problems caused by consumption are straightforward. Humans are over consuming material and energy contributing to climate change and threatening biodiversity, soil fertility, air and water quality, among other environmental aspects (Princen, 1999).

Regardless of these impacts, difficulties exist in the dialogue to link consumption with the environment, considering the problems formerly discussed in drawing boundaries within the consumption-production dichotomy. These boundaries are dependent on the fact that consumption of resources in the production stages is considered as a real material activity, where direct consumption of food, water, materials, energy and other renewable and non-renewable materials are easy to track and quantify (Murphy & Cohen, 2001; Wilk, 2002). However, it is difficult to assess the impacts of purchasing, use, and disposal, which is the result of a commodity chain from extraction to disposal of everyday products, where energy and matter are transformed into physical processes (Burgess *et al.*, 2003; Wilk, 2002).

To deal with current environmental impacts caused by consumption, new concepts and theories have been developed. Though some have evolved to take into account the purchasing, use and disposal stages to influence policy makers, industry and public in general, most focus solely on the consumption of resources at the production stages (Princen, 2001).

Eco-efficiency: Is considered as the most influential theory (Murphy & Cohen, 2001). It was introduced in 1995 by the World Business Council for Sustainable Development (WBCSD) stating that eco-efficiency:

“Involves the delivery of competitive priced goods and services that satisfy human needs and bring quality of life, while progressively reducing ecological impacts and resource intensity through the lifecycle to a level of least in line with Earth’s estimated carrying capacity” (WBCSD, 2006).

Since then, a new discourse was created that involved rethinking the relationship between production, environmental impacts, and public policy. The implementation of eco-efficiency encouraged companies to reduce the material intensity of its goods and services, to reduce the dispersion of toxic materials, and to extend the durability of its products. An important motivation for firms to implement eco-efficiency measures was the benefit of economic payback that these measures involved (Bhamra & Lofthouse, 2007; Murphy & Cohen, 2001).

A) Factor X: Measures environmental improvements through different values of X that can be achieved by using technological interventions to lower the material intensity of resources. The lowest value of X is considered to be 4, which refers to near-term possibilities of environmental improvement. Higher values of X indicate a longer-term improvement potential (Rheingold, 1998). Weizäcker *et al.* (1997) popularized the term Factor 4 improvement, which state that environmental improvements can only be reached by technical means. Consequently, the Factor 10 Club argued that to achieve higher values of X, improvements should be made with a combination of technical, financial and lifestyle changes, and recognized that consumers must be involved in the process (Murphy & Cohen, 2001).

B) IPAT: Ehrlich and Holdren (1971) proposed a formula to establish the relationship between production, consumption and environmental impacts.

$$I = P \times A \times T$$

Where I means environmental impact, P population per capita, A affluence per capita and T technical eco-efficiency of production. This formula points directly to the main drivers for environmental impact: Population, affluence and technical efficiency. The formula asserts that technical eco-efficiency is the only factor that can be influenced in order to achieve environmental improvements (Ehrlich & Holdren, 1971).

C) Ecological Footprint: considered as a measurement of consumption. The ecological footprint calculates per X amount of area the provision of resources and the absorption of waste required to support the total environmental demand of an individual, a region or a corporate activity (Brady, 2005). According to the WWF (2010), Industrialized countries currently use the equivalent to 1.5 planets to provide the resources we need and absorb the waste we generate. If current patterns of consumption continue, it is suggested that by 2030 we will need up to three planets to support us.

Dobson (2003) proposes the idea of ecological citizenship. He uses the Ecological Footprint Model as a starting point to understand citizens' obligations of how they should live. In this model, each human being is responsible for a certain ecological "space", which is translated on resource use and carrying capacity limits. This space is expressed as a footprint on the Earth (Seyfang, 2009). The duties of an ecological citizen are to minimize the size of unsustainable impacts of each ecological footprint, motivating people to consume more sustainably (Dobson, 2003).

The lessons learned from Eco-efficiency, Factor X, IPAT and the Ecological Footprint Model are that there is a need to improve environmental performance of goods and services by lowering the material intensity of economies. The Factor X concept and the Ecological Footprint Model also consider consumers as part of the problem and stress their role to minimize the environmental impacts of their actions.

2.4.2 Social aspects

The environmental concerns related to consumption have played a fundamental role in giving environmental challenges a social meaning (Burgess *et al.*, 2003). Many of the environmental problems of consumption are deeply embedded in social structures (Briceno & Stagl, 2006). As such, rethinking the role of consumption within a social context, including human needs is a key issue.

2.4.2.1 Consumers in a social context

Studies of consumption are characterized by their focus on the individual behaviour of consumers (Burgess *et al.*, 2003). However, to study sustainable consumption it is important to consider that most human needs and wants are socially constructed and constrained, as individuals make choices on the basis of their social, cultural and geographical contexts (Briceno and Stagl, 2006).

2.4.2.2 Human needs

'The Needs Approach' tries to describe the social and behavioural aspects of consumption, and explains the relationship between consumption and wellbeing (Briceno and Stagl, 2006) Two well-known studies on human needs are the Maslow's hierarchy and Max Neef's classification.

A) Maslow's hierarchy: Abram Maslow formulated a hierarchy (Figure 2-3) where non-material needs, such as emotional and spiritual needs are met only when more basic physical and material needs are satisfied (Maslow, 1987).

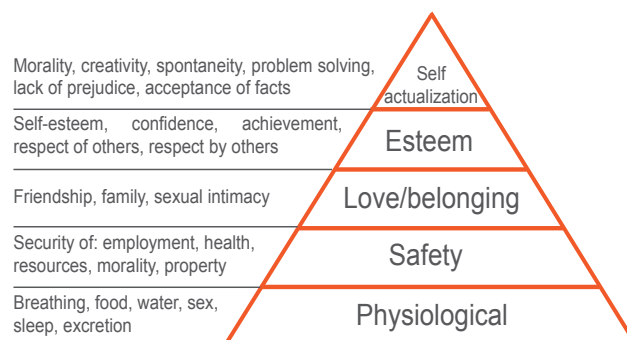


Figure 2-3 Representation of Maslow Hierarchy of Needs. Modified from (Maslow, 1987)

B) Max Neef theory: Max Neef (1992) classifies needs into nine categories: Subsistence, protection, leisure, participation, affection, freedom, understanding, creation and identity - which are associated with four states of existence: Being, having, doing and interacting -. This classification resulted in an evaluation matrix (*Table 2-2*). The matrix suggests that beyond the level of subsistence there is no hierarchy of needs realization, but rather trade-offs and synergies between satisfiers of various aspects of each need (Neef, 1992; Seyfang, 2009).

Table 2-2 Representation of Neef's evaluation matrix of needs. Modified from (Neef, 1992).

Fundamental Human Needs	Being (qualities)	Having (things)	Doing (actions)	Interacting (settings)
Subsistence	Physical & mental health	Food, shelter, work	Feed, clothe, rest, work	Living, environment, social setting
Protection	Care, adaptability, autonomy	Social security, health systems, work	Co-operate, plan, take care of, help	Social environment, dwelling
Affection	Respect, sense of humour, generosity, sensuality	Friendship, family, relationships with nature	Share, take care of, make love, express emotions	Privacy, intimate spaces of togetherness
Understanding	Critical capacity, curiosity, intuition	Literature, teachers, policies, educational	Analyse, study, meditate, investigate	Schools, families, universities, communities
Participation	Receptiveness dedication, sense of humour	Duties, work, rights, responsibility	Co-operate, dissent, express, opinions	Associations, parties, churches, neighbourhoods
Leisure	Imagination, tranquillity, spontaneity	Games, parties, peace of mind	Day-dream, remember, relax have fun	Landscapes, intimate spaces, places to be alone
Creation	Imagination, boldness, inventiveness, curiosity	Abilities, skills, work, techniques	Invent, build, design, work, compose, interpret	Space for expression, workshops, audiences
Identity	Sense of belonging, self-esteem, consistency	Language, religions, work, customs, values, norms	Get to know oneself, grow, commit	Place one belongs to, everyday settings
Freedom	Autonomy, passion, self-esteem, open-mindedness	Equal rights	Dissent, choose, run risks, develop awareness	Anywhere

2.4.3 Economic aspects

The actual method of growing the economy using Gross Domestic Product (GDP) as an indicator fails to take account of the impacts on wellbeing and on environmental limits (Seyfang, 2009). As such, GDP has created an economic system that limits opportunities for individuals and communities to make choices and pursue activities that promote positive well-being. The challenge to address in the future will be to integrate well-being to our daily activities considering a balance between the interest of the new and actual economic models. To achieve this, a change in consumer lifestyles is essential (Dobson, 2003).

2.5 Sustainable consumption policy framework

The creation of policy frameworks and regulations has an important role to play in influencing global companies to leverage sustainable consumption (WEF, 2010; 2011; 2012a; Munasinghe *et al.*, 2009). Since the World Summit on Environmental Development in 1992, and more explicitly since the Johannesburg conference of 2002, the United Nations started a global and multi stakeholder 10 Year framework on Sustainable Consumption and Production (SCP) referred as "*The Marrakech Process*" to support SCP programmes (Manoochehri, 2002; Spaargaren & Mol, 2008; UNEP, 2009b).

In developed countries, one of these recent programmes is the European Commission Communication on Sustainable Consumption and Production, which includes the Sustainable Industrial Action Plan launched in 2008. The European Union Sustainable Development Strategy and the Marrakech Process put this Action Plan together. The Action Plan is intended to develop SCP policies that contribute to worldwide sustainability by creating market conditions for low carbon and sustainable technologies, products and services; and by encouraging more sustainable behaviours in consumers (Nash, 2009). Similar programmes have been set in place in developing countries including Latin American and the Caribbean (UN DESA, 2008).

To move production and consumption in a more sustainable direction, these programmes will need quantifiable targets and deadlines in order to meet its objectives (Nash, 2009). It will also be required to alter producer and

consumer behaviours and to increase consumer knowledge on the importance of sustainable choices (Nash, 2009). As such similar programmes in the past have not proven effective because policy makers see consumption as a way to fulfil utilitarian needs, and have not considered the complexities around consumption (Spaargaren & Mol, 2008; Jackson, 2006; Seyfang, 2004). To avoid these failures, policy makers that focus on supporting behavioural change should consider the many factors that influence consumer's behaviour (Jackson, 2005b).

2.5.1 Consumer's behaviour models and motivations

To understand the complexities around consumer's behaviour, Jackson (2005b) gave an overview of different consumer behaviour models, and outlined those models that have possible contributions towards influencing sustainable consumption. These models are described in *Table 2-3*.

Table 2-3 Consumer behaviour models and possible contributions towards more sustainable behaviour. Sources: (Ajzen 1991; Ajzen & Fishbein, 1980; Becker, 1976; Cialdini *et al*, 1990; Ellemers *et al*, 1999; Jackson, 2005a,b; Jager, 2003; Schwartz 1977; Simon, 1957; Stern *et al.*, 1999; Stern, 2000)

Model	Description	Possible Contributions towards influencing sustainable consumption
Rational Choice	Consumers make decisions by calculating the individual costs and benefits of different courses of action and choosing the option that maximises their expected net benefits. This model assumes that the understanding of human behaviour is based on individual self-interest. Rational behaviour is the result of cognitive deliberation and that consumer preferences are taken as given without further information (Becker, 1976 in Jackson, 2005b).	Behaviour change is based on the ability to deliver sufficient information so consumers can make informed choices based on the available options (Jackson, 2005b).
Against Rational Choice	This model is the response to the criticisms of the rational choice model. It argues that there are cognitive limitations on our ability to take thoughtful action, because we are constrained by habits, routines and cues (Jackson, 2005b). This model argues that human behaviours are based on emotional response rather than on conscious deliberation and that regardless individual considerations play an important role on human behaviour. Behaviours are part of social contexts where social and interpersonal factors shape and constrain individual preferences (Simon, 1957 in Jackson, 2005b).	Behaviour change is based on the ability of making visible social and external costs of individual decisions (Jackson, 2005b).
Adjust Expectancy Value Theories	In this model, choices are supposed to be made on the basis of the expected outcomes from a choice and the value attached to those outcomes. The "Theory of Reasoned Action" of Ajzen & Fishbein (1980) is a clear example of this model. Moreover Ajzen (1991) with his "Theory of Planned Behaviour" incorporates the influence of people's perceptions about their own control over the situation.	Behaviour change is based on the fact that social psychology suggests that behaviour is not mediated by either attitude or intention. Thus, behaviour can be changed without necessarily changing attitudes first (Jackson, 2005a).

<p>Moral and Normative Conduct</p>	<p>Moral and Normative considerations are important in the discussion of environmental consumer behaviour. “The Norm Activation Theory” of Schwartz (1977) is an example of this model. He suggests that moral behaviours are the result of a personal norm to act in a particular way (Schwartz 1977 in Jackson, 2005b). These norms arise from awareness of consequences of certain actions and the willingness to assume responsibility to those consequences. Furthermore, Cialdini’s (1990) “Theory of Normative Behaviour” talks about how social norms influence people’s behaviours (Cialdini, <i>et al</i>, 1990 in Jackson, 2005b).</p>	<p>In this model, the most known work towards sustainable behaviour is the “Value Belief Norm Theory” of Stern <i>et al.</i> (1999). The theory explains a chain of influences from people’s values and beliefs to the emergence of a personal norm to act in a given way.</p>
<p>The Matter of Habit</p>	<p>This model assumes that everyday behaviours are carried out with little conscious deliberation (Jackson, 2005b). Jager (2003) suggests that habits and automaticity play a vital role in the cognitive effort to function effectively.</p>	<p>Focusing on habits is essential for behavioural change. It is considered that un-sustainable behaviours are locked in habitual behaviours (Jackson, 2005a).</p>
<p>Sociality and Self</p>	<p>This model argues that consumers are often constrained by what people think, say and do. For instance, the “Social Identity Theory” talks about key aspects of our behaviour as being motivated by a tendency towards intra-group solidarity and inter-group competition (Ellemers <i>et al</i>, 1999 in Jackson, 2005a).</p>	<p>Behaviour change should happen in a collective and social level since individual change is insufficient (Jackson, 2005a).</p>
<p>Integrative Theories of Consumer Behaviour</p>	<p>This approach is suggested by Jackson (2005b) It sees an integrative and multi-dimension view, which incorporates internal antecedents of consumer behaviour such as values, attitudes and intentions and external factors like incentives, norms and institutional constrains (Jackson, 2005a).</p>	<p>According to Stern <i>et al.</i> (2000), a model to change consumer behaviour should account for: motivations, attitudes and values; contextual and situational factors; social influences; personal capabilities and habits.</p>

There are different tensions amongst these models to describe consumer behaviour according to the variables each model has tried to measure (Jackson, 2005b). Some focus on characteristics that are internal to the individual such as attitudes, values, habits and personal norms others study behaviour as a function of processes and characteristics that are external to the individual such as physical and regulatory incentives, institutional constrains, and social norms (Jackson, 2005b; Burgess *et al.*, 2003). These

two different focuses are important for the debate of sustainable consumption, as both give different views regarding behavioural change.

2.5.2 Policy approaches to influence consumer's behaviour

Considering the former models of consumer behaviour, different policy approaches to influence consumer's behaviour have been developed. These approaches are described in *Table 2-4*.

Table 2-4 Policy approaches to influence consumer's behaviour towards sustainable consumption. Sources: (Manoochehri, 2002; Fuchs & Lorek 2005; Throne-Holst *et al.*, 2006; Seyfang, 2009; Murphy & Cohen, 2001; Jackson & Michaelis, 2003; Spaargaren & Mol, 2008; Lilley *et al.*, 2005)

Approach	Description
<p style="text-align: center;">Resource-based approach</p>	<p>This approach is based on deploying methods to reduce the resource intensity of products and services by increasing resource efficiency (Manoochehri, 2002). It also supports technological interventions (Fuchs & Lorek, 2005; Throne-Holst <i>et al.</i>, 2006; Seyfang, 2009; Murphy & Cohen, 2001).</p>
<p style="text-align: center;">Regulation and standards, market instruments and planning approach</p>	<p>This approach focuses on understanding and influencing consumer behaviour through regulations and standards, market instruments and planning (Jackson & Michaelis, 2003). Some of the most known instruments are economic incentives or penalties; such as charging taxes, fines or even prosecute perpetrators of environmentally and socially irresponsible acts. It also suggests offering incentives through taxes or grants to those who act on a pro-environmentally behaviour. (Spaargaren & Mol, 2008; Lilley <i>et al.</i>, 2005).</p>
<p style="text-align: center;">Information provision, education and psychological measures</p>	<p>This approach is based on increasing consumers' awareness of environmental problems. It persuades people to consume differently by using education systems, eco-labelling, media messages and regulations, (Jackson & Michaelis, 2003; Lilley <i>et al.</i>, 2005).</p>

In addition, in recent years the UK government has become increasingly concerned with understanding behaviour change (Abraham, 2011).

As such, the UK Institute for Government, an NGO who aims to improve governmental effectiveness, produced a report called MINDSPACE. This report explores how behavioural change theory can help meet current policy challenges (Abraham, 2011). The title of the report is an acronym for messenger, incentives, norms, defaults, salience, priming, affect, commitments and ego (See: Dolan *et al.*, 2010). The idea is to translate each of these processes into specific behaviour change techniques to target relevant behaviours and policy challenges such as environmental sustainability (Dolan *et al.*, 2010).

In contrast, Latin American national authorities including Mexico are starting to understand the serious impacts of human behaviour in relation to consumption patterns and lifestyles, but do not have a clear picture of what should be done about it (PERL, 2010).

2.5.3 Limitations to current policy approaches

Changes in consumption are problematic especially in societies where consumers' sovereignty is highly valued (Jackson, 2006). A number of authors (Seyfang, 2009; Jackson & Michaelis, 2003; Spaargaren & Mol, 2008; Seyfang, 2004; Southerton *et al.*, 2004; Jackson, 2006; Munasinghe *et al.*, 2009) argue that while there is evident success in the implementation of policies mentioned in *Table 2-4*, these policies still face some barriers such as:

A) Pricing: Current pricing structures allow social and environmental costs to be externalized from market prices, sending producers and consumers the wrong signals. For example, fuel prices do not account for the costs of climate change caused by the carbon emissions from driving (Seyfang, 2004). In addition, policy makers can incentivise cheaper options to be available (Munasinghe *et al.*, 2009).

B) Information: Different information tools have been created to drive behavioural changes, such as: Awareness campaigns, certifications

and labelling schemes (Seyfang, 2009). Despite these efforts, consumers still face some informational barriers, which limit their decision-making process. Examples of those barriers are:

- Credibility and consistency of sustainability labels, which can be confusing (Holdsworth, 2003).
- The ability to translate scientific complexity into every day language to communicate the environmental performance of products, so it can be clearly understood by consumers (Steedman, 2005).
- The reliability and credibility of the source of information given in public campaigns (Burgess *et al.*, 2003; Kong *et al.*, 2002).

C) Hopelessness: Individual normally feels that their actions can make no difference to big problems. However, policy makers can help to set social programmes that encourage people to perceive that they are not acting alone (Munasinghe *et al.*, 2009).

In addition, it is argued that nudge (Thaler and Sunstein, 2008), MINDSPACE and other similar approaches may not work in isolation. As such it may be necessary to develop broad and inclusive frameworks to understand change processes and mechanisms at individual, group, societal and international levels in order to resolve a variety of global human challenge (Abraham, 2011).

2.6 A systems level approach

It is argued that the transition towards sustainability and the way we consume, is a never-ending process of progressive social change (Mont & Emtairah, 2006). It requires radical changes in functional systems to pursue long-term changes (Mont & Emtairah, 2006; Kemp *et al.*, 2006). As such, several authors argue that a systems level approach is needed to achieve sustainable consumption (Tischner & Verkuijl, 2006; Geels *et al.*, 2004; Elzen & Wieczorek, 2005). The review will discuss systems innovation and two different approaches to transition theories i.e. the multi-level perspective and transitions based on consumer-technology relations, as examples of systems level approaches. Finally, *Section 2.6.4* will emphasis the role of design and

its implications in effecting a transition towards influencing more sustainable consumption. Furthermore, *Section 2.7* will discuss what systems level means in a business context.

2.6.1 Systems innovation theory

Innovation can provide further opportunities for achieving sustainability (UNEP, 2009a; Fukasaku, 2000). Systems innovation is defined as a combination of technological, organisational and cultural change that results in a totally new fulfilling of needs (Manzini *et al.*, 2004). Systems innovation is an important step towards transitions, which are seen as a social learning process (Manzini, *et al.*, 2004).

Transition towards sustainability via systems innovation is represented in *Figure 2-4*. The model relates to eco-design practices and identifies four distinct types of innovation linked with environmental improvements following “*Factor X thinking*” over a 20 year timeline (Brezet, 1997; UNEP, 2009a). As depicted in *Figure 2-4*, systems innovation is the highest level of eco-efficiency but only can be achieved over a significant period of time (Bhamra & Lofthouse, 2007).

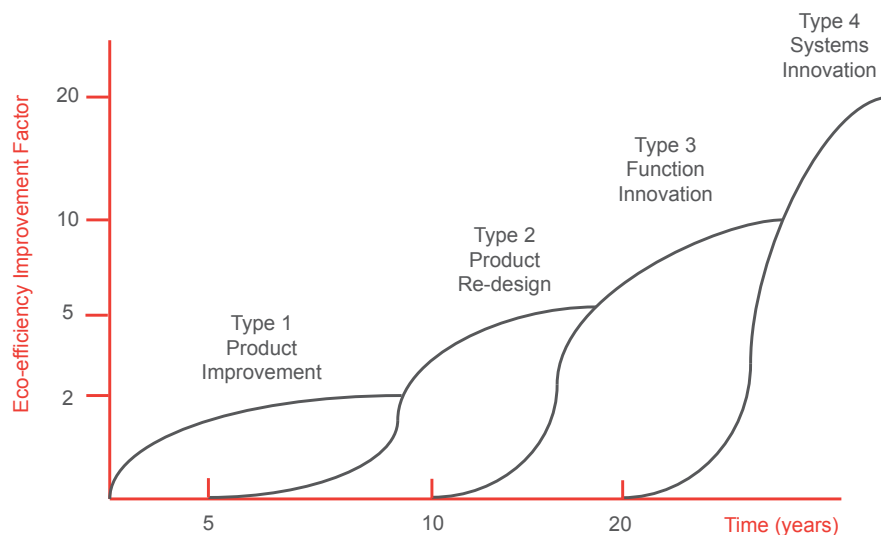


Figure 2-4 Different levels of eco-efficiency, related to different types of innovation. Modified from: (Brezet, 1997; UNEP, 2009a)

2.6.2 Transition theory: The multi-level perspective

The discussion on transition theory has focused on specifying the requirements of social-technical changes and so far has remained at a conceptual level (Mont & Emtairah, 2006). The basic model was developed on the basis of the systems innovation framework, specifically to study technological transitions (Geels, 2002; 2004a). In addition, Transition Theory is a well-known method used to study technological transitions concerned with sustainability issues. E.g. Transitions from a fossil-fuel energy system, towards low carbon alternatives (Kemp *et al.*, 2006; Geels *et al.*, 2004; Smith *et al.*, 2010).

Technological transitions are defined as major technological transformations in the way society functions (Geels, 2002). Such societal functions are considered to be infrastructure networks such as transport, energy provision, and housing, amongst others. They consist of artefacts, user practices, markets, distribution networks, policies, and capital finance (Geels, 2002).

The transition model has been developed for large socio-technical systems. Socio-technical systems are described as a set of institutions, technologies and structures that set the rules and parameters in which individuals act. Socio-technical systems are capable of changing social cultures and norms with a process of institutionalisation and formalisation with mechanisms that allow complex worldwide networks (Røpke, 1999; Vliet, 2005). As such, consumers are considered to be locked-in, in such socio-technical systems.

In a transition, both the technical and the socio-cultural dimensions of a system change drastically, thus the co-evolution of technical and societal changes are considered as disruptive innovations (Elzen & Wieczorek, 2005). Radical changes require multiple transitions translated within the process to achieve system innovation (Weber *et al.*, 2006). Transitions are characterised by a co-evolution of institutional settings, markets, technologies, cultures, behavioural patterns and policy-making (Weber *et al.*, 2006). Transitions are described in a multi-level model (*Figure 2-5*), which is characterized as a nested hierarchy formed of three levels: Niches where disruptive innovations occur on a lower level. Socio-technical regimes, which

are stabilized by lock in mechanisms such as infrastructures, behavioural patterns and regulations; and the socio-technical landscape, which encompasses cultural norms, values, dominant economic and governance regimes (Weber *et al.*, 2006). The transformation process is the result of the dynamics at these different levels (Geels, 2002).

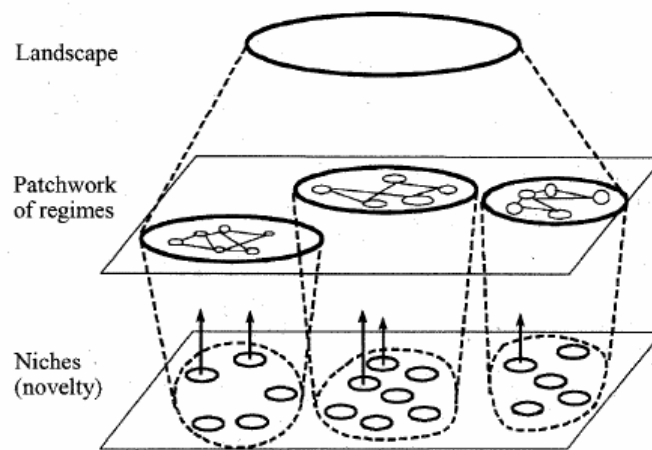


Figure 2-5. The Multi-level perspective (Geels, 2002)

Transformation process can take time because existing regimes lock consumers into certain behaviours and practices (Weber *et al.*, 2006). However, windows of opportunity for disruptive innovations may break through the niche-level when tensions occur between elements in the regime and the landscape (Geels, 2002; 2004a). Such tensions are caused by external circumstances and internal drivers (Geels, 2004b).

A) External Circumstances: Windows of opportunity emerge when tension occurs between elements in the middle level opening the socio-technical regime. Such tensions could be: pressures on the landscape caused by phenomena as climate change, societal pressures, regulatory and policy measures, changes on user preferences caused by cultural changes, changes in prices, changes due to the interactions with new technologies, and strategic and competitive actions between firms (Geels, 2004b).

B) Internal Drivers: are those that can stimulate diffusion of innovations such as perceptions, rules, economic competition, and socio-technical linkages (Geels, 2004b).

Once these windows of opportunity open, innovation breaks through mass markets, allowing new innovations to compete with the existing regime to ultimately replace it (Geels, 2004b).

2.6.3 Transitions based on consumer-technology relations

Consumption practices are bound with routines and habits, and with the acquisition of appliances, tools and infrastructures (Shove, 2003). Such acquisitions also fulfil social and personal aims that shape individuals aspirations. Thus, a perspective on consumer-technology relations will be used to study transitions in this matter.

Consumer-technology relations emphasize the role of technology in creating and shaping social identities, social life, and culture (Oudshoorn & Pinch, 2003). To understand transitions in this context, it is important to understand what a “system of systems” is and how transitions should be focused on the dynamics of demand.

2.6.3.1 System of systems

A System of systems is not an obvious structure as it is considered as a composite service formed and shaped by complex factors. It is a dynamic process ruled by different elements that re-configure consumer meanings and practices (Shove, 2003).

Elements from a system of systems operate together in dynamic processes where individuals act under their own routines shaped by a range of rationales. Those rationales form arguments that justify and provide an individual or collective guide for individual practices and behaviours (Shove, 2003).

To explain the dynamics between elements Shove and Walker (2010) draw attention to the horizontal coordination of the elements of practice rather the vertical alignment of the multi-level perspective. They suggest that opportunities for transition lie in the circulation of elements on which

sustainable practices are made (Shove & Walker, 2010). *Figure 2-6* depicts this horizontal coordination describing the relationship between products, practices and technologies and the influence on the approaches of integration resulting on the routines, obligations and senses of normality (Shove, 2003).

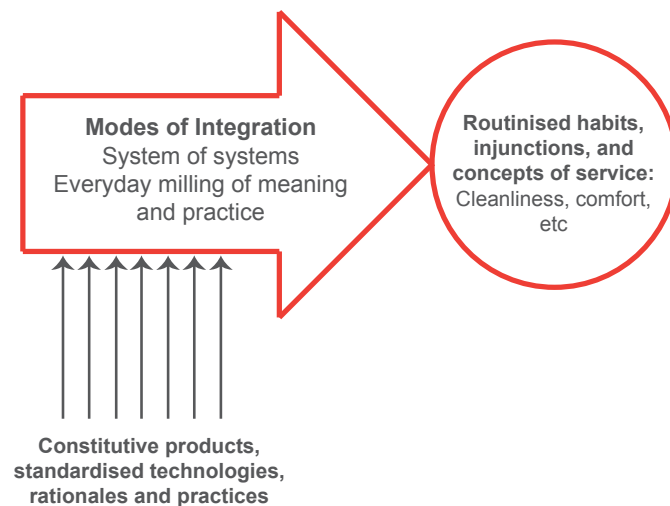


Figure 2-6 Horizontal coordination of the dynamics of demand

Modified from: (Shove, 2003).

Relating sustainable consumption to *Figure 2-6*, it is important to consider how standardised technologies are in fact integrated into different cultures of meaning and practice, and into existing socio-technical regimes. As such the way we act with certain technologies are considered as normal (Shove, 2003). The main challenge thus, will be to influence what people take to be normal, as these practices tend to be unsustainable (Shove, 2003).

2.6.4 Design and the transition towards sustainable consumption

The review acknowledged that it is necessary to understand what people take to be as normal, specifically when technological innovations have enabled changes in the way people organize their time and tasks (Shove *et al*, 2007) and thus influences their behaviour. As such Shove (2003) suggests that it is necessary to understand how and why products and services are used in everyday life.

Design can help to understand more about what matters to people, and can be useful to gain information about consumer's practices, habits, behaviours and needs to design a product, service or system (Bhamra & Lofthouse, 2007; Fulton-Suri, 2004). Design practice has begun to include considerations of behavioural impacts and thus there is increasingly an intersection between the design and the social sciences disciplinary domains (Ingram *et al.*, 2007). Thus, in recent years, design practitioners and researchers have borrowed concepts and methods from the social sciences to study the psychological, organizational and social factors that affect the design of new products and services (Ingram *et al.*, 2007; Abras *et al.*, 2004). These concepts and methods normally involve developing an understanding of the consumer to have a source of inspiration and reaching consumer insights to discover unarticulated user needs. This understanding of users is based on fieldwork research where users are integrated into the design process (Lockwood, 2010). As such, Shove *et al.*, 2007 argue that transitions towards sustainable consumption should consider new forms of practicing design in which there is an understanding between products, services and their consumers.

Section 2.1.1 mentioned different design approaches that follow the principle of focusing on users to gain an in-depth understanding of the practices, activities, interactions, behaviours and expectations that fall under the umbrella of user-centred design (UCD), which this research was inspired by as described in *Section 2.1.1* of this literature review.

2.7 Business opportunities towards sustainable consumption

Over the past decade the concept of sustainable development has been expanded to consider political, economic, sociological, technological, legal and environmental factors (PESTLE) to support decision-making and strategic planning (Creative and Cultural Skills, 2012). Companies' engagement to incorporate sustainability in their business strategy is framed primarily in terms of legislative and market drivers (Rondinelli & Berry, 2000; Schaefer *et al.*, 2003). However, it is recognized that the main motivation of global companies for implementing environmental and social investments has to be business driven (Málovics *et al.*, 2008).

As such, the main motivating factors to implement sustainability principles in companies are: to be profitable, demonstrate progressive and effective management of risks and corporate governance that can attract investors, have efficient operations, achieve competitive advantage, preserve resources that are used as raw material, improve reputation and corporate image, comply with legal requirements, and provide an opportunity for product development (Bhamra & Lofthouse, 2007; Rondinelli & Berry, 2000).

Enabling more sustainable patterns of consumption is one of the main focuses of achieving a Green Economy. The green economy seeks to be low-carbon, resource efficient and socially inclusive (UNEP, 2012). The United Nations Environmental Programme (UNEP) has defined the Green Economy as:

“One that results in improved human well-being and social equity while significantly reducing risk and ecological scarcities” (UNEP, 2012).

Large companies can play a leadership role in working towards a Green Economy and, as such, in leveraging sustainable consumption (PEP, 2012, WBCSD, 2008) by implementing successful innovations that can deliver new business models (PEP, 2012).

2.7.1 Business strategies towards sustainable consumption

A range of strategies have already been set in place to innovate and leverage sustainable consumption including: sustainable product/service design, examining product/service life cycles, collaborating with other stakeholders, and consumer communication strategies. (Munasinghe *et al.*, 2009; Hicks & Hovenden, 2010, Nidomulu *et al.*, 2009).

2.7.1.1 Examining product/service life cycles

One of the most effective ways that global companies can address climate change across national boundaries is by measuring the emissions that arise from every stage in the lifecycle (*Figure 2-2 p.14*) of the products and services they provide (Munasinghe *et al.*, 2009; WEF, 2010). The Global Reporting Initiative, business/trade associations, and businesses themselves have created different tools and metrics to measure the carbon footprint of products and services (WEF, 2010).

However, there is no consistent and simple approach to analyse the data, and as such the reliability of some lifecycle assessments is questionable. What is needed is an international standard that allows free comparison of the carbon impacts of products around the world without posing a barrier to trade (WEF, 2010; Munasinghe *et al.*, 2009). This will help to guiding consumer behaviour, foster collaborative business innovation as lifecycle assessments involve several organisations located all over the world, and provide a basis for appropriate government regulation (WEF, 2010; Munasinghe *et al.*, 2009).

2.7.1.2 Sustainable product/service design

Some multi-national companies have innovated in their products/services by examining the lifecycles of their range of products and their impacts (Munasinghe *et al.*, 2009). In the fast moving consumer good industry, for example, sustainable innovation has led to the development of concentrated liquid detergents, which can be used at 30° and which require less packaging, reducing environmental impacts in the manufacture, transport and consumption stages (Nidomulu *et al.*, 2009).

Focusing just on product/services innovation is not enough however, and more attention should be given to how to empower consumers to choose the best product and use them effectively (WEF, 2012a). Munasinghe *et al.* (2009), suggest that to empower consumers it will be necessary to remove individual barriers by providing cheaper options and incentives, giving accurate and easy to understand information about the impact of consumer choices, and by telling them that they are not alone and that small actions make big differences. To empower consumers they also suggest changing social contexts to make sustainable choices the norm, and to start developing low-carbon options in conjunction with the infrastructure required so sustainable choices can be integrated into our everyday lives.

2.7.1.3 Collaboration with other stakeholders

Involvement of different stakeholders into the process towards sustainable consumption is essential. Stakeholders have to believe that changes will bring benefits not just for the company but also for society in general.

Moreover, it will require policy intervention, and cooperation and partnership between all stakeholders (Mont, 2004; Charter, 2006). Some of the actors that should be involved are other businesses, governments, NGO's and consumers. *Figure 2-7* represents the main roles of these actors.

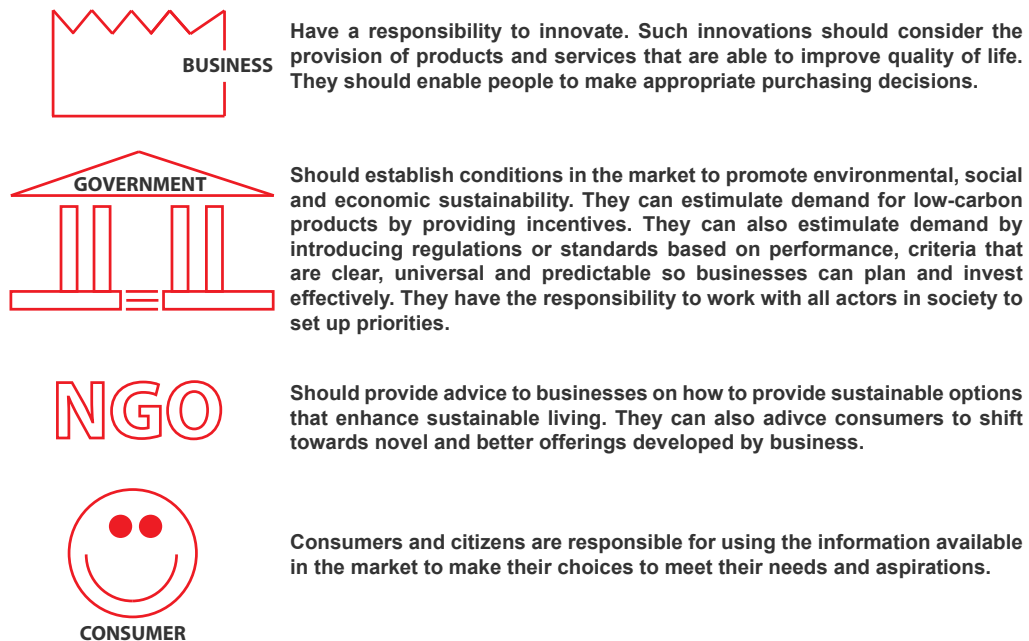


Figure 2-7 Role of stakeholders to leverage sustainable consumption (WBCSD, 2008; Munasinghe *et al.* 2009)

In addition, collaborative partnerships should be formed to enable sustainable practices to be implemented across the value chain (WEF, 2010). Global companies are already looking into their value chain to increase efficiencies mainly in the supply chain (Nidomulu *et al.*, 2009). However, a transformational shift in the way value chains are managed is needed to achieve low-carbon, closed looped value chains (*Figure 2-8*).

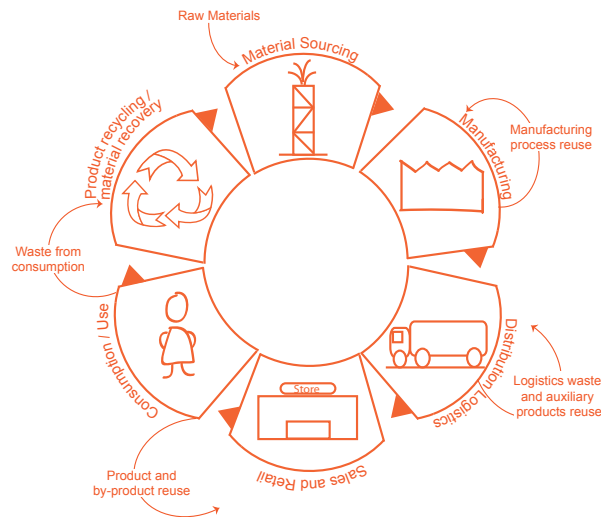


Figure 2-8 Closed Loop Value Chain. Modified from: (WEF, 2010; UNEP, 2009a)

To successfully leverage sustainable consumption, multinational companies need to collaborate across their value chain by incentivising, suppliers, producers, retailers, investors, and employees, amongst others to find innovative solutions to bring sustainable goods and services to the market (WEF, 2010; Forum for the Future, 2011). It will be also necessary to collaborate to set up measurements and parameters to incentivise transparency through the value chain (WEF, 2012a; Forum for the Future, 2011). In addition, collaboration with credible NGOs could back up credibility in the company’s transparency.

Finally, some organisations are aiding large companies to work towards sustainable consumption. In the UK there are many organisations dedicated to promoting collaboration between different stakeholders. For example, Forum for the Future¹, an independent non-profit organisation based in London and New York, works with business and governments to inspire new thinking, build creative partnerships and develop practical solutions towards sustainability. In addition, on-line forums such as The Guardian Sustainable Business² enable collaboration between different stakeholders through their hubs, news, and events. Other institutions with similar roles worldwide are

¹ <http://www.forumforthefuture.org/>

² <http://www.guardian.co.uk/sustainable-business/>

The Inter-American Development Bank³, The World Economic Forum⁴, and the World Business Council for Sustainable Development⁵. Specifically in Mexico, New Ventures⁶ a non-profit organisation funded by the World Resource Institute and the Mexican Fund for Nature Conservation, supports businesses that have an interest on promoting a strategic view of sustainability.

2.7.1.4 Consumer communication strategies

Some strategies have been developed to communicate sustainability practices and principles to the consumer, and thus influence them. Such strategies are: differentiation, low-cost products, customer loyalty, focus on specific segments, and looking for synergies that enhance value to the consumer and reduce costs to the producer. However these strategies are not enough to leverage sustainable consumption (WBCSD, 2008). In addition, corporate social responsibility (CSR) and green marketing had played an important role to communicate more sustainable practices, products and services to the consumer.

A) Green marketing: Or what is increasingly called “sustainable branding” is considered as an approach to effectively address the needs of consumers without forgetting the environmental and social implications that these might have (Ottman, 2011). Ottman (2011) describes two strategies of green marketing: 1) Develop products that balance consumers’ needs for quality, performance, affordability, and convenience with the lowest impacts on social and environmental concerns and 2) Create demand for the resulting brands through credible communication strategies that offer practical benefits that engage and empower consumers in addressing environmental and social issues.

B) Corporate social responsibility (CSR): The core idea of CSR is to communicate to all stakeholders that a business is not just about economic factors, but also about contributing to social and

³ <http://www.iadb.org/>

⁴ <http://www.weforum.org/>

⁵ <http://www.wbcsd.org/>

⁶ <http://www.nvm.org.mx/>

environmental actions to increase wellbeing of the community they influence (Bhamra & Lofthouse, 2007; Málovics *et al.*, 2008). It is important to address that CSR goes beyond philanthropy activities and take into full account the impacts of their decisions in all stakeholders and the environment (Bhamra & Lofthouse, 2007).

As seen, the former strategies have not been enough to realize the large-scale changes needed that will help to leverage sustainable consumption. As such, in order to positively leverage sustainable consumption, companies must understand the complex factors, which govern consumer behaviour (Seyfang, 2009). Thus, companies' main focus should be on the final need, demand, or function of consumers to design a mix of educational, marketing and technological interventions to leverage sustainable consumption (Nilstad & Boks, 2008; WBCSD, 2008).

2.7.2 Businesses focus on consumers

As discussed in the previous section, there are business opportunities to leverage sustainable consumption while at the same time gaining efficiencies through minimizing social and environmental impacts by having a deeper understanding of product/service life cycles and by collaborating with different stakeholders through the value chain. However, this will not be enough to truly leverage sustainable consumption unless consumers' lifestyles change (Royal Society, 2012).

To leverage sustainable consumption, an understanding of the motivators, influencers, and triggers of consumers is important. The difficulty is that human beings are not homogeneous; and practices, behaviours and habits change depending on each individual's aspirations, attitudes, and social influences (Munasinghe *et al.*, 2009). As such, changing habits and behaviours will not happen at the same time and will depend on the different needs, desires and cultural legacies that human beings have (Hicks & Kuhndt, 2011). Especially for developing countries, it will be necessary to differentiate between the needs and wants of different consumers, as the socio-economic differences vary greatly from one social context to another. Thus, it is important that companies account for these differences to

understand how to meet consumer's needs in different ways (Churet and Hayes, 2004).

Multi-national companies have a great opportunity to leverage sustainable consumption, as they have a direct line to the consumer and thus they can reach a large number of people, creating a cumulative effect towards sustainable living (WEF, 2012a; Munasinghe *et al.*, 2009). To do so, they will have to start understanding how to make sustainable living and choices easier for people by considering all the different needs, desires, and cultural aspects of human behaviour (Hicks & Hovenden, 2010). In fact some companies, such as Unilever already recognized this opportunity and they acknowledge that this is the next phase of business intelligence (Hicks & Hovenden, 2010). Some of these companies are already using technology that can help them to study actual behaviours such as electronic sensors, which monitor movement and record signals of what people do with products. This information is then studied and interpreted to design behaviour change interventions to change human habits (Wright, 2011).

2.7.3 Systems level approach in a business context

To leverage sustainable consumption, a wider systemic approach to the aspects of consumption should be considered. According to the World Economic Forum (2012a) to deliver systemic solutions, global businesses should study the interdependences that exist between society, governments and businesses themselves, so they can target the right people to plan strategically and innovate in their business model towards leveraging sustainable consumption.

The World Economic Forum (2012a) also argues that decoupling consumption and growth from resource intensity has to be done on a larger scale basis considering consumers, businesses, governments and technology simultaneously. In this attempt, businesses play a leadership role to enable scale changes, while securing competitive advantage. However it will be required that businesses lead the transformation through the interaction with consumers, through setting new supply chains and business

models through changes in the value chain and through public-private partnerships.

2.8 Theoretical approaches towards influencing sustainable consumption

Three different theoretical business approaches towards influencing sustainable consumption with a strong focus on the consumer were identified. Two of these are based on marketing theory i.e. the green marketing manifesto and mindful consumption; the third is a peer-to-peer model in which shared goods or services are distributed via a market place to a community of users i.e. collaborative consumption. These approaches are described below.

2.8.1 The green marketing manifesto

The role of green marketing is to make more people willing to shift to a more sustainable society through modifying consumption patterns (Grant, 2007). In the green marketing manifesto, Grant (2007) refers to three marketing objectives, 1) set new standards and communicate 2) share responsibility and collaborate 3) support innovation and reshape culture to influence different levels of sustainable consumption. According to Grant (2007), each objective is related to three outcomes: Commercial success, environmental and/or ethical success, and cultural success. Grant (2007) related each marketing objective to these outcomes and emphasised that the highest level of sustainable consumption will be supported by the marketing objective that considers all outcomes. The description of each marketing objective and the relation to each outcome is explained below.

- *Objective 1 - Set new standards/Communicate:* communicating in a direct way to consumers what companies are reporting in terms of sustainability efforts, brand credentials, and product benefits. Objective 1 addresses Commercial success.
- *Objective 2 - Share responsibility/Collaborate:* collaboration and participation among stakeholders to achieve more sustainable patterns of consumption. Objective 2 addresses Commercial and environmental and/or ethical success.

- *Objective 3 – Support innovation/Culture re-shape*: changing how, why and what humans consume, use and dispose. Objective 3 addresses Commercial, environmental and/or ethical and cultural success.

By taking into account these three objectives and their outcomes, Grant divided green marketing into three sorts of activities: green, greener, and greenest; and crossed over them with the three different levels in which marketing can operate: public, social and personal. When placed together, these elements form the 3X3 green marketing strategy grid depicted in *Figure 2-9*.

	A. Green	B. Greener	C. Greenest
1. Public Company & Markets	<i>Set an Example</i>	<i>Develop the Market</i>	<i>New Business Concepts</i>
2. Social Brands & Belonging	<i>Credible Partners</i>	<i>Tribial Brands</i>	<i>Trojan Horse Ideas</i>
3. Personal Products & Habits	<i>Market a Benefit</i>	<i>Change Usage</i>	<i>Challenge Consuming</i>
	Set new Standards Communicate	Share responsibility Collaborate	Support Innovation Culture Re-shape

Figure 2-9 Green marketing strategy grid. Source: (Grant, 2007)

2.8.2 Mindful consumption

Mindful consumption aims to help marketers to make a distinctive contribution towards enhancing sustainability through a consumer focus (Sheth *et al*, 2011). According to Sheth *et al*, (2011) the problems of over consumption are related to the mind set pertaining to attitudes, values and expectations surrounding behaviour. Thus the premise of mindful consumption is to be conscious of consumers' behaviour and the consequences of consumption in order to make consumption optimal for one's well-being.

In terms of a business perspective, what mindful consumption tries to do is to restore business profitability in the long term through finding a balance between profitability and consumption as it accounts for the environmental and social costs of business actions. As such, mindful consumption views the main purpose of business as creating value for consumers rather than just being profitable (Drucker, 1973).

To implement mindful consumption, Sheth *et al*, (2011) describe two types of mindful consumption orientated marketing roles: 1) Facilitate mindful consumption through reframing the four Ps of marketing (i.e. Product, Price, Place, Promotion) according to the principles of mindful consumption to stop aggressive pricing and promotion strategies and excess advertising; and 2) Advance mindful consumption by encouraging and reinforcing it.

2.8.3 Collaborative consumption

Collaborative consumption is a peer-to-peer approach that can enable sustainable consumption (Tunguz, 2011). Its basic principle is to affect a shift from private ownership of products to a service-oriented provision, and at the same time save money, space and time. In addition collaborative consumption can provide significant environmental benefits by increasing use efficiency, reducing waste, and encouraging the development of better products (Botsman & Rogers, 2010).

It is argued that collaborative consumption could not be happening if it was not because of the range of communication platforms that are changing the world. The Internet and mobile technologies have helped to build social networks that allow people to become self-conscious and identifiable in real time by reflecting and reporting on their daily activities. These social networks have brought people together to create communities, which make them feel part of something greater (Botsman & Rogers, 2010).

Botsman & Rogers (2010) organized different examples of collaborative consumption into three systems: Product service systems (PPS), re-distribution markets, and collaborative lifestyles.

2.8.3.1 Product service systems

The core idea of product service systems (PSS) is to pay for the benefit of a product without needing to own the product outright (Botsman & Rogers, 2010). As such, it has been seen as a path to dematerialization, which can contribute towards achieving sustainable consumption (Van Hellen *et al.*, 2005). In a PSS, a service enables multiple products owned by a company to be shared, or products that are privately owned to be shared, or rented peer-to-peer. PSSs can also extend the life of products through repair services offered by the company (Botsman & Rogers, 2010).

PSS is defined by UNEP (2009a) as the process of:

“Shifting the business focus from designing and selling physical products only, to selling a system of products and services which are jointly capable of fulfilling specific client demands” (UNEP, 2009a)”

The classification of PSS is depicted in the following diagram (Figure 2-10) (Tukker & Tischner, 2004). The aim of this classification is to assist different stakeholders in understanding the objectives, needs and expected outcomes of the implementation of a PSS as a business strategy for radical innovation (UNEP, 2009a).

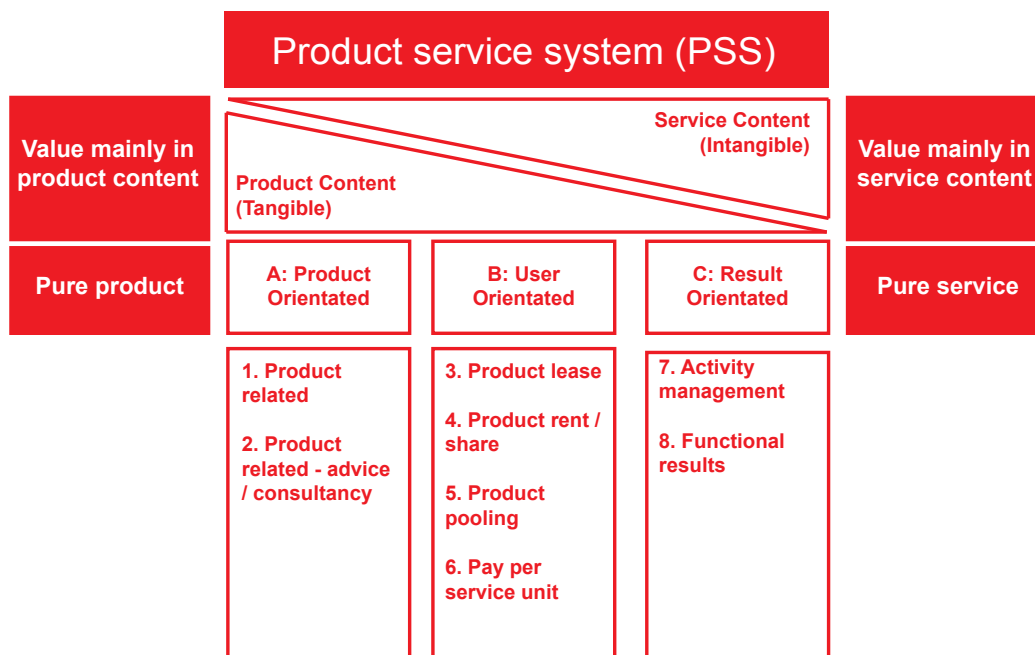


Figure 2-10 Main classification of PSS. Source: (UNEP, 2009a)

PSSs are considered as a possible contributor for radical changes to achieve system innovation (Vezzoli, 2006; Williams, 2007). PSSs require multi-dimensional changes to provide successful systems that can replace traditional, material intensive ways of product utilisation (Mont, 2002b; Williams, 2007). Some of the changes identified that are related to the PSS classification are described in *Table 2-5*.

Table 2-5 Multidimensional changes needed to develop successful PSS. Sources: (UNEP, 2009a; Mont, 2002b; Vezzoli, 2006; Van Halen et al., 2005; Tukker & Tischner, 2004; Mont, 2004; Mont, 2002a; Williams, 2007; Van den Bosch et al., 2005)

Characteristic	Description
Change in ownership structure	PSS introduces new alternative scenarios of product use (e.g. sharing, renting, leasing, pay per service unit) (Mont, 2002b), where the user does not own the product and the utility is provided by the sale of a functional service unit (Williams, 2007).
Change in product concept	The introduction of new technologies into product development is considered as a change in product concept (Williams, 2007; Van den Bosch et al., 2005). This can be related to changes in the way the products are traditionally made (Mont, 2002a). It also means a shift in design and, research and development (R&D) practices where companies should learn to design products and services together (Vezzoli, 2006). Moreover, the integration of management issues into the whole lifecycle of a product is a change in product concept. It introduces the concept of useful product life through maintenance, repair and upgrading (Mont, 2002a). Also, it introduces concepts such as remanufacturing and to engage both consumers and industry to employ product take-back activities (Williams, 2007). Finally, a major change on product concept is to shift completely to design concepts where what it is delivered is the functional result to satisfy a particular demand (Mont, 2002b; Tukker & Tischner, 2004)
Change in infrastructure/context of use	PSS may need changes on the infrastructure where it will be performed (Williams, 2007). The change could be technology driven (e.g. A PSS that involve fuel cell transport systems) (Williams, 2007; Van den Bosch et al., 2005), performance driven (e.g. when the point of sale becomes a point of service) (Mont, 2002b) or logistic driven (e.g. design how the system will be delivered and decide if further infrastructure should be needed) (Mont, 2002b; Manzini et al., 2004).
Change in business structures	PSS can introduce new ways of doing business for a company (Van Halen et al., 2005). PSS could mean going beyond the point-of-sale to create customised solutions, to create closed loop systems, and to get more involve with the consumer to create closer relations (Mont, 2002a,b). It also could mean to create new business models (Van Halen et al., 2005; Mont, 2002a).
Change in stakeholder learning and integration	There is a need to change the way stakeholder relationships are (Mont, 2002b). For successful dialogue to plan and create change, stakeholders should be involved at early stages of the design process of the PSS (Van Halen et al., 2005). As such, companies need to learn how to collaborate with other actors to create partnerships and strategic alliances (Mont, 2002a). Multi-disciplinary collaborative teams will be needed. Sharing information, use of technological tools and networking is essential for the success of PSS (Van Halen et al., 2005).
Change producer-consumer interaction	PSS is a very consumer-focused strategy (UNEP, 2009a). Industry will have to learn more about user characteristics and requirements (Williams, 2007). A communication channel between consumers and industry has to be built to enable a producer-consumer relationship. This relationship will facilitate the provision of useful information including business viability, customer needs and satisfaction, and environmental reliability for the success of PSS (Mont, 2004; Williams, 2007).

PSSs can contribute to sustainable consumption as the individually owned product with limited usage is replaced with a shared service that maximizes its utility. For the consumer, the key benefits are that they do not have to pay for the product or associated services, such as maintenance, repair and insurance, outright and that the satisfaction of their needs will increase as their relationship with things move from ownership to purely use (Botsman & Rogers, 2010). However, the take-up and implementation of PSSs by companies is fairly limited. This is because the implementation of a PSS as business strategy to influence sustainable consumption could face different barriers such as:

- Increase in management costs: PSS involves new ways of doing business. Thus, to achieve business success and an improved sustainability performance the PSS has to be well managed (Mont, 2004; Van Halen, et al., 2005).
- Difficulties in the design and development of a successful PSS: PSS require a shift in the design and research and development (R&D) practices of a company to learn how to design products and services together (Vezzoli, 2006).
- Integrating sustainability into the business strategy through developing a PSS could be considered as a lengthy process. Thus, environmental and social considerations should be considered from the beginning of the development of the PSS (Mont, 2002a).
- PSS needs reorientation of companies and a shift in corporate culture and market engagement. As such, this shift should be justified with outstanding benefits for the company (Mont, 2002a).

2.8.3.2 Re-distribution markets

The core idea behind re-distribution markets is to enable used or pre-owned goods to be redistributed from where they are not needed to somewhere or someone else (Botsman & Rogers, 2010). There are different types of exchanges where re-distribution markets take place. It can be that the

marketplace is based on entirely free exchanges (e.g. Free-cycle⁷), other marketplaces in which goods are sold for points or cash (e.g. EBay⁸), or the markets are a mixture (e.g. Gumtree⁹).

Re-distribution markets contribute to sustainable consumption as they keep goods circulating into the market by maximising their use and extending their life span, and thus avoiding being disposed of. This contributes to a reduction in waste and carbon emissions and resources that go along with the production of new items (Botsman & Rogers, 2010). In addition, re-distribution markets contribute to the social aspects of sustainable consumption as it helps to build communities when the goods are being exchanged (Botsman & Rogers, 2010).

2.8.3.3 Collaborative lifestyles

Apart from sharing, swapping, and bartering goods, people with similar interests are coming together to share and exchange fewer tangible assets such as time, space, skills, and money. This is what Botsman and Rogers, (2010) call collaborative lifestyles. Collaborative lifestyles are based on building strong relationships with people, thus its major contribution to sustainable consumption is by creating social capital (Porritt, 2007; Botsman & Rogers, 2010).

2.9 Existing tools to influence sustainable consumption

Five different tools to influence sustainable consumption were identified. Consumers Futures 2020 (*Section 2.9.1*) is a tool for businesses based on future scenarios to inspire innovation and to inform current business models. The three Ps of Behavioural Marketing and the Five Levers of Change (*Section 2.9.2 and 2.9.3*) are tools for businesses to promote behavioural change; the sustainable consumption motivators is a tool for business to better understand the different types of consumers motivations towards sustainability to drive product and process innovation (*Section 2.9.4*). And the design tool to achieve sustainable consumption (*Section 2.9.5*) is built upon four different fields and targets designers.

⁷ <http://uk.freecycle.org/>

⁸ <http://www.ebay.co.uk/>

⁹ <http://www.gumtree.com/>

2.9.1 Consumers Futures 2020

Forum for the Future (2011) recognized that we are facing great challenges to our economy and way of life, such as a global recession, scarcity of key resources, rapid population growth, climate change and loss of biodiversity. All this is affecting consumers and suppliers and as such is challenging businesses. Thus, there is a business opportunity in which leading brands will need to innovate to meet these challenges, by developing more sustainable products, services and business models to make sustainable consumption a mainstream activity (Forum for the Future, 2011).

Forum for the Future partnered with Sainsbury's Ltd., a supermarket retailer and Unilever a worldwide fast moving consumer good company, to produce a tool that can help the consumer goods industry to plan for, and adapt to, the needs of the consumer of the future, to take the lead in driving sustainable consumption. The tool uses four different scenarios; my way, sell it to me, from me to you and I'm in your hands – which portray a vision of the future in 2020. The scenarios were built according to a two by two matrix (*Figure 2.11*) based on certain trends considered as those with the potential to have the greatest impact on the consumer goods industry:

- Prosperous vs. Less Prosperous: by 2020 will the economy be flourishing or subdued?
- Do it yourself vs. do it for me: will consumers take the initiative to satisfy their needs or expect brands to do this for them?

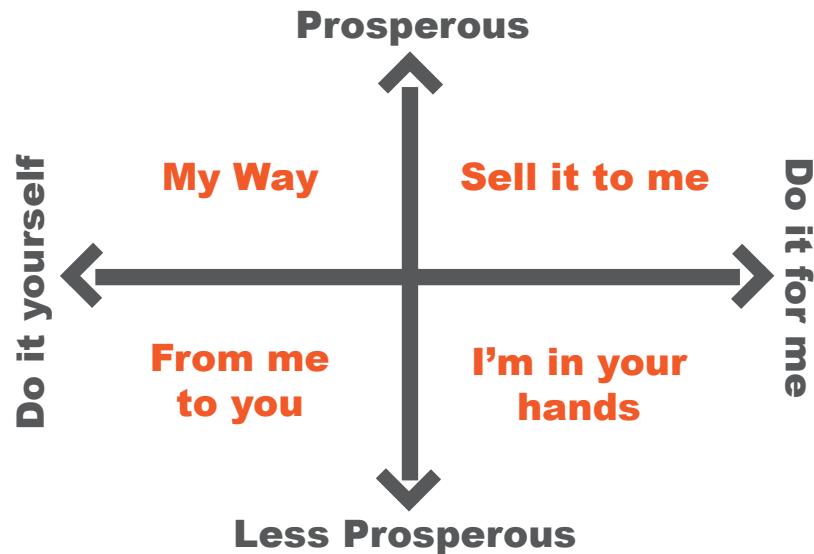


Figure 2-11 Four different scenarios built upon a four-by-four matrix. Source: (Forum for the Future, 2011).

The use of scenarios are part of some of the UCD techniques mentioned in *Section 2.1.1* to enable designers to gain insights into the complex factors of specific user-population segments and their context of use (Fulton-Suri & Marsh, 2000). The scenarios lay out a vision of the future of the global economy, government, society, business and brands, what consumers buy and how, consumer relationship with brands, how people use the Internet and technology, and people's views towards sustainability. The scenarios are accompanied by a toolkit that includes a series of indicators - i.e. prices of oil, percentage of food imports, general attitudes towards the environment, supermarkets power, amongst others – to set the context of each scenario, a time-line with a snap shot of possible events, and major trends that the future could hold, six sketched-up products and services for each scenario illustrating how brands may meet consumer needs in 2020, and a set of personas which can be used to analyse the scenarios from different consumer perspectives (Forum for the Future, 2011).

Each of the scenarios was developed by looking at UK consumption patterns, but with strong input from global trends. As such Consumer Futures is applicable and relevant for any developed economy such as those from Europe and USA. The scenarios portray social and environmental pressures, however according to Forum for the Future (2011) none of them were

considered to be truly sustainable. However each of them shows aspects of sustainable consumption as they followed certain characteristics of what Forum for the Future (2011) defines as sustainable consumption. Forum for the Future characterizes sustainable consumption as:

“smart growth in which economic growth is not delivered at the expense of the environment, where impacts associated with product/service use and disposal are minimal, where unsustainable products/services are no longer available and retailers and manufacturers only deliver sustainable options, and everything that is in the market promotes wellbeing, in individuals, communities and supply chains” (Forum for the Future, 2011-p12)

Scenarios are useful to identify risks, opportunities, to inform strategy development and to stimulate innovation (Forum for the Future, 2011). As such Forum for the Future uses Consumer Futures to inspire innovation, inform business strategy, and develop new sustainable business models and encourage their use by businesses internally, bringing together a crosscutting team within other stakeholders i.e. consultancies, suppliers, experts amongst others to enhance collaboration.

2.9.2 Three Ps of Behavioural Marketing

Futerra, a leading sustainability communications agency developed a framework that could be used to guide discussion to engage people to adopt sustainable behaviours. Its premise is that brands have the power to enable more sustainable behaviours as they guide everyday habits and decisions (Shea, 2011). The framework is based on three aspects of marketing: Persuasion, Product and Placement.

- **Persuasion:** Is about communicating actions that consumers can engage in as a way to change their behaviour. Brands have the power to persuade their consumers, and make sustainable behaviours desirable and attractive. Persuasion has two main categories; asking consumers to use their product in a low impact way and bringing sustainable lifestyles into the mainstream (Shea, 2011).
- **Product:** Builds on changing consumer’s behaviour through product-level innovation. However, it looks at not changing the value proposition of the product when reformulating it for lower impact use, as it is known that consumers buy for price, quality and convenience (Shea, 2011).

- Placement: Is about influencing consumers without them noticing that they are being influenced. The idea is that brands can show sustainable behaviours when advertising a mainstream product (Shea, 2011).

2.9.3 Five Levers of Change

The Five Levers of Change is a model developed by Unilever to promote behaviour change. This approach is a practical tool to set behaviour change intervention that could have lasting impacts (Unilever, 2011) Unilever launched this approach a year after their Sustainable Living Plan, in which they set a series of goals to grow their business but at the same time improve wellbeing, reduce environmental impacts, and enhance livelihoods (Unilever, 2010).

By looking at barriers, triggers and motivators from consumers around the world, Unilever developed the Five Levers of Change. To apply the levers first it is important to identify the target behaviour. Then it is important to identify what stops people adopting more sustainable behaviour, what can be done to enable the new behaviour to be adopted and formed into a habit (Unilever, 2011). When this is identified Unilever recommends applying the five levers, which are:

- Make it understood: This lever raises awareness and encourages acceptance (Pradeep, 2011). If there is a lack of understanding, make sure people know what to do, and why is a good thing to do it (Unilever, 2011).
- Make it easy: This lever establishes convenience and confidence (Pradeep, 2011). People follow the path of less resistance, so adopting new behaviours could be difficult. This lever is about making the new behaviour easy and about reassuring people that they can do it for themselves (Unilever, 2011).
- Make it desirable: This lever is about 'self and society' and following norms of society. According to Pradeep (2011) people tend to emulate lifestyles and habits of those that they respect; thus this lever is about enhancing that.

- **Make it rewarding:** This lever is about demonstrating proof and payoff (Pradeep, 2011). It is important to give feedback and to make sure that people are convinced of doing it because it is worthwhile (Unilever, 2011).
- **Make it a habit:** This lever is about reinforcing and reminding (Pradeep, 2011). It takes time for a new behaviour to become a habit, but reminders can help to reinforce behaviours and form new habits (Unilever, 2011).

Pradeep (2011) recognized that the use of the levers could offer businesses a coherent approach to think about behaviour change and put it into practice.

2.9.4 Sustainable consumption motivators

Collective Invention, a social innovation firm, and the Collaborating Centre for Sustainable Consumption and Production (CSCP) developed a framework based on five types of personas that represents different types of consumers.

Personas is a UCD technique that can provide designers with information about how users behave, what they think, and the reasons behind these choices, actions and behaviours (Cooper *et al.*, 2007). Personas have been proven to be more effective if they are built upon user research according to specific user-population segments (Elizondo, 2011).

The framework (*Figure 2-12*) is built upon previous research with consumers around the world. One main finding of their study acknowledged that consumers think that the purchase and use of sustainable products involves trade-offs in price, quality and convenience (Hicks & Kuhndt, 2011).

In addition, the findings of their study informed the framework about different views on consumption, sustainability, sustainable living, and what a sustainable future represents to consumers (Hicks & Hovenden, 2010). It also revealed that in the western world (European countries and USA) sustainability means a certain variation of living with minimal impact on the Earth. In contrast, for Latin American countries including Mexico, their views towards sustainable living tend to put more importance on aspects of community and social development (Hicks & Kuhndt, 2011).

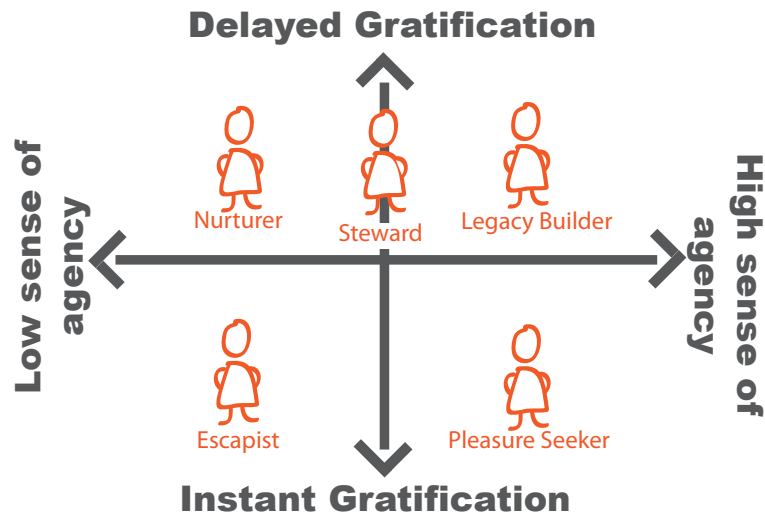


Figure 2-12 Sustainable Consumption Motivators Framework. Source: (Hicks & Hovenden, 2010)

The personas were built upon finding commonalities about what motivates consumers in different geographical areas according to the study described above. These personas are:

Legacy Builders: Have the desire to build a better world and leave a legacy of improvement for the future. They have the ability to delay gratification, and as such in terms of their purchase decisions they almost always buy 'green' as they think they are contributing to the 'big picture' goal of sustainability.

Steward and Nurturers: Both have the desire to protect and conserve and as such they regularly are committed to sustainability. However, Stewards are open to make trade-offs if they found themselves impacted by context or perception. In the other hand, Nurturers are less ambitious to make sustainability happen if they find that their purchases are affected by access and price.

Pleasure Seeker: Have the desire to maximize pleasure and personal gratification above all else and to accept no compromise. In terms of their purchasing decisions they may regularly buy 'green' by shopping in specialized high end locally produced/organic retailers, but only because these things bring pleasure to them, and not because they are sustainable.

Escapist: Have the desire to be taken care of and to avoid decisions or choices. In terms of purchasing decisions, they do not have an active interest of buying sustainable choices and will only do so if it is the default option. This is because they do not see the immediate benefit to themselves, their families and the community.

The aim of this framework is to aid businesses to understand what motivates consumers. According to Collective Invention and CSCP, to initiate change it is necessary to fulfil individual needs, unlearn old behaviours and to make space for change to happen. In addition, Collective Invention and CSCP agree that feedback on the process is critical for reinforcement to unlearn old behaviours to learn new ones (Hicks & Hovenden, 2010).

2.9.5 Design tool to achieve sustainable consumption

The research conducted by Hofstetter and Madjar (2003, 2005) resulted in a semi-quantitative design checklist to be used with a lifecycle assessment (LCA) to design products and services that support sustainable consumption. The research started with the idea that the fulfilment of needs and striving for happiness are among the drivers to achieve more sustainable patterns of consumption and behaviour (Hofstetter *et al*, 2006). They argue that failures in fulfilling any of the above can result in sustainable consumption rebound effects (Escobar-Tello, 2010).

The premise of this design tool lies in combining four separate fields that according to Hofstetter and Madjar (2005, 2006) are important to achieve sustainable consumption:

- The needs satisfaction theory developed by Max Neef (1991) Described in *Section 2.4.2.2* of this literature review,
- The happiness enhancers' list developed through an extensive literature review completed by Hofstetter and Madjar (2003),
- Six physical rebound effects considered as relevant to personal consumption i.e. cost, time, space or volume, skills, information, and scarce resources; identified by Hofstetter *et al*, (2006),

- Lifecycle assessment (LCA) theory to quantify potential environmental lifecycle impacts.

The combination of these fields imply that sustainable consumption can only be achieved if products, services and activities have a favourable LCA impact profile, truly satisfy human needs, enhance consumer happiness and cause physical rebound effects that reduce rather than increase total consumption (Hofstetter *et al*, 2006).

2.10 Conclusions

Consumption has positive and negative impacts on consumers and in the contexts in which consumers interact. In recent years, several studies have focused on the environmental and social implications of consumption, and it has been acknowledged that current consumption practices all over the world have direct and indirect impacts on the environment and have not contributed to the individual or collective wellbeing. As a consequence, sustainable consumption has been the focus of study for many scholars. However, different interpretations of the topic exist as a result of the different opinions on the consumption-production dichotomy.

To explain the ambiguity between sustainable consumption, the lifecycle of a product or service was used to draw an imaginary boundary between the consumption-production dichotomy. This focus helped to acknowledge that consumption should be distinguished conceptually from other approaches to sustainability problems. As such, the proposed research considered sustainable consumption as the process whose goal is to reduce environmental and social impacts in the purchasing, using and disposal phases of consumption. In addition, it was revealed that the consumption-production dichotomy could be seen as a system; as consumption and production cannot be set apart and both influence each other.

Through the literature review, consumption was examined as a complex subject, thus the environmental, social and economic implications of consumption were studied and it was found that the integration of these three factors is essential to leverage sustainable consumption. It was also found that consumption is seen as an outcome of personal attitudes and intentions,

connected to the fulfilment of utilitarian needs. As such, most of the efforts directed towards influencing sustainable consumption are centred on individuals and mainly focus on behavioural change. However, by studying some of the policies and current approaches to leveraging more sustainable consumption, it was acknowledged that focusing on individual behaviour is not enough and a broader view of how different contexts can shape and are shaped by consumers is needed as it was found that consumption goes beyond the individual and is related to a changing social, economic, and technical organisation of everyday life.

The intertwined factors of consumption determine that different dimensions will have to be considered. As such, the review looked at systems level transitions and system innovation as a way of delivering changes at a systems level. The review acknowledged that technology is crucial to achieve systems innovation to fulfil different societal functions. However, it also revealed that consumers are not just acquirers or users of technology and that they also shape their sense of normality by their own beliefs, meanings, and practices through the interaction of different elements in specific systems. Thus, it was recognised that transitions towards sustainable consumption would have to consider not just consumer needs, but also the complexities around consumer behaviour. As such, it is essential to configure not just the individual acquisition and use of things, but also the context and the social and cultural meanings where goods are acquired and used.

Transitions towards sustainable consumption mean changes in lifestyles, consumers' behaviour, patterns of consumption, and in the way in which goods and services are delivered. Consumers interact in social contexts that shape their individual behaviour, choices and experiences. By acknowledging the former, the research intends to bring together the existing strategic vision of business and their potential to influence consumers to introduce novel sustainable functional solutions to leverage sustainable consumption. 'Systems thinking' was identified as a path to achieve the research aim. However, a systems level approach can only be achieved in a significant period of time as it requires radical changes, which are considered as complex and time consuming, hindering businesses to adopt these

theories into their strategy. Despite this view, it is recognized that short-term progress is necessary to support and encourage the roots for radical innovation.

The review then studied the role of design towards transitions towards achieving sustainable consumption and recognized design as a conception and planning tool, which allows parallel thinking. As such, design thinking was considered as a valuable approach to research and development (R&D) and innovation, which can lead to the creation of new business models towards sustainable consumption. By looking at the role of design it was also acknowledged that design can offer insights into what matters to people, and thus in the recent years there have been many design approaches that focused on gaining an in-depth understanding of users' practices and behaviours, which fall into user-centred design (UCD) principles. As such the research was inspired by UCD principles as it was seen as valuable approach for businesses to place the consumer at the heart of their business strategy.

Business opportunities to leverage sustainable consumption were then considered, and it was found that businesses can play a leadership role in leveraging sustainable consumption. It was acknowledged that this will only be possible if they enable a systems level approach by considering a number of factors such as: understanding life-cycle impacts, collaborating with different stakeholders through the value chain, using technology, working together with governments to stimulate demand and incentives for more sustainable choices, and understanding consumers' behaviour. The review also helped to justify the focus on studying the role of global companies by recognizing that they have great influence on the purchasing, use and disposal of consumer's decisions, and thus can motivate them to choose more sustainable solutions. In addition, global companies have considerable capacity to innovate and invest in projects that could drive demand for sustainable products, services and business models.

Current theoretical approaches and tools to leverage sustainable consumption were also studied. Although these approaches and tools

recognize that having a consumer-focused approach is necessary to leverage sustainable consumption, they are limited to individual perspectives of the different factors that comprise a business i.e. marketing perspective, a user/consumer/community perspective or a design perspective.

A review of the literature identified a gap in existing knowledge, by demonstrating that there are no clear mechanisms that can help global businesses to start thinking strategically about the transformation towards sustainable consumption. To do so, it will be necessary to apply a consumer-focused approach that considers different factors that govern consumer's behaviour to apply different strategies that can influence them. It will be also necessary to apply a holistic approach that takes into account different factors from a business perspective to develop new supply chains and business models through innovating in the value chain, and through collaborating with different stakeholders, as the World Economic Forum (2012), suggested.

The identified research gap illustrates that global businesses should innovate in their business model, product or service by considering different business factors with the overall aim of achieving systemic changes. As such, the next step of research will be to develop a theoretical framework that considers all factors helping global businesses to deliver solutions at a strategic level to leverage sustainable consumption. The literature review indicated that the framework should consider a holistic approach that takes into account the interactions of elements in a specific business context to identify the changes needed to enable sustainable consumption, based on a balance between social, environmental and economic benefits. The framework will be also supported by UCD principles as UCD was identified as an appropriate tool for communicating consumers' wants, needs, habits, practices and behaviours to higher management. However as stated in *Section 2.1.1*, UCD principles have not been explored at a systems level to aid multinational companies to place the consumer at the heart of the business strategy and at the same time build a holistic account of the different issues to consider towards leverage sustainable consumption. As such, it was deemed necessary to explore the relationship between user-centred design (UCD)

principles and the complexities around sustainable consumption in a business context to build such a framework.

Through analysing the business opportunities (*Section 2.7*), the current theoretical approaches and tools towards leveraging sustainable consumption (*Sections 2.8 and 2.9*), and the three green marketing objectives devised from the Green Marketing Manifesto (*Section 2.8.1*), *three key concepts* were identified – communication, collaboration and innovation - to leverage sustainable consumption. Thus the following three key concepts were further explored through primary data collection to aid the development of the framework.

- **Communication:** It was identified that it will be necessary to set in place communication channels and strategies between consumers, other stakeholders and companies to engage with them to enable stronger relationships that can lead to sustainable consumption.
- **Collaboration:** Collaboration between different stakeholders, sectors, disciplines, and team members was identified as essential to understand different problems around the value chain to develop more sustainable solutions based on evidence.
- **Innovation:** Innovation was identified as a path to bring structural and cultural changes to leverage sustainable consumption.

3 Research Methodology

3.1 Introduction

This chapter describes the methodology used to meet the aims and objectives outlined in *Chapter 1*. It gives a general understanding of the doctoral research structure by describing the research phases (*Section 3.5*). It then describes the data collection, analysis techniques, and reflects on the validity and reliability of the data obtained for the appropriate research phases (*Phase 1 and 4*).

The research was carried out in a real world setting as it looks at the actual context in which multinational companies can leverage sustainable consumption. A real world enquiry is characterised by being focused on solving problems rather than just gaining knowledge about a particular topic, looking for robust results where changes are feasible rather than assessing statistical significance, and normally combines multiple methods which are carried out in uncontrolled situations (Robson, 2002).

The components of a real world enquiry are described in *Figure 3.1*, in which the research design has a purpose (see *Section 3.2*) and theory (see *Chapter 2*) that helps to determine the research questions (see *Section 3.3*), and which then help to define the methods and sampling strategy used to answer those questions (see *Section 3.6 and 3.7*). Thus a good research design framework has to have a good compatibility between these four components (Robson, 2002).

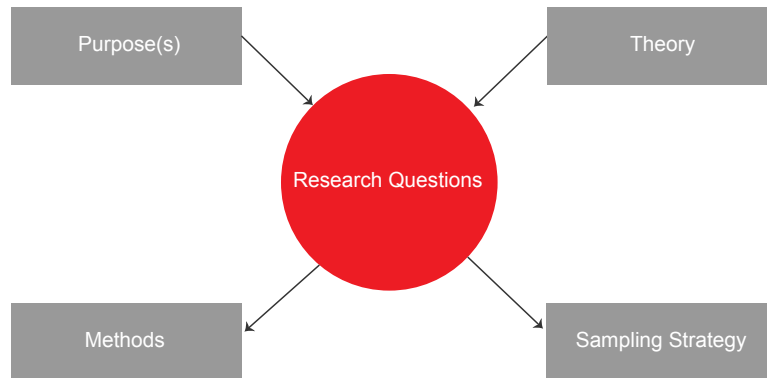


Figure 3-1 Real world design research components. Source: (Robson, 2002)

3.2 Research purpose

Robson (2002) classifies the purposes of research as: exploratory, descriptive, explanatory and emancipatory. The purpose of this research was first considered to be exploratory and then as the study continued it evolved to be explanatory.

Exploratory research indicates that the research intended to seek an understanding of something that is largely unexplored. The objective of Phase 1 (see: *Phases of research, Section 3.5*) of this research was to explore and build upon the relationship between user-centred design (UCD) principles and sustainable consumption theory in a business perspective. The relationship between UCD and sustainable consumption has started to gain some interest amongst some scholars (See: Nilstad & Boks 2008; Haines, *et al.*, 2010; Weever *et al.*, 2008). However as stated in *Section 2.1.1* and the conclusions of the previous chapter, UCD principles have not been explored at a systems level to aid multinational companies to place the consumer at the heart of the business strategy and at the same time build a holistic account of the different issues to consider towards leveraging sustainable consumption.

As the research continued, it evolved to be explanatory. Explanatory research seeks an explanation of a situation or a problem traditionally but not necessary in the form of casual relationships, seeks also to explain patterns

related to the phenomenon being researched, and to identify relationships between aspects of the phenomenon (Robson, 2002).

As concluded in *Chapter 2, Section 2.10*; there are currently no clear mechanisms that can help multinational companies to start thinking strategically about the transformation towards sustainable consumption by taking consumer-focused approach with a holistic account. For the explanatory purpose of this research, the relationship between UCD principles and sustainable consumption theory in a business perspective was identified, and in Phase 2 (see: *Phases of research, Section 3.5*) of this research, a mechanism and appropriate tools was built upon this relationship to enable multinational companies to set tangible actions towards leveraging sustainable consumption. Furthermore in Phase 4 (see: *Phases of research, Section 3.5*) of this research, these mechanisms and tools were evaluated not only to identify corporate reactions to this mechanism to distinguish further opportunities for improvement, but also to explain the effects it had on multinational companies in different context towards leveraging sustainable consumption.

3.3 Research questions

The researcher initially formulated the following research questions, which were relevant for the exploratory purpose of this enquiry and were linked to the theory studied through the literature review (*Chapter 2*).

- Can multinational companies leverage sustainable consumption by focusing on UCD principles?
- Which user-centred strategies can be applied to leverage sustainable consumption?
- What business benefits can be gained from leveraging sustainable consumption?
- What are the drivers of multinational companies to leverage sustainable consumption?

- Which are the existing conditions that multinational companies should take into account in order to leverage sustainable consumption?

As the research evolved to Phases 2 and 3 (see: *phases of research, Section 3.5*), the following research questions were formulated, which were relevant to the explanatory purpose of this research;

- How can multinational companies leverage sustainable consumption by having a consumer-focused approach?
- How can multinational companies achieve systemic changes that can leverage sustainable consumption?
- How can multinational companies change their strategic view and practices to leverage sustainable consumption?

3.4 Research strategy

The research had a flexible strategy, meaning that the research design evolved during the data collection and the data collected were qualitative (Robson, 2002). Qualitative data collection strategies were chosen for this research as they involved closer attention to the interpretive nature of the inquiry. They also allowed multiple views of the problem, which enabled a holistic account of the situation to be gained and the complex interaction of factors identified (Creswell, 2007).

Qualitative enquiry can utilise different research strategies such as: case studies, ethnographic studies and grounded theory studies (Robson, 2002). Phase 1 (*Section 3.5*) of this research used grounded theory strategy. Grounded theory was considered as the most appropriate strategy as it fits with the exploratory purpose (Denscombe, 2007) of this phase of research. Grounded theory aims to generate theory from data to develop a theoretical framework (Robson, 2002; Creswell, 2007). In particular in this research, grounded theory was used not just as a research strategy but also as a data analysis technique described more in detail through all *Section 3.6*.

The research aim intended to create a holistic framework supported by UCD principles that can guide companies to leverage sustainable consumption.

Thus, to create the proposed framework, the research needed to generate theory that outlined the opportunities and challenges that companies face in order to influence sustainable consumption, following UCD principles. From the proposed framework the Sustainable Consumption Leveraging (SCL) Model was developed, which then was translated into a toolkit and a workshop. The evaluation of the proposed model (*Phase 4, Section 3.5*) followed a thematic coding analysis, which it is not necessarily attached to a particular research strategy and can be used in purely explanatory studies (Robson, 2011).

3.5 Research Phases

The doctoral research was comprised of four phases (*Figure 3.2*) that represented the process followed to meet the aim and objectives outlined in *Chapter 1*:

- Phase 1: Theory building – This phase was comprised of a combination of primary and secondary research data collection techniques. The cross triangulation of these findings helped to determine the theoretical framework.
- Phase 2: Development of the Model – This phase involved building upon the theoretical framework, to develop the SCL Model. The model aimed to help multinational companies deliver holistic solutions at a strategic level to leverage sustainable consumption.
- Phase 3: Development of the Toolkit and Workshops: This phase involved the creation of the SCL Toolkit to assist companies to implement the SCL Model. Two different workshops activities were also developed to evaluate perceptions of the SCL Model and its Toolkit.
- Phase 4: Model Evaluation – This phase aimed to evaluate the SCL Model and its Toolkit through two different workshops developed in Phase 3 of research.

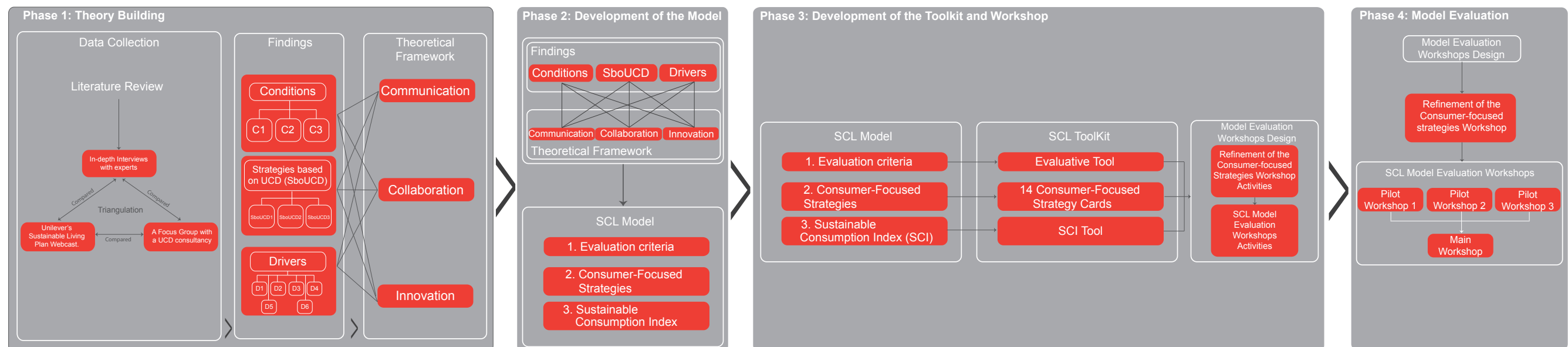


Figure 3-2 Phases of Research

3.6 Phase 1: Theory Building

The aim of this phase was to collect and analyse data to develop the theoretical framework. This research phase intended to answer the first five research questions stated in *Section 3.3* of this chapter and to achieve *Objective 3* of research stated in *Chapter 1*.

- To explore and build upon the relationship between user-centred design principles and sustainable consumption theory through qualitative research methods, to draw out opportunities for global companies to leverage sustainable consumption.

First an extended literature review was used to gain an overview of the research topic. Then the researcher used three primary data collection techniques – interviews, a focus group and a document analysis - (described in detail in the following section), the findings of these three activities were triangulated to build the theoretical framework. *Chapter 4* describes the findings and how the theoretical framework was built in detail.

3.6.1 Research data collection techniques

In grounded theory there is no particular method of data collection (Denscombe, 2007). However, Corbin and Strauss (2008) indicated that the most common methods of data collection are interviews, observations, documents, questionnaires, diaries, memoirs, newspapers, biographies, and videos, amongst others. The researcher can use one or several of these sources alone or in combination for the purpose of triangulation of data (Corbin & Strauss, 2008).

Within this research in-depth interviews and focus groups were chosen for this phase of research, as these techniques provide a more in-depth insight into the research topic, drawing on information provided by expert informants, which for grounded theory is not shaped by prior concepts or theories (Denscombe, 2007; Corbin & Strauss, 2008). A document analysis was then conducted with the purpose of verifying and complementing the data obtained from the interviews and focus group.

3.6.1.1 In-depth interviews

The ten interviews conducted fall into the category of semi-structured interviews, as an interview guide (**Appendix A**) was followed, but with certain flexibility to let the interviewees develop their own ideas in response to the issues raised by the interviewer (Denscombe, 2007). The aim of the interviews was to explore how multinational companies could adopt sustainability into their business strategy, how design and innovation is seen at the strategic level of a company, and how applying the principles of UCD can help global companies to leverage sustainable consumption.

The interview guide comprised ten open-ended questions that had a different purpose depending on who was interviewed and what data had to be explored. **Appendix A** illustrates a sample of one of ten interview guides. To ensure that the interviewee's available time was maximized the interviews were planned to last between 40-60 min. A digital voice recorder was used and notes were made during all interviews, to capture the discussion and gather the data needed.

3.6.1.2 Focus Group

Focus groups are good to explore attitudes and perceptions, feelings and ideas about a topic, as they encourage discussion between participants (Flick, 2007). As such, focus groups lead to insights that might not otherwise come out of a conventional interview (Denscombe, 2007).

A focus group was conducted with six participants of a UCD consultancy to explore strategies and attributes of UCD principles to influence sustainable consumption. The session was stimulated by first giving an introduction to the issues and challenges around consumption and sustainability, as the participants were not very familiar with the subject. Then three questions were asked to trigger a discussion between participants about how design and UCD principles could prove valuable in leveraging sustainable consumption. The layout of the Focus Group can be found in **Appendix B**. A digital voice recorder was also used to gather the data.

3.6.1.3 Document analysis

A Document analysis was conducted to complement the interviews and the focus group. To obtain a robust relationship between UCD principles and sustainable consumption theory in a business perspective, it was important to study where a global company stand towards leveraging sustainable consumption. Corbin and Strauss (2008) agreed that some investigations require the study of documents, newspapers and books as sources of data.

As such, a section of questions and answers related to sustainable consumption from the general public posted on an online webcast during the Unilever Sustainable Living Plan event on November 15th, 2010 were studied. The aim of the document analysis was to report on where global companies such as Unilever stand regarding the path towards sustainable consumption. This document was chosen because since the launch of their Sustainable Living Plan, Unilever has been perceived as an outright leader in sustainability (SustAinability, 2011). Experts such as Jonathon Porritt (2010) recognized that the holistic vision of the Unilever Sustainable Living Plan is their greatest strength as it accounts for environmental metrics within nutrition, hygienic, community investment, educational projects, and employee engagement. **Appendix C** shows the questions and answers from the general public used as a document to be analysed.

3.6.2 Sampling Strategy

In principle, research conducted using grounded theory can use a *purposive sample* of people as they have a unique insight for the research to formulate theory (Creswell, 2007). Thus, different experts were recruited to participate in an interview and specific experts inside the UCD consultancy were asked to participate in the focus group. The participants from the interviews were sourced from different networks such as LinkedIn, the Sustainable Design Network, 2Degrees, and personal networks.

The interviews were carried out with five UCD experts, two experts related to the strategic view of design and sustainability, one expert related to Design for Sustainable Behaviour (DfSB), and two consultants on sustainable business strategy. It is important to mention that during the selection of the

sample of UCD experts, different people that work within UCD were chosen as it was found in the literature that different design approaches fall under the umbrella of UCD. *Table 3-1* presents a list of the participants' description alongside their expertise and the code applied to each participant during the analysis of data.

Table 3-1 Interview participants' description and expertise

Participants' Description	Expertise	Code
Service design researcher and consultant	Expert on service design and Sustainability. This person is interested in working closely together with the end user to develop more collaborative and "open-source" design processes to create lasting solutions.	ReUCD01
User experience consultant and industrial designer	Currently this person is conducting a PhD on interaction design. Its expertise is on user experience and design.	CoUCD01
Director of strategy and operations from a UCD consultancy	Expert on user-center design, software development and research methods.	CoUCD02
Research assistant	Expert on human computer interaction design. Its interests lay on research standards compliant to web design, usability, and interaction design. In the past this person run a web-based module on sustainability.	AcUCD01
Researcher and assistant professor	Expert on design for sustainability and interested in incorporating sustainability within the front end of innovation.	ASaD01
Researcher and consultant on design for sustainable behaviour	Expert on design to change users' interactions with products and systems, to transform them into more environmentally friendly manner.	CoDBh01
Design and sustainability advisor	Expert on talking to business about innovation, design and sustainability.	CoSDaB01
Principal advisor in a business and sustainability consultancy	Expert on advising companies how to implement sustainability in their strategy	CoSaB01
User interaction professor	Expert on Interaction Design.	AcUCD02
Director of a business strategy and sustainability consultancy	Expert on the Natural Step Approach to advice companies about how to implement sustainability in their strategy.	CoSaB02

The consultancy, which with the focus group was conducted lead projects with different types of industry. The researcher chose this specific consultancy as the Senior Operation Manager previously interviewed showed interest in the research project and agreed to have a focus group with the rest of the team. The team consists of eleven consultants, of which six took part as participants on the focus group. The participants were selected according to their position within the consultancy and the activities they carry out. *Table 3-2* outlines the participants and their associated code.

Table 3-2 Focus group participants and their code for data analysis

Participants' Description	Code
Senior designer	Co1UCD
Senior designer 2	Co2UCD
Principal design researcher and strategist	Co3UCD
Senior operation manager	Co4UCD
Director of strategy and operations	Co5UCD
Senior design researcher	Co6UCD

3.6.3 Research Analysis Techniques

Analysing data using a grounded theory approach involves the identification of core elements of a phenomenon to provide an understanding of the underlying principles that explain that phenomenon (Denscombe, 2007).

Gibbs (2007) recommends conducting the analysis as the data are collected. The first stage of analysis involves the coding and categorizing of data. Scrutiny of data allow searching for common characteristics that help to code and gather the data into broader categories, and thus verify developing theories as they emerge (Denscombe, 2007). In grounded theory, the codes and categories are open to change as the research progress. The codes and categories also pass through a persistent process of comparing and contrasting as they emerge (Denscombe, 2007). Corbin and Strauss (2008) called this iterative process theoretical sampling. Theoretical sampling is considered to be a responsive process until theoretical saturation happens, which means that no new evidence emerges (Corbin & Strauss, 2008).

A transcription of the interviews and the focus group was made in order to analyse the data. According to Denscombe (2007) "*transcribing has to be*

recognized as a substantial part of the method of interviewing and not be treated as some trivial chore to be tagged.” A sample of an interview transcription can be found in **Appendix D**, and an example of the focus group transcription in **Appendix E**.

The questions and answers posted on the on-line web-cast were already classified in different topics. The research followed this classification and extracted thirteen different Structural Codes to represent a topic in which the questions and answers of the online web-cast, were classified (*Table 3-3*). (See: *Table 3-4 p73 for a definition of Structural Codes*).

Table 3-3 Structural codes to classify the questions and answers from the Unilever web-cast

Structural Codes
Topic 1: Business strategy
Topic 2: Consumer behaviour change
Topic 3: Consumer communication
Topic 4: Consumption and economic growth
Topic 5: Linking environmental goals with social goals
Topic 6: Legislation
Topic 7: Innovation
Topic 8: Sustainable consumption
Topic 9: Product/service focus
Topic 10: Technology
Topic 11: Stakeholder Involvement
Topic 12: Systemic level change
Topic 13: Understanding People’s motivations

3.6.3.1 Coding System

Coding is how you define what the data you are analysing are about (Gibbs, 2007). Its primary goal is to find repetitive patterns of action and consistencies in human affairs as documented in the data. As such, is not a precise science and it is considered to be an interpretive act (Saldaña, 2009). According to Saldaña (2009), any language based or visual data can be coded. A code in a qualitative inquiry is most often represented with a word or short phrase that exemplifies an attribute or idea for a portion of data (Gibbs, 2007).

Saldaña (2009) acknowledges two cycles of coding strategies:

- First cycle coding methods: those processes that happen during the initial coding of data and are characterised to be simple and direct.
- Second cycle coding methods: more challenging than first cycle coding methods because they require analytic skills such as classifying, prioritising, integrating, synthesising, abstracting, conceptualising and theory building.

Both strategies are comprised of numerous coding methods. First cycle coding methods integrates Grammatical Methods, Elemental Methods, Affective Methods, Literary and Language Methods, Exploratory Methods, Procedural Methods and Thematic Coding. Second cycle methods are comprised of Pattern Coding, Focus Coding, Axial Coding, Theoretical Coding, Elaborative Coding, and Longitudinal Coding (see: Saldaña, 2009 for a complete description of these methods).

The researcher followed both cycles of coding to code the three sets of data – interviews, focus group and document analysis. *Table 3-4* show the type of methods used for each cycle. The coding was carried out manually as it gives more control and ownership of the work (Saldaña, 2009).

Table 3-4 First and Second cycle coding methods. Source: Charmaz, 2006; Corbin and Strauss, 2008; McQueen & Guest, 2008; Miles and Huberman, 1994; Saldaña, 2009; Strauss & Corbin, 1998

First Cycle Coding Methods

Elemental Methods: are considered to be primary approaches to qualitative data analysis. They have focused filters for reviewing the data and they build the foundation for future coding cycles (Saldaña, 2009):

- **Structural coding:** Applies a content-based or conceptual phrase representing a topic of inquiry to a segment of data to both code and categorize the data corpus (MacQueen & Guest, 2008 in Saldaña, 2009).
- **Descriptive coding:** Assigns basic labels to data – most often as a noun - to provide an inventory of their topics (Miles & Huberman, 1994).
- **In Vivo Coding:** is a descriptive term that the interviewee use in the conversation and the researcher borrows it as a code (Corbin and Strauss, 2008).
- **Process coding:** Uses gerunds to connote action in the data. It is used for the purpose of searching for on-going action/interaction/emotion taken in response to situations or problems (Corbin and Strauss, 2008).
- **Initial Coding:** Refers to breaking down qualitative data into discrete parts and do a constant comparison of it to look for similarities and differences (Strauss & Corbin, 1998 in Saldaña, 2009).

Second Cycle Coding Methods

Pattern coding: Are explanatory or inferential codes, once that identify an emergent theme, configuration or explanation. They pull together a lot of similar data into a more meaningful and interpreted unit of analysis (Miles & Huberman, 1994 in Saldaña, 2009).

Focus Coding: Follows a first cycle coding method (Saldaña, 2009). It searches for the most frequent or significant Initial Codes “to develop the most salient categories in the data and requires decisions about which initial code make most analytic sense” (Charmaz, 2006).

Axial Coding: The purpose of axial coding is to relate concepts/categories to each other in order to strategically reassemble data that were “split” or “fractured” during the Initial Coding process (Corbin & Strauss, 2008, in Saldaña, 2009).

Theoretical Coding: Functions like an umbrella that covers and accounts for all other codes and categories formulated so far. Integration begins with finding the primary theme of the research – what is called in grounded theory the “core category”. The aim of Theoretical Coding is to integrate and synthesize the categories derived from coding and analysis to now create a theory (Corbin & Strauss, 2008; Charmaz, 2006 in Saldaña, 2009).

In the first cycle coding process, the researcher mainly applied elemental methods (see Table 3-4 above for a description of this methods), and followed a data-driven approach, in which there is little or no influence of pre-existing theory while coding. This approach is usually called Open Coding or

Initial Coding (Gibbs, 2007; Saldaña, 2009), in which the coding process tries to formulate a general idea of what is happening in the data (Gibbs, 2007). According to Charmaz (2006), Initial Coding prefers to “*remain open to all possible theoretical directions indicated by your readings of the data.*” Within Initial Coding, In-vivo and Process Coding were applied as Saldaña (2009) argues that Initial Coding can employ these types of codes, as they are foundation methods for grounded theory. In addition Descriptive Coding was used to label basic data, which summarizes the basic topic of some passages in the transcripts (Saldaña, 2009). The first cycle coding process followed a line-by-line coding approach. The advantage of line-by-line coding is that the codes are constructed according to the respondents’ experiences but still remain grounded as one reflects on what is happening in the data (Gibbs, 2007). **Appendices D, E, F** illustrates a sample of the Initial Coding of the three sets of data accordingly – interviews, focus group, and document analysis.

The second cycle coding methods started by identifying commonalities between the first codes. Different colours were applied to cluster the identified common codes into major categories. An example of this colour clustering is depicted in *Table 3-5*.

Table 3-5 Colour clustering of codes

PROVIDING 'INFORMATION'	I mean, two weeks ago I was reading a paper about why people does not accept this green technologies, and one of the issues because there is no much information about the environment.
PROVIDING 'INFORMATION'	So you don't know that much, you don't have these news in a magazine,
PROVIDING A 'BETTER KNOWLEDGE'	you don't have a better knowledge,
N/A	people they don't speak about it so I think they do not put so much importance
REASONS OF MISCONCEPTION OF DESIGN: 'ISOLATION OF DESIGN'	because I think one of the problems that I see for design is that we can go back and think how it started and started with eco-design, eco-design is 'I will create this nice furniture and it will be environmentally friendly,' but design was isolated.
COLLABORATION WITH OTHER STAKEHOLDERS	I think we need to talk and speak with other people, not only with the companies also with politicians,
COLLABORATION WITH OTHER 'DISCIPLINES'	and we have to get more involve with other disciplines.

The process of classifying codes into colours can be identified as Axial Coding. Axial Coding goes hand in hand with Initial Coding, as it relates codes and concepts to each other putting back together the data that was broken apart during the Initial Coding (Corbin & Strauss, 2008). Within Axial coding Pattern Coding, Focus Coding, and Theoretical Coding techniques (see Table 3-4 above for a definition of these type of codes) were then applied to progress towards building categories and themes from the data (Saldaña, 2009). In this process some clusters of coded data were found, and thus were refined into sub-categories of major categories. Figure 3-3 depicts an example of this process.

THEME: UCD ATTRIBUTES

CODE *qua* CATEGORY: TESTING AND LEARNING FROM TESTING

Sub-categories: TESTING WITH CONSUMERS

ENSURING BETTER PRODUCT/SERVICE DESIGN

TESTING AND LEARNING FROM TESTING	First you have our aim, you design something, imagine we are starting from the design, you design you test it, you learn from the test (you test with user). You have some hypotheses here whether the design is good or not, you test those hypotheses with users you learn for that and then you re-define the design After that you test again and you refine the design.
ENSURING BETTER PRODUCT/SERVICE DESIGN	And at the end you have a better product.
TESTING WITH 'CONSUMERS'	Maybe trying to test those business opportunities in consumers,
ENSURE BETTER PRODUCT/SERVICE DESIGN	so by using usability methods you might created a better product that would be easier to use and therefore you don't have to change it that often.

Figure 3-3 Process of coding and clustering into major categories and sub-categories

The coding method was iterative as it developed and evolved continuously. As coding one set of data, the next data coded could influence the first as a constant comparison was made. Thus, the coding progression was not linear as codes evolved throughout the coding process. Nevertheless for the purpose of simplicity, Figure 3-4 depicts the coding progression.

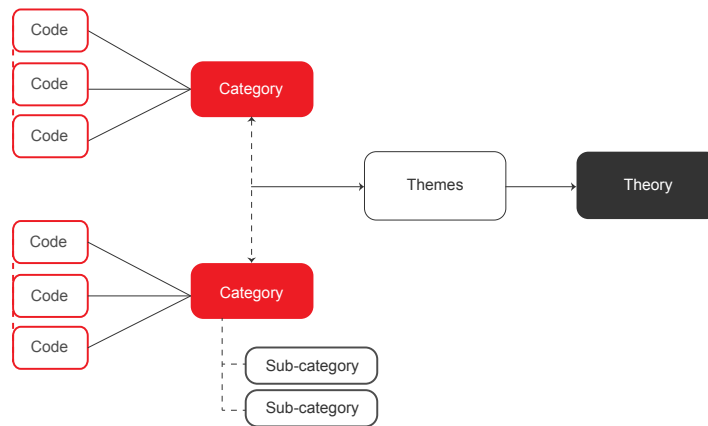


Figure 3-4 Linear representation of the coding process. Modified from: (Saldaña, 2009)

In addition, for each theme created an analytic memo was written to record the codes, categories and sub-categories that helped to formulate that theme. Analytic memos are used to document as a written record the reflection and analysis of the coding process and the code choices (Gibbs, 2007).

The memos written were specifically used to write about the code choices and their operational definitions, to reflect about the patterns, categories, and themes; and to reflect about the possible connections among the codes, patterns, categories and themes (Saldaña, 2009). Each memo was identified with a code number according to the set of data that was analysed, and with the date that the memo was created. According to Corbin and Strauss (2008), identifying memos with these characteristics will help later to identify and retrieve the data for further analysis. **Appendices G, H, I** represents a sample of an analytic memo written for an interview, for the document analysis and the focus group accordingly.

3.6.3.2 Triangulation strategy

The findings of the research from the different sources of data were triangulated as Saldaña (2009) proposes that this technique is similar to theoretical sampling, which is applied in grounded theory. Triangulation refers to comparing different sorts of data against each other in order to develop theory (Flick, 2007). A within method triangulation was used to compare the findings from the interviews. Then a cross-triangulation of the latter findings with the findings of the focus group and the document analysis was conducted.

The initial findings accounted for different themes and focused codes identified for each set of data i.e. interviews, focus group, and document analysis, described in detail in *Table 3-6*. The findings were based on user-centred design (UCD) principles.

Table 3-6 Finding: Different themes and focused codes identified for each set of data

Interviews
<p>Themes:</p> <ul style="list-style-type: none"> • UCD attributes to influence sustainable consumption • UCD strategies to influence sustainable consumption • Tactics <ul style="list-style-type: none"> - Tactics to influence sustainable consumption - Tactics to understand sustainability at the top level of the company - Tactics to understand design as a strategic tool to leverage sustainable consumption • Conditions <ul style="list-style-type: none"> - To understand sustainability at the top level of the company - To understand design as a strategic tool to leverage sustainable consumption • Drivers to influence sustainable consumption • Considerations to influence sustainable consumption • UCD approaches and methods • Thinking systemically
Focus group
<p>Themes:</p> <ul style="list-style-type: none"> • Tactics to influence sustainable consumption through design / communication strategies • UCD Attributes • UCD Strategies
<p>Focus codes:</p> <ul style="list-style-type: none"> • Attributing the value of design • Government intervention
Document Analysis
<p>Topics' themes:</p> <ul style="list-style-type: none"> • Topic 1: Business Strategy <ul style="list-style-type: none"> - Tactics to grow a sustainable business - Drivers to grow a sustainable business • Topic 2: Consumer behavioural change <ul style="list-style-type: none"> - Tactics to influence consumers' behaviour - Drivers to influence consumers' behaviour • Topic 3: Consumer communication <ul style="list-style-type: none"> - Tactics for consumer communication - Drivers to communicate with consumers • Topic 4: Consumption and Economic Growth <ul style="list-style-type: none"> - Tactics to grow in business and at the same time leverage sustainable consumption • Topic 7: Innovation <ul style="list-style-type: none"> - Tactics to innovate in business and at the same time enable more sustainable patterns of consumption - Drivers to innovate

Topics' focus codes:

- **Topic 4: Consumption and Economic Growth**
 - Breaking the link between growth and environmental degradation
 - **Topic 5: Linking environmental goals with social goals**
 - Halving environmental and social impacts – setting targets
 - **Topic 6: Legislation**
 - Legislation driven
 - **Topic 7: Innovation**
 - Types of innovation to influence sustainable consumption
 - **Topic 8: Sustainable Consumption**
 - Meaning of sustainable consumption
 - **Topic 9: Product/Service Focus**
 - Shifting from products to services
 - **Topic 10: Technology**
 - Using technology
 - **Topic 11: Stakeholder's involvement**
 - Importance of collaboration
 - **Topic 12: Systems level change**
 - Bringing systemic changes
 - **Topic 13: Understand people's motivations**
 - Not being priority for the consumer
-

The cross triangulation of these themes and focused codes resulted in three main conditions, three different types of strategies based on UCD, and six main drivers described in detail in *Chapter 4*. An example of how the data were cross-triangulated is depicted in *Figure 3-5*. This example corresponds to the triangulation of data to get a series of strategies based on UCD to leverage sustainable consumption. The cross triangulation of data first resulted in three sets of findings - i.e. tactics to influence sustainable consumption, UCD attributes and UCD strategies. Further triangulation resulted in the identification of a series of strategies based on UCD to leverage sustainable consumption, which were grouped into two main strategies – i.e. *'bring systemic changes by developing the market'* and *'having an in-depth understanding of consumers' aspirations and behaviours.'*

Strategies based on UCD to Leverage Sustainable Consumption

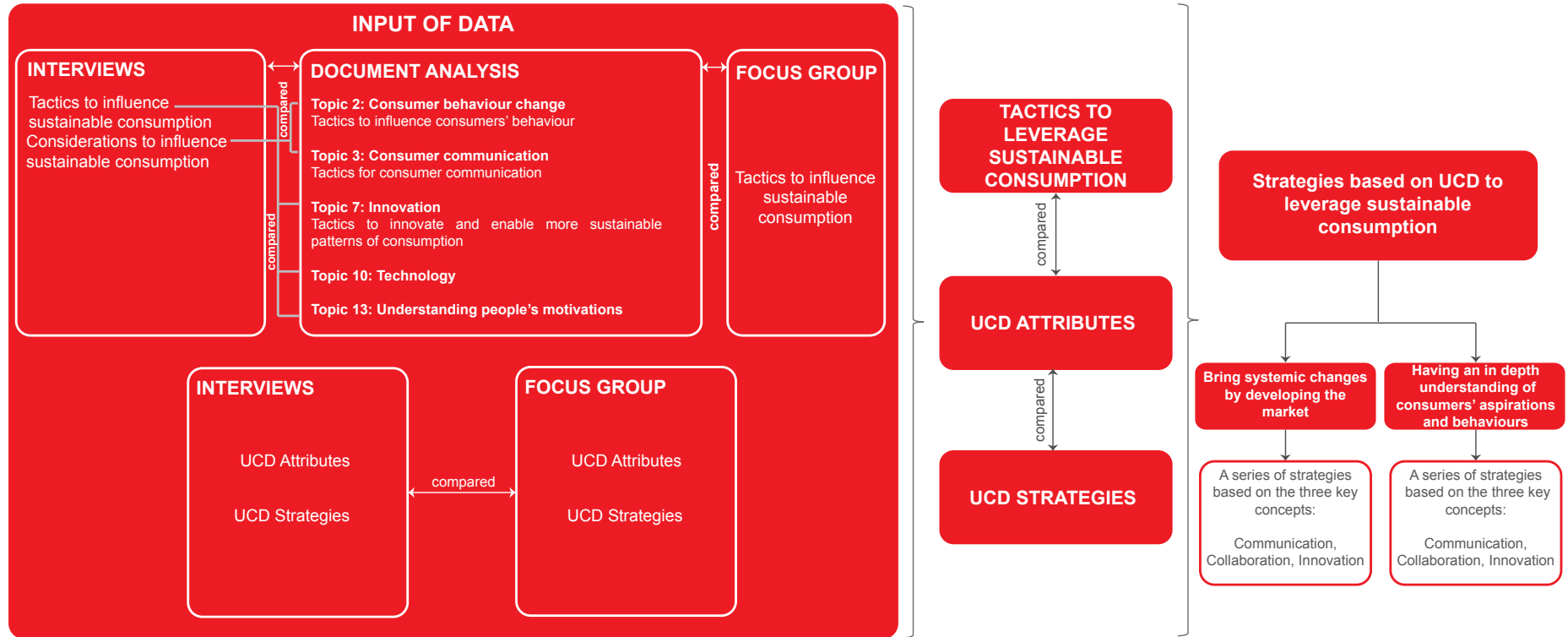


Figure 3-5 Example of cross-triangulation of data

3.7 Phase 4: Model Evaluation

The aim of this phase was to evaluate the model developed through a series of workshops (*Chapter 6*). This research phase intended to answer the last three research questions stated in *Section 3.3* of this chapter, and to achieve *objectives 5* and *6* of this research (*Chapter 1*).

- To evaluate and elicit global companies reactions to the model and appropriate tools previously developed, in order to distinguish further opportunities for improvement.
- To evaluate the potential of the model and tools previously developed towards motivating sustainable consumption.

From the findings described in *Chapter 4*, a theoretical framework was developed. This was used to build the Sustainable Consumption Leveraging (SCL) Model, a mechanism to assist global companies in delivering holistic solutions at a strategic level to leverage sustainable consumption. *Chapter 5* describes in detail the components of the SCL Model (the evaluation criteria, the consumer-focused strategies and a Sustainable Consumption Index). *Chapter 5* also describes how the SCL Model was built upon the theoretical framework. A toolkit (*Chapter 6*) was also developed as a resource that companies could use to apply the SCL Model towards establishing possible actions for leveraging sustainable consumption.

3.7.1 Research data collection techniques

The aim of Phase 4 (*Figure 3-6*) was to evaluate perceptions of the SCL Model and its Toolkit, through the completion of two types of workshops: Refinement of the Consumer-focused Strategies Workshop, and the SCL Model Evaluation Workshops (*described in detail in Chapter 6*).

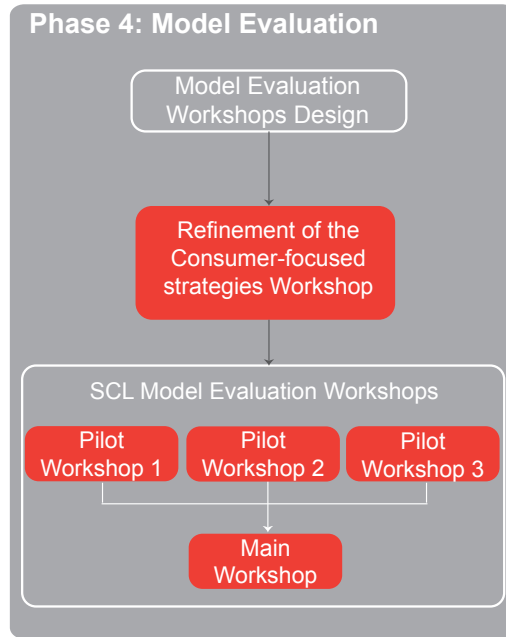


Figure 3-6 Studies conducted as part of the Model Evaluation

Participatory workshops were chosen as a research collection technique for this phase, because they require different people to analyse, share and enhance their knowledge to plan, manage and/or evaluate the development of a project. Different tasks and visual aids can be used to engage participants and capture knowledge (Social innovation eXchange, 2011). Participatory workshops are also characterized by being facilitated. Facilitation is not an easy task, as the facilitator has to remain neutral by listening to all participants' views to engage them in productive conversations. Facilitation involves encouraging participants to explore by making suggestions and offering insights (Smith, 2009).

To conduct the workshops, a toolkit (*described in detail in Section 6.2*) was developed to enable facilitation of the completion of the SCL Model. The researcher facilitated each workshop acting as the moderator with one other individual who helped to operate the equipment, take photographs, manage the time, and to co-facilitate. Being the researcher and a moderator at these sessions allowed guiding and facilitating discussion amongst the participants. However, it was important to remain impartial (Litosseliti, 2003; Gibbs, 1997).

A digital voice recorder was used in both studies to gather the data. Each workshop informed the subsequent workshops in order to iteratively improve the model.

3.7.2 Refinement of the Consumer-focused strategies Workshop

This workshop was designed with the purpose of assessing the best way to use the consumer-focused strategies to prompt participants to develop a brainstorm towards initiatives that could possibly leverage more sustainable patterns of consumption. The consumer-focused strategies form part of the SCL Model, which is outlined in more detail in *Chapter 5*.

3.7.2.1 Planning and developing the workshop

The workshop was conducted as part of the 16th Sustainable Design Network Seminar on Sustainable Consumption. Participants from a range of different disciplines e.g. design, sustainable design, sustainable consumption, and business consultancy were present. Participants were divided into four groups according to their expertise in relation to the areas of the evaluation criteria of the SCL Model – Business Model, Consumer, Design/R&D, and Sustainability - described in detail in Chapter 5. *Section 3.7.2.2* illustrates the sampling strategy and the four groups formed to conduct the activities. The workshop was designed to last approximately two hours and was divided into six activities illustrated in *Table 3.7* and described in more detail in *Section 6.3.1*.

Table 3-7 Brief description of activities conducted

Activities of the Refinement of the Consumer-focused Strategies Workshop	
Activity	Description
Activity 1	Introduction Presentation
Activity 2	Presentation of a case study
Activity 3	Identification of strengths and weaknesses of the case study
Activity 4	Choose the appropriate consumer-focused strategies
Activity 5	Develop ideas
Activity 6	Presentation of ideas developed

As the research followed an iterative process, the findings of the Refinement of the Consumer-focused strategies Workshop are reported in *Section 6.2.2*.

3.7.2.2 Sampling Strategy

A purposive sample of members from business consultants and academia, interested in sustainable consumption was chosen to participate in the workshop. This sample was chosen as their expertise in sustainable consumption, business strategy, and creative thinking could give valuable insights into how to improve the use of the consumer-focused strategies. The workshop was carried out with three experts in social sustainability, two consultants on sustainable business strategy, three experts in design for sustainability, a researcher on business strategy and support, and three experts in sustainable consumption. These participants were also chosen to form four teams according to their expertise in relation to the four areas of the evaluation criteria of the SCL Model (*see section 5.2.1 p.120*), to conduct Activity 4 and 5 of the workshop (*see Table 3-7 above*). *Table 3-8* presents a list of the participants, alongside a short description of their expertise and a code applied to identify each participant during the data analysis.

Table 3-8 Description of participants and expertise from the Refinement of the Consumer-focused Strategies Workshop.

Business Model Team		
Participants' Description	Expertise	Code
Consultant on sustainable business strategy	Expert in implementing the concept of cradle-to-cradle into business strategy	CoBM01
Senior Lecturer	Expert in applying design for sustainability in the textile sector.	AcBM01
Research Assistant	His research looks into innovation in business strategy and support	ReBM01
Consumer Team		
Professor of Sustainable Design and Consumption	Expert in sustainable design and sustainable consumption	AcCo01
Lecturer	Expert in sustainable interaction design	AcCo02
Doctoral Researcher	Expert in consumer ecological footprint	AcCo03
Design Team		
Product Design Student	Expertise in product design	AcDe01
Senior Lecturer	Her research looks at encouraging a more responsible and sustainable approach to the selection of materials used within Knitwear and Textile Design	AcDe02
Doctoral Researcher	Expertise in responsible design. Worked for more than ten years in a Design Consultancy Firm	AcDe03
Research Assistant	Expertise in sustainable design and materials	ReDe01
Sustainability Team		
Research Assistant	Her research looks into more sustainable energy consumption. Also she is interested in social sustainability and design for happiness	ReSus01
Doctorate Researcher	His research looks at design for sustainable behaviour in different cultural contexts	AcSus01
Senior Lecturer	Expertise in social sustainability and how to use design thinking	AcSus02
Consultant on sustainable business strategy	Expertise in implementing the concept of cradle-to-cradle into education	CoSus01

3.7.3 SCL Model Evaluation Workshops

As shown in *Figure 3-6* (p. 82), the SCL Model Evaluation Workshops involved three pilot workshops that then informed the main workshop. These workshops aimed to analyse corporate reactions to the model.

The evaluation of the SCL Model was carried out with four multinational companies. Two different countries were selected to conduct the pilot and the main workshops. The pilot workshops were conducted with three companies based in Mexico. The main workshop was conducted with a company based in the UK. These companies were considered as a sample to evaluate the effects of the SCL Model and its toolkit on multinational companies in these regions, but were not considered representative of these countries.

The sampling strategy followed to choose the companies to work with was based on the findings of *Chapter 4*. The findings revealed certain conditions, which must be present within a company in order to be able to leverage sustainable consumption (see: *Section 4.2.1 p.102*). As such, large companies that have an understanding of the value of integrating sustainability into their core strategy and who recognize the important role of research and development (R&D) in informing their corporate strategy and operations, were selected. To select these companies, secondary data was used to prove that the companies have a global corporate sustainability and innovation strategy set in place.

Section 3.7.3.1 will describe how the participants and the companies were chosen to conduct the pilot workshops and the methodology undertaken. *Section 3.7.3.2* will then describe the main workshop methodology and how participants were chosen. *Section 3.7.3.2* also discusses the reasoning behind the methodological changes made between the two.

3.7.3.1 Pilot Workshops

The pilot workshops aimed to identify corporate reactions to the SCL Model and to assess its application with different configurations so improvements

could be made. As such, the pilot workshops were carried out with three multinational companies from different sectors including; a pet food manufacturer, a breakfast cereal manufacturer; and a large chain of retailers with the purpose of making a comparison between them.

Because of confidentiality issues, it has not been possible to disclose with which companies the model was tested. For this reason, each company was labelled with a code. A brief description is found below to identify them:

- Company 1 (C1): Is multinational fast moving consumer good company with a presence in the market for more than 100 years. It is dedicated to the manufacture of pet food, confectionary, food and drinks. In the last 30 years Company 1 has been committed to mitigating their environmental impacts through their supply chain, operations and brands. It employs 65,000 employees globally and its global revenue in 2011 was \$30 billion dollars. The workshop was conducted with the pet food business division from Mexico and Latin America, focusing on the Mexican market.
- Company 2 (C2): Is a multinational chain of retailers with a strong presence in North and South America, and a presence in various countries of Africa, India and the UK. Their stores are well known for their ability to fit within local customers' needs and desires, with the overall goal of saving people money, so they can live better. It is also considered as leading company in applying sustainability principles within their supply chain. Their stores range from different types of supermarkets, clothes stores, and restaurants to electronic stores, amongst others. It employs 2,100,000 people globally and its global revenue in 2011 was \$42.1 billion dollars. The workshop was conducted with the Mexico and Central America division, focusing on the Mexican market.
- Company 3 (C3): Is a multinational manufacturer of breakfast cereals and snacks with a presence worldwide. In recent years Company 3 has focused on creating strategies for more sustainable agriculture taking into consideration the marketplace, the community and the

environment. It employs 31,000 employees globally and its global revenue in 2011 was \$13.2 billion dollars. The workshop was conducted with the Mexico and Latin America division, focusing on the Mexican market.

The workshops had the same format but were designed in different configurations in relation to the number of participants in each workshop, the level of participants to target in each workshop, and the areas of specialist knowledge represented by the participants. This was with the purpose of assessing the best configuration, as targeting the right area and level of participants was considered a limitation (see: *Section 9.3*). One person inside the company helped to plan the logistics and to choose the right participants for each workshop.

A. Choosing the participants for the pilot workshops

A purposive sample was used to recruit participants within each pilot workshop. For the workshops conducted with company 1 (C1) and company 3 (C3), the participants were chosen from different areas and positions inside the company with the condition that they should fit within the four areas of the evaluation criteria of the SCL Model – Business Model, Consumer, Design/R&D, and Sustainability - (described in detail in *Chapter 5*). It also helped to build a multi-disciplinary team around these areas and to enrich the discussion between participants throughout the activities of the workshop. For the workshop carried out with company 2 (C2), participants with a higher position inside the company related to sustainability but with sufficient knowledge about the other three areas of the evaluation criteria were chosen. These different configurations were designed to assess the level of influence that different levels of participants could have in putting into place strategies to address sustainability challenges and in changing the business model in order to motivate sustainable consumption.

As such, a different number and level of participants were chosen for each workshop. For C1, fifteen participants were chosen including

directors, managers and coordinators, these individuals came from different areas within the business and occupied different levels of responsibility. Participants were divided at first according to the four areas of the evaluation criteria. *Table 3-9* depicts the teams formed according to the areas and positions of each participant. A code was applied to each participant to protect his or her identity. This same code was used during the data analysis.

Table 3-9 Description of participants and teams formed for the workshop conducted with C1

Business Team	
Participants' Description	Code
Purchasing and Logistics Director	BMC101
R&D Director	BMC102
Manufacture Director	BMC103
Corporate Affairs Director	BMC104
Consumer Team	
Packaging Purchase Coordinator	CoC101
R&D Product and Packaging Manager	CoC102
Design Team	
Packaging Manager	DesC101
Product Manager	DesC102
R&D Manager	DesC103
Sustainability Team	
Raw Material Purchasing Coordinator	SusC101
Raw Material Purchasing Coordinator	SusC102
Environmental and Sanitation Coordinator	SusC103
Raw Material Purchasing Coordinator	SusC104
Technician on Environmental Security	SusC105
Factory Manager	SusC106

The workshop conducted with C2 was carried out with three senior managers or directors whose core expertise was in sustainability. *Table 3-10* describes the participants' position and a designated code used during the data analysis.

Table 3-10 Description of participants from the workshop done with C2

Participants' Description	Code
Sustainability and Business Strategy Director	SusC201
Sustainability Senior Manager	SusC202
Sustainability and R&D Senior Manager	SusC203

Finally, for C3, ten participants were chosen from different areas within the company. However, the level of participants was higher than in the workshop conducted in C1 - including directors, senior managers and managers. Participants were divided into teams according to the area of the SCL Model. *Table 3-11* depicts the participants and their teams formed for this workshop. A code was also applied to each participant to protect their identity and for the data analysis. For both, the pilot and the main workshops, new teams were formed to complete some activities described in detail in *Section 6.3.2.1 and 6.3.2.2*.

Table 3-11 Description of participants and teams formed for the workshop conducted with C3

Business Team	
Participants' Description	Code
Quality Director	BMC301
Pull tools Head	BMC302
Corporate Responsibility Manager	BMC303
Consumer Team	
Intellectual Property Consumer Analytics Manager	CoC301
Nutrition Senior Manager	CoC302
Design Team	
Innovation & Snacks Regional Director	DesC301
Innovation Group Brand Senior Manager	DesC302
Sustainability Team	
Agricultural Development Manager	SusC301
Regulatory Senior Manager	SusC302
Safety Manager	SusC303

B. Pilot Workshops methodology

The methodology followed for the three workshops was the same. However, the layout of how the activities were conducted differed between the workshops conducted with C1 and C3 and that conducted with C2, due to the smaller number of participants in C2. The changes in the configuration of how the workshops were conducted between C1-C3 and C2 are explained in *Section 6.3.2.1*.

The workshop was designed to last approximately 4hrs and 30 min and was divided into six activities illustrated in *Table 3.12* and described in more detail in *Section 6.3.2.1*.

Table 3-12 Brief description of activities

Activities of the Pilot Workshops	
Activity	Description
Activity 1	Introduction Presentation
Activity 2	Application of the Evaluative Tool
Activity 3	Identify overall areas of opportunities to improve upon
Activity 4	Use the consumer-focused strategies cards
Activity 5	Presentation of ideas
Activity 6	Presentation of the Sustainable Consumption Index Tool

The evaluation of the model was conducted at the end of each pilot workshop. A questionnaire was applied and answered in three stages (**Appendix J**). The first two stages were completed directly after the workshop, in person, the third, three months afterwards. The first stage of the questionnaire, which was completed by the whole group, consisted of answering five questions concerning the relevance, clarity and benefit of the workshop using a rating scale of 1 to 5 as seen in **Appendix J**. Rating scales have proven particularly useful in indicating attitudes or opinions on a particular issue (De Vaus, 2002) therefore, were considered appropriate in this context. Each question was presented to the group and each participant had cards numbered 1-5 with which to answer the question. The second part of the questionnaire consisted of answering five open-ended questions as individuals. These questions explored participants' positive and negative perceptions of the workshop and its toolkit, future use and the possible application of ideas in the future. This part of the questionnaire gave participants' an opportunity to extend his or her thoughts and views about the model. Finally, in the third stage an electronic survey consisting of five open-ended questions was sent to the main contact of the company three months after the workshop was conducted. The aim of these questions was to explore whether, and to what extent, the ideas generated in the workshop had been expanded upon or implemented. A copy of each stage of the questionnaire can be also found in **Appendix J**.

3.7.3.2 Main workshop

The main workshop (see *Figure 3.6, p. 82*) was conducted with a leading pharmaceutical, health and beauty retailer and manufacturer with an international presence in Europe, Asia, Africa and USA. It employs over 116,000 employees globally and its global revenue in 2011 was £25.4 billion. For many years this company has implemented environmental sustainability principles into their product development strategy and operations. One of their foremost achievements was to develop their own sustainability indicators to reduce the footprints of their products as part of their Product Sustainability Strategy. The workshop was conducted with the UK division focusing on its product, brands, and shops. To identify this company the code C4 was allocated.

As the research followed an iterative process, reflection on the findings of the pilot workshops (*presented in Section 7.2.5*), led to changes in the format and configuration of the workshop methodology, which was subsequently adopted within the main workshop. A description of how the participants were chosen is explained below. An explanation of how the format changed for the main workshop in comparison to the pilot workshops is described in *Section 6.3.2.2*.

A. Choosing the participants for the main workshop

For the main workshop a purposive sample was selected. Based on the findings of the pilot workshops (*Section 7.2.5*) multi-disciplinary teams that covered different areas of specialist knowledge that fit within the four areas of the evaluation criteria of the SCL Model and that have certain power of influence were deemed most suitable for participation. As such, the participants chosen to conduct the main workshop with, were part of the sustainability champions programme that company 4 (C4) implements between its employees to influence more sustainable practices within the company. The levels of participants were senior managers and managers.

As in the pilot workshops, participants were divided at first according to the four areas of the evaluation criteria. However, recruiting the ideal

number of participants (at least eight) to conduct the workshop was a limitation. Therefore three participants who were knowledgeable on sustainability and the business model were in the same team and completed Activity 1 and 2 described below. *Table 3-13* depicts the teams formed according to the areas and positions of each participant. A code was also applied to each participant to protect his or her identity. This code was also used as part of the data analysis.

Table 3-13 Description of participants and teams formed in the workshop with C4

Bussiness and Sustainability Team	
Participants' Description	Code
Sustainable Development Manager	BMSusC401
Energy Manager	BMSusC402
Energy Team	BMSusC403
Consumer Team	
Brand Management	CoC401
Brand Management 2	CoC402
Design Team	
Packaging Technology	DesC401
Packaging Technology	DesC402

B. Main workshop methodology

The methodology followed for the main workshop was influenced by the findings of the pilot workshops, reported on *Chapter 7*. As a result, instead of having one session of 4hrs30min as initially the workshop was designed for, the main workshop was conducted in two sessions of 2hrs15min (see *Table 3-14* for a description of the activities conducted in the two sessions).

Table 3-14 Activities of the Main Workshop

Activities of the Main Workshop	
First Session	
Activity	Description
Activity 1	Introduction Presentation
Activity 2	Application of the Evaluative Tool
Activity 3	Identify overall areas of opportunities to improve upon
Second Session	
Activity 1	Choosing the areas of opportunity to work on
Activity 2	Introduction to the sustainable consumption index and applying the consumer-focused strategies
Activity 3	Presentation of ideas

The reason to divide the workshop into two sessions was that the findings from the pilot workshops described in *Section 7.2.5*, revealed that having two sessions could help to improve the methodology of the SCL Model Evaluation Workshop. This is because some participants of the former workshops perceived that only one session could be “*ambitious to complete all the tasks...[as, some] participants lost the objective [of some of the activities]*” (CoC101, BMC103).

To conduct the workshop, the same toolkit (*described in detail in Section 6.2*) used in the pilot workshops was applied. The activities of the workshop and its changes in respect to the pilot workshops are described in *Section 6.3.2.2*.

The evaluation of the model was conducted with the same questionnaire applied in the pilot workshops (**Appendix J**). However, the individual part of the questionnaire also explored the perceptions of participants of having two sessions rather than one.

3.7.4 Research analysis techniques

For the evaluative studies analysis, a thematic approach was taken. Thematic coding analysis is an approach to analyse qualitative data “*that can be used as a realistic method to report on experiences, meanings and reality of participants*” (Robson, 2011 p.474). To carry out the analysis, a transcription of each workshop was produced. **Appendix K** shows a partial transcription of a workshop.

The analysis followed three testing cycles of the model. First, the coherence of the consumer-focused strategies was assessed. This analysis led to the identification of improvements to the consumer-focused strategies. Then, as part of the SCL Model Evaluation Workshops, the pilot workshop assessed the SCL Model by looking for participants’ perceptions about the model and their understanding of it. In addition, the pilot workshops’ analysis explored how participants used the SCL toolkit. This informed the main workshop by identifying further improvements to the model, its toolkit and the workshop methodology. Finally within the main workshop analysis, the potential of the

ideas generated at these workshops in motivating sustainable consumption was assessed.

The thematic coding analysis followed a concept-driven coding system in which categories and concepts were already predetermined by the researcher. According to Gibbs (2007 p.44), “*concept-driven codes may come from the research literature review, previous studies, pre-determine topics or hunches the researcher has about what is going on in the data.*”

To code the data, Miles and Huberman (1994) recommend using a master code and consequently sub-codes in the form of levels. Master codes attach labels to groups of words, which are considered as primary themes. Following sub-codes or levels of coding are grouped within primary themes allowing the researcher to illustrate the complexities of the data (Miles and Huberman, 1994). In this manner the data was labelled manually with primary themes and then with consecutive codes. In addition, to some of the master codes, an evaluation code such as a mixture of symbols (+ and -) and words (REC, WELL, BAD) were added to indicate evaluative content of the data (see Saldaña, 2009 p 99).

The coding technique helped to categorize the data “*to establish a framework of thematic ideas*” (Gibbs, 2007 p.38) about what was in the data. *Figure 3-7* illustrates how the data was coded.

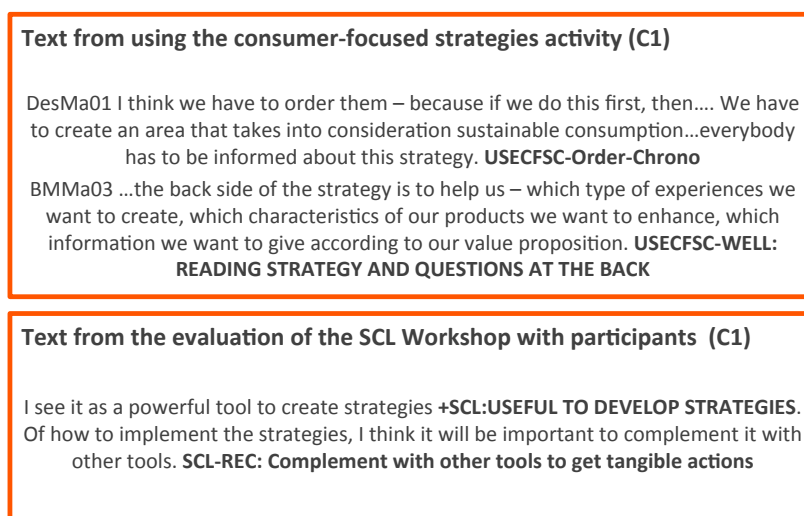


Figure 3-7 Example of thematic coding from the workshop done with C1

For example, *USECFSC-Order-Chrono* is comprised by “Use of the consumer focused strategy cards”, which is the master code, and the sub-codes *Order* that means “select strategies to order them in a particular way” and *Chrono* that means “order the strategies in chronological phases”.

The following codes presented in *Figure 3-7*:

- USECFSC-WELL: Reading Strategy and Questions at the back,
- +SCL: Useful to develop strategies,
- SCL-REC: Complement with other tools to get tangible actions,

are comprised of a master code followed by an evaluative code such as WELL that means Well Understood, a plus (+) sign that means a positive comment or REC that is a Recommendation. A descriptive code is also added to note an evaluative comment. **Appendix L** accounts for a full list of codes and their meaning.

Integration and interpretation of the data is important to demonstrate quality of the analysis (Robson, 2011). To interpret the data, Miles and Huberman (1994, p. 245) recommend a wide range of tactics to generate meaning from data. The tactics used in this research were counting and making contrasts and comparisons. Counting helps the researcher to see what is in the data by looking at the frequency of occurrence of recurrent events (Robson, 2011; Miles and Huberman, 1994). Making contrasts/comparisons helps the researcher to establish similarities and differences between and within data sets (Robson, 2011; Miles and Huberman, 1994).

The process of interpretation followed was by counting the number of times certain codes appeared, the number of participants having the same positive/negative comments, the number of times participants understood or misunderstood something, the number of participants making similar recommendations to improve upon, and the number of times participants used certain consumer-focused strategies. In addition, for the SCL Model Evaluation Workshops, a comparison between workshops was conducted to establish similarities and differences in the way participants understood and

applied the model and its toolkit, and a comparison of the ideas generated to assess their potential in motivating sustainable consumption.

3.8 Validity and Reliability

Validity and reliability of results are critical for the credibility of the outcome of the research design (Creswell, 2007). Gibbs (2007) mentions four techniques – triangulation, respondent validation, constant comparison and evidence - that can address the validity and accuracy in qualitative research. The way in which these four techniques were applied in the different phases of this research is explained below:

A) Triangulation: *Section 3.6.3.2* describes the triangulation strategy undertaken to analyse the findings of Phase 1: Theory building (see *Figure 3-5 p.80*) of this research. According to Flick (2007), triangulation can contribute to ensuring quality of the research findings as it produces knowledge at different levels.

B) Respondent validation: Transcriptions involve interpretation of what the respondent is saying, thus checking for accuracy with the interviewee after producing the transcription, or after analysing the data could help to validate the quality of the inquiry (Gibbs, 2007). As such, the researcher applied respondent validation in Phase 1 by informing all the interviewees and participants of the focus group of further developments of the research, and asked for their feedback. Respondent validation was also applied in Phase 4: Model Evaluation (see *Figure 3-2 p.66*), by sending a summary of the outcomes of the pilot and main workshops to the main contact of each company and asking him or her to answer a follow up questionnaire three months after the workshop was conducted.

C) Constant comparison: Involves comparing and contrasting data to bring out what is distinctive about the text and its content. The idea is that the comparisons are constant as they continue throughout the analysis and are used, not just to develop theory and explanations, but also to increase the richness of description in the analysis (Gibbs, 2007).

The researcher followed an iterative comparison process in Phase 1 and Phase 4 of this research as described in *Sections 3.6.3 and 3.7.4*.

D) Evidence: This describes the means by which to demonstrate how the data were collected and interpreted. This could be done by providing evidence to the reader in the form of quotations from gathered documentation (Gibbs, 2007). In *Chapter 4, 6 and 7* quotes derived from the interviews, focus group, and the workshops transcripts, as such as from the workshop participants' questionnaires were used to contextualise the setting of the analysis.

In addition, Gibbs (2007) recommends listening to the audio recording and looking at the transcription several times to avoid discrepancies in the data. Finally he recommends writing memos to avoid inconsistencies in the analysis. These procedures were carried out as described in *Section 3.6.3.1*, to ensure reliability and consistency of this enquiry.

3.9 Ethical considerations

Social researchers should adopt an ethical approach to their investigation while collecting and analysing data, and when disseminating the findings (Denscombe, 2007). Researchers are expected to respect the rights and dignity of those participating in the research, avoid any harm which may arise from the participants involvement on the research, and act with honesty and integrity at all times (Denscombe, 2007).

With this in mind, the researcher followed confidentiality and privacy procedures to protect the anonymity of the informants under the Data Protection Act (1998). Gibbs (2007) recommends providing relevant information about the research to all participants. The researcher followed this counsel and gave an information sheet to all participants from the interviews and focus group stating the purpose of the project and the procedure of the participant's role in it, including to the right to withdraw from the research before, during or after the enquiry. **Appendix M** shows a sample of a participant information sheet for the interviewees and **Appendix N** illustrates the participants' information sheet for the participants of the focus group.

The strategy followed to approach the interviewees was sending out the information sheet and interview guide beforehand (see: **Appendix A and M**). If the participant accepted to be involved in the research, he/she forwarded written consent prior to the interview, being interviews conducted by video conferencing or phone. To keep the data anonymous, an acronym according to each participant expertise was given while doing the analysis (see *Table 3-1 p.70*).

The approach followed with the UCD consultancy was to prepare the focus group with the involvement of the director of strategy and operations. This provided an opportunity not just to get feedback beforehand but also to ensure that the data collected fulfilled the purposes specified. The information sheet was distributed prior to the session and written consent from all participants was received. When processing the transcript, an acronym was given to each participant to keep the confidentiality of the data.

In addition, ethical considerations were also taken into account when conducting the two Model Evaluation Workshops in Phase 4 of this research. In the Refinement of the Consumer-focused Strategies Workshop, participants were informed during the workshop of the purpose of the study and their role in furthering the research enquiry. Participants were also informed that their anonymity would be preserved and that they had a right to withdraw from the study at any time.

To contact the companies to conduct the SCL Model Evaluation Workshops, an information sheet was given to a main contact in the company. This document gave information about the research and the researcher; and outlined the purpose of the study, the benefits of participating, the layout of activities to follow during the workshop, the type of results to be obtained, and their rights to withdraw before, during or after the enquiry. Alongside the information sheet, a consent form was given. The researcher and a person representing the company signed the consent form. **Appendix O** shows an example of the information sheet and the consent form delivered to each company. Following the confidentiality and privacy procedures to protect the anonymity of the informants under the Data Protection Act (1998), before

starting each workshop, participants signed a personal consent form. **Appendix P** also illustrates the personal consent form signed by each participant.

4 Findings - Phase 1: Theory Building

4.1 Introduction

The literature review in *Chapter 2* set the background of this research project and informed Phase 1 of the research by providing an understanding of the complex factors of sustainable consumption and the challenges that multinational companies face to leverage sustainable consumption. Thus, the main findings of this phase accounted for a more holistic and strategic consumer-focused approach in which global companies will be able to leverage sustainable consumption. This holistic approach was adopted as the findings of both the interviews and focus group indicated a relationship between systems thinking and design, in which design could aid global companies to understand the system in which consumption takes place, to foresee problems, barriers, and impacts that will help companies to prioritize sustainability actions, and implement strategies to develop feasible solutions.

"I will explain what system thinking is, by using design. Design is seen as a system. So the idea of system design is to see how the system works, to see in which part you are so you can learn where the problem is to find a solution" (CoUCD01).

4.2 Findings from the data collection

The initial findings were interpreted as different themes and focused codes identified for each set of data i.e. interviews, focus group and document analysis. The cross triangulation (explained in *Section 3.6.3.2*) of these themes and focused codes resulted in three main conditions (*Section 4.2.1*), three different types of strategies based on user-centred design (SboUCD) (*Section 4.2.2*), and six main drivers (*Section 4.2.3*). *Figure 4-1* depicts a summary of these findings, and how they are related to the theoretical framework. The theoretical framework consisted on three key concepts - communication, collaboration and innovation - found in the literature review (*Section 2.10*), which were further explored in this phase of research.

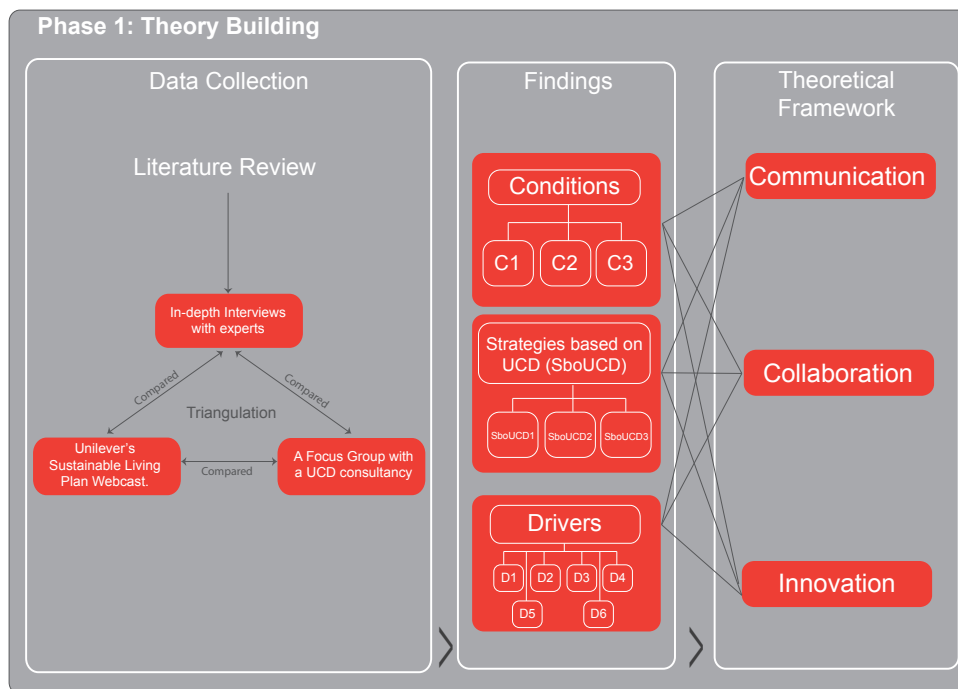


Figure 4-1 Summary of findings depicting Phase 1 of Research

4.2.1 Conditions

In the context of this research, conditions can be understood as the circumstances that should be embedded in the strategic business view, to define the organizational structure and the operations to be run by a company. Three conditions to be performed by companies in order to influence sustainable consumption were found. These conditions are explained below.

Several interviewees (CoUCD01, CoUCD02, AcUCD02, ReUCD01, CoSaB01, CoSaB02, CoSDaB01) agreed that in order to leverage sustainable consumption, it is necessary to understand sustainability at the top level of a company and to view design as a strategic tool to leverage sustainable consumption, as there was a general consensus that *“within organisations they do not understand the value of design and sustainability as mechanisms that could bring new opportunities”* (CoSaB02).

In the case of sustainability, the discussion centred on the argument that if companies do not see direct opportunities resulting from the application of

sustainability principles into their business, they will not be recognise and appreciate the value of sustainability.

“Often does not happen necessarily that organization will consider sustainability as a significance opportunity to the business” (CoSaB02).

In general, the discussion also focused on the mismatch between what companies are saying about their corporate responsibility and the actions they are taking towards ensuring corporate responsibility.

“We found that companies are using the green message to help sell their products. But their products are not necessary very green” (CoSaB01).

With respect to design, the arguments were based on the idea that there is a limited understanding of the capabilities of design as a strategic tool.

“They know that they use design, they understand that they design their products...and that they have a logo, but it is unusual if they understand design as strategic part of their business” (CoSDaB01).

Also there was a consensus that the problem of having a limited understanding of design as a strategic tool is because the designer does not contribute to communicating the value of design.

“Designers are super visionary people so they really need to be here, at the top. But designers they do not want to do it, they want to be in the bottom, they like to think pretty” (CoUCD02).

Three conditions regarding design and sustainability were formulated to help multinational companies to set targets consummate with their business strategy and vision, and define the operational structures and mechanisms to leverage sustainable consumption. The conditions were developed according to the three key concepts: communication, collaboration and innovation (*Table 4-1*).

Table 4-1 Description of the three conditions for global companies to leverage sustainable consumption related to the three key concepts of the theoretical framework

Three conditions for global companies to leverage sustainable consumption

Condition 1 (C1): Related to communication

Design and sustainability have to be embedded at the strategic level of a company, to enable the company to find and communicate business benefits and opportunities

Condition 2 (C2): Related to collaboration

By analysing and prioritising sustainability actions, companies will be able to align sustainability with their company's ambitions. Then, through collaborating internally and externally, they will be able to analyse which consumption phases need to be addressed, and ultimately understand which factors motivate consumers

Condition 3 (C3): Related to innovation

By thinking of design as an intellectual process, companies will be able to facilitate design thinking through the company's own values, and thus enhance innovation

As seen, each condition is related to each of the three key concepts. For example it was found that communication was required to spread the benefits of applying design "thinking" and sustainability so they can be embedded at the strategic level of a company.

"I think designers need to talk and speak with other people, not only with the companies also with politicians" (CoUCD01).

"If you want a sustainable product in the future is not going to be the product that just one company came about with the solution, it will be with the connectivity between lots and lots of organizations that understand that and have clear that language of what sustainability is" (CoSaB02).

Collaboration was also found as important to analyse the consumption phases to be addressed and to design feasible solutions that can motivate people to consume more sustainably. However, the degree of involvement will depend on the objectives each project wants to achieve.

"Stakeholder involvement I actually think is very useful, multi-disciplinary teams can be very good, depending on the team...and ...depending on the project" (AcUCD01).

Finally innovation was also considered as important to enable sustainable consumption. However, this would not be possible if design is not considered

as an intellectual process that facilitates design thinking to enhance innovation.

“In a client driven approach, designers think about design as a noun not as a verb, not as a process, not as a thinking process, just like an artefact. So our idea of what we do in here is to sell the process to as much people as possible so they understand the value of design”
(CoUCD02).

To leverage sustainable consumption companies will need:

- To understand the value of integrating sustainability into the core strategy of the company and,
- To recognize the importance of design and research and development (R&D) as a strategic tool for continual improvement to leverage sustainable consumption.

The findings identified three conditions (*Table 4-1*) that companies should consider before embarking themselves into the journey of leveraging sustainable consumption. These conditions are related to the three key concepts of communication, collaboration and innovation, which were identified in the literature review (*Section 2.10*) and formed the theoretical framework of this research.

4.2.2 Strategies based on user-centred design (SboUCD)

The relationship between user-centred design (UCD) principles (early focus on users, empirical measurement, and iterative design) and sustainable consumption in a business context was studied. From this relationship, three sets of strategies based on user-centred design (SboUCD) were found:

- Strategies based on user-centred design 1 (SboUCD1): To understand and embed sustainability at a strategic level of a company,
- Strategies based on user-centred design 2 (SboUCD2): To understand design as a strategic tool to leverage sustainable consumption
- Strategies based on user-centred design 3 (SboUCD3): To leverage sustainable consumption (SboUCD3).

For SboUCD1 a main strategy was *‘to develop new business models’*. Four respondents (CoSaB02, CoSDaB01, AcSaD01, ReUCD01) indicated that sustainability could drive innovation through building new business models:

“We will develop new ways of doing business with the aim of doubling the size of our company while at the same time reducing our environmental and social impacts” (Unilever’s online webcast)

From this main strategy a series of sub-strategies related to the three key concepts of the theoretical framework were developed (see *Table 4-2*).

Table 4-2 Sub-strategies to develop new business models

Developing New Business Models
Communication strategy
Communicate the value of sustainability throughout the company so there is a common understanding within the management and the operations
Collaboration strategy
Collaborate with stakeholders to spread the value of sustainability and study the current infrastructure to define the processes, actions, resources and partnerships that can lead more sustainable businesses.
Innovation strategy
Innovate by looking at key functions of the product/service to understand possible social and environmental impacts and thus find areas of opportunity

As illustrated in *Table 4-2*, in order to develop new sustainable business models, companies will have to set strategies that enable them to communicate the value of sustainability throughout the company.

“Companies need to set in place systems and metrics that actually communicate how sustainability could add into the overall value of an organization. Saying that on an operational basis, you often have a bit more of control over how sustainability can influence what is happening, because there could be the option that they may or may not know more about sustainability” (CoSaB02)

There was a general consensus through all the findings that collaboration is also essential. For example, by studying the case of Unilever, they are trying to set new business models to achieve sustainability goals, through their Sustainable Living Plan. However, they recognize that if they do not work with other stakeholders they will not be able to achieve their goals.

“We will continue to engage with other stakeholders through one to one meetings, through industry associations and through participating in joint initiatives to help deliver our plan into action.” (Unilever’s online webcast)

Innovation will be also needed to deliver optimal products and services that target key social and environmental impacts. For example, Unilever recognizes that “*design and innovation will play a pivotal role in enabling more sustainable patterns of consumption*” (Unilever’s online webcast).

In addition, a main strategy for SboUCD2 was also devised from the cross-triangulation of data. This main strategy was ‘*applying lateral and creative thinking*’ as it was agreed by four interviewees (ReUCD01, AcUCD02, CoSDaB01, CoUCD02) that design should be seen as a facilitator process.

“*So the designer should become a little bit more like a facilitator rather than a designer*”
(ReUCD01).

To apply lateral and creative thinking in order to leverage sustainable consumption through communicating, collaborating and innovating, a series of sub-strategies (*Table 4-3*), drawn from the data, could be used.

Table 4-3 Sub-strategies to apply lateral and creative thinking

Applying lateral and creative thinking
<p>Communication strategy</p> <p>Communicate the value of design thinking by inspiring and challenging decision makers and other people inside/outside the company.</p>
<p>Collaboration strategy</p> <p>Collaborate with multi-disciplinary teams inside and outside the company to spread the value of design thinking to enhance innovation.</p>
<p>Innovation strategy</p> <p>Find a correlation between the consumer and the business objectives through applying UCD principles to enable innovation.</p>

As explained in *Table 4-3*, to apply lateral and creative thinking, companies will need to communicate the value of design thinking, as three of the interviewees agreed (CoUCD01, CoUCD02, ReUCD03) “*Designers do not want to challenge decision makers. However, the design discipline has to challenge them, we have to say - the system is wrong, we have to come up with new challenging ideas -*” (CoUCD01). In addition to applying lateral and creative thinking, designers should use design to communicate with people

inside and outside the company, as *“designers are capable of creating interesting pieces of communication, as well as interesting products and services to help people understand the value of design thinking”* (CoSDaB01).

To apply lateral and creative thinking it is important that people inside and outside the company understand the value of design thinking in order to innovate, as sometimes communicating is not enough and collaborating will be essential. Thus, sometimes it is important *“to create a team that includes all the stakeholders, all the relevant people that you can, ...then run... a design thinking process with them, so they can understand the value of design”* (ReUCD01).

Part of applying lateral thinking and creative thinking will depend on the capabilities of a company to innovate. In order to innovate, companies can apply UCD principles to find a relationship between what consumer's do or want, and the business objectives to be achieved.

“My first impression of this is that the designer is caught in the middle between the consumer and the business...so it is not easy to make a decision from the design perspective... as they are very restricted sometimes... so I think is just about finding a good relation between the consumer and business to show there is something... UCD can help to find this relation...[to open a space]... for innovation” (Co2UCD).

Two main strategies were found as part of SboUCD3. The first main strategy was *‘bring systemic changes by developing the market’* as *“there are market segments where there are opportunities to bring systemic changes that you wouldn't realize that they were there, if you solely look at one angle”* (CoDfBh01).

In order to achieve this, *Table 4-4* shows a series of sub-strategies that can be applied by companies.

Table 4-4 Sub-strategies to bring systemic changes by developing the market

“Bringing systemic changes by developing the market”

Strategies related to communication

1. Empower consumers
2. Communicating through the company’s brands
3. Providing confidence to the consumer
4. Having an effective behaviour change message that:
 - Provides information which is accurate, simple and straightforward,
 - Creates awareness so consumers can make more informed decisions,
 - Triggers behavioural change of consumers,
 - Uses different communication channels to reach the user,
 - Enables partnerships with collaborators to deliver efficient educational programmes and campaigns,
 - Communicates sustainable attributes of the product/service, to make them interesting to the consumer
 - Positively motivates consumers, and
 - Considers economic and social costs to the consumer
5. Assess the effectiveness of campaigns by having follow-up programmes
6. Use communication platforms and mobile technology to obtain two-way feedback
7. Looking into actual trends in “consumer markets”

Strategies related to collaboration

1. By involving different stakeholders to develop a project
2. By working in partnerships in roundtables and boards e.g. Rain Forest Alliance
3. By influencing other actors through promoting awareness and optimism
4. By having common objectives and listening to different views

Strategies related to innovation

1. Apply visible/invisible interventions
 2. Apply technological interventions
 3. By developing interactions between products/services and the consumer
 4. By developing optimal product/services and testing them with the consumer to get feedback
 5. Through creating consumers’ experiences
 6. By seeing products/services as problem solvers
-

As seen in *Table 4-4*, to develop the market, seven sub-strategies were found in order to communicate with consumers. Communication will be needed to find consumer’s motivations, as sustainability tends not to be consumers primary motivation.

“I am a bit sceptical that there is some special environmental sense in consumers. I think there is always something else. Even if you start caring about the environment because you want a good world for your grandchildren, that still something else rather than just caring for the environment” (CoDfBh01).

In addition, three participants from the focus group (Co3UCD, Co5UCD, Co6UCD) agreed *“that communication platforms and mobile technologies can aid companies to engage with consumers to know more about them, as they provide a two-way feedback between the company and the consumer”* (Co5UCD).

Multinational companies do not operate in isolation, thus they need to collaborate with consumers, other stakeholders -e.g. governments, other companies and NGOs- and within multi-disciplinary teams in order to bring systemic changes. Unilever recognize this by saying, *“We operate in a very competitive industry, but the reality is that many of these challenges cannot be addressed in isolation”* (Unilever’s online webcast). Four sub-strategies were found which could aid collaboration externally (*Table 4-4*).

To develop the market it will be necessary to influence consumers’ behaviour through innovating in the value proposition. Thus different levels of innovation will be needed according to what the company wants to achieve.

“Influencing consumer’s behaviour will depend on innovating in the value proposition”
(Co1UCD).

As described in *Table 4-4*, six sub-strategies based on UCD principles were devised in order to innovate.

The second main strategy for SboUCD3 was *‘having an in-depth understanding of consumers’ aspirations and behaviours’* as it was considered that understanding of consumers will help companies to design optimal products, services and business models that meet consumer’s needs. Unilever recognizes this by saying *“Having an in-depth understanding of consumers’ aspirations and behaviours helps us to design products, which better meet consumer’s needs”* (Unilever’s online webcast).

Table 4-5 illustrates a series of sub-strategies based on the three key concepts of the theoretical framework that can be applied to have an in-depth understanding of consumers’ aspirations and behaviours.

Table 4-5 Sub-strategies to have an in-depth understanding of consumers' aspirations and behaviours

Having an in-depth understanding of consumers' aspirations and behaviours

Strategy related to communication

Communicate with consumers in order to have an in-depth understanding about their perceptions to assess the strategic options that a company has to leverage sustainable consumption.

Strategy related to collaboration

Collaborate with consumers and other stakeholders in the design process to gain more knowledge about the consumer that will help to identify consumers' motivations, perceptions and their overall experiences to design optimal products/services/business models.

Strategy related to innovation

Innovate in the value proposition to deliver the same performance, price and convenience that consumers' are used too, but with the overall aim of leveraging sustainable consumption.

It will be necessary to align pro-sustainability products/services attributes with consumers' needs in order to communicate these attributes to consumers and be able to assess the possibilities to influence them. Unilever recognize the latter by saying that *“designing affordable, accessible and easy-to-use products that meet consumers needs is also very important as this enhance communication with consumers to encourage them to change their behaviour”* (Unilever's online webcast).

Unilever also recognized that *“collaboration is critical in developing and delivering some of their major sustainability commitments that involved changing consumers' behaviour.”* Finally while innovating, it is important to have an in-depth understanding of consumers' aspirations and behaviour, in order to offer the same performance, price and convenience to consumers; as it was recognized that this could not only help in leveraging sustainable consumption but also enable companies to gain business benefits.

New innovations can be most successful both financially and in terms of their impact on encouraging more sustainable consumption when they hit what we refer to as the consumer sweet spot. This is where the sustainability benefit and the main reason why the consumer uses the product coincide” (Unilever's online webcast).

The relationship between user-centred design (UCD) principles and sustainable consumption in a business context was studied. From this relationship the findings account for three sets of strategies based on UCD. Each set of strategies accounts for a main strategy that contains a series of sub-strategies. The sub-strategies were related to the concepts of communication, collaboration and innovation, which formed the theoretical framework of this research (*Table 4-2 to Table 4-5*).

Strategies based on UCD (SboUCD1): To understand and embed sustainability at a strategic level of the company.

- Main Strategy: 'Developing new business models' (*see Table 4-2 to consult these main strategy sub-strategies*).

Strategies based on UCD (SboUCD2): To understand design as a strategic tool to leverage sustainable consumption.

- Main Strategy: 'Applying lateral and creative thinking' (*see Table 4-3 to consult these main strategy sub-strategies*).

Strategies based on UCD (SboUCD3): To leverage sustainable consumption

- Main Strategy 1: 'Bringing systemic changes by developing the market' (*see Table 4-4 to consult these main strategy sub-strategies*).
- Main Strategy 2: 'Having and in-depth understanding of consumers' aspirations and behaviours' (*see Table 4-5 to consult these main strategy sub-strategies*).

4.2.3 Drivers

The findings revealed two sets of drivers: drivers to implement sustainability measures within companies, and drivers for companies to influence sustainable consumption. Through a comparison, it was found that both drivers were very similar and that those that influence companies to integrate sustainability measures inside companies will influence companies to start thinking about implementing mechanisms to influence sustainable consumption. The researcher classified these drivers according to the three main concepts of the theoretical framework as illustrated in *Table 4.6*.

Table 4-6 Drivers to leverage sustainable consumption related to the three key concepts of the theoretical framework

Drivers for companies to leverage sustainable consumption

Drivers related to communication

- D1: Gaining business benefits through an increase of market demand and thus an increase in profits, as communicating with consumers companies realized that they are asking for more sustainable businesses.
- D2: Thinking about business responsibility through corporate social responsibility campaigns.

Drivers related to collaboration

- D3: Influencing other companies: through the supply chain or just because companies see the benefit of doing it.
- D4: Upcoming legislation: companies will have to collaborate with policy makers to create mechanisms that target consumers and companies to leverage sustainable consumption.

Drivers related to innovation

- D5: Finding relevant issues for companies that makes them think about leveraging sustainable consumption e.g. Through a Lifecycle Assessment (LCA), a company see that the biggest environmental impact of certain product is in the use stage, thus for them it will be reasonable to innovate in their products and communication campaigns in order to influence sustainable consumption.
 - D6: Minimizing environmental impacts and economic costs through innovating in the business model.
-

Companies have realized through communicating with consumers that they are asking for more sustainable businesses. Thus, companies recognize that there is a profit potential to be gained from meeting the expectations of this emerging consumer base.

“Lots of consumers are more interested in your product being more sustainable and I think companies will do it because they see there is a market to be gained or a competitive edge to be got, or also a brand value to be got”. (CoSDaB01).

It was felt by respondents that companies that take more responsibility would probably start by communicating through the corporate social responsibility (CSR) agenda. *“Giving a bit of a CSR spin, will make the company realize lots of other drivers that probably at the moment they didn’t think about”* (CoBaS02). However, companies such as Unilever, which already embed sustainability at the core strategy of their business had taken a further step by launching their Sustainable Living Plan which engages in communicating

and collaborating with a range of stakeholders in order to create change in supply chains and with consumers (Unilever's online webcast).

Companies are also being influenced by other companies to implement sustainability measures inside their strategy, as they are starting to have the mentality of *"everybody else is doing it, so I need to do it"* (CoSaB01). However, collaboration will be needed in order to engage with the companies' supply chain to ensure that sustainable products/services are delivered to the end consumer. For example CoDfBh01 mentioned, *"If retailers want to be able to say that their products are sustainable, they will have to work with the manufacturer to implement standards and guides that [will] help them to deliver more sustainable products"*. Collaboration will be also needed to work with policy makers as it was recognized that *"without the government interventions, it will be difficult to target consumers and companies to leverage sustainable consumption"* (Co6UCD).

There was a general consensus that *"sustainability can drive innovation"* (CoSDaB01, CoSaB02, AcSaD01, CoSaB01, Unilever's online webcast). This is because when companies find relevant issues to focus on, they will innovate in order to *"minimize their impacts, save money, and be more efficient"* (CoSaB01). For example, AcSaD01 mentioned a case of a fast moving consumer good company in which they made a lifecycle analysis (LCA) to determine the environmental impact of their product portfolio. What they found out was that the major environmental impacts related to their products was when people were using them. So for a detergent, the major environmental impacts were caused by putting a load to wash when the machine is almost empty, by the excessive amount of detergent some consumers put, or by washing at high temperatures, which requires to consume higher levels of energy. *"[So] if you want to change that, it makes perfect sense that [this company] came up with a detergent that can be used in cold water"* (AcSaD01).

Six drivers were found that could motivate companies to leverage sustainable consumption. These drivers were:

- D1: Gaining a business benefit through an increase of market demand
- D2: Corporate social responsibility
- D3: Influenced by other companies
- D4: Upcoming legislation
- D5: Finding relevant issues for that make them think on innovating to achieve sustainable consumption
- D6: Minimizing economic impacts and economic costs through innovating in the business model

These drivers are related to the three key concepts of communication, collaboration and innovation, which formed the theoretical framework of this research.

4.3 Conclusions and next steps

This chapter aimed to satisfy the third research objective specified in *Chapter 1*:

- *To explore and build upon the relationship between user-centred design principles and sustainable consumption theory through qualitative research methods, to draw out opportunities for global companies to leverage sustainable consumption.*

In order to achieve this objective, a series of conditions, strategies based on UCD and drivers related to the three key concepts of communication, collaboration and innovation were presented. Through the analysis of the findings, these three key concepts formed the theoretical framework. This was because communication, collaboration and innovation were considered as being part of the core strategy of applying UCD principles. From the literature review it was found that UCD has been seen as a valuable approach to leverage sustainable consumption because it focuses on influencing people and their contexts, through communicating and collaborating with them in order to foresee problems that can be solved with innovative solutions. However, the findings also revealed that UCD principles could be used to engage with people inside and outside the company in order to change companies' practices and behaviors to be able to leverage sustainable consumption.

The findings revealed that although there are some companies that are already engaging their efforts towards leveraging sustainable consumption, there is still a good deal of scepticism between interviewees and participants from the focus group about what companies are doing towards sustainable consumption and the benefits afforded. As such, it was also found that in order to leverage sustainable consumption, companies should understand and embed sustainability at a strategic level of the company.

The findings revealed that although design and design thinking has an important role to play towards leveraging sustainable consumption; design, as a strategic tool, is not well understood by most companies. This was, in part, due to designer's inability to effectively communicate the value of design throughout the company. However, the literature review also revealed that design has been applied in some cases as a strategic tool not just to gain competitive advantage but also to leverage sustainable consumption.

In order to leverage sustainable consumption the finding revealed a series of conditions, which should be taken into consideration if companies are to engage into the journey towards leveraging sustainable consumption. By studying the relationship between UCD principles and sustainable consumption in a business context, it was found that to apply such conditions some strategies based on UCD principles could be applied.

To understand and embed sustainability at a strategic level of the company, the main strategy found was "*look to develop new business models*". To successfully implement such business models, companies will need to communicate the value of sustainability throughout the company, collaborate with other stakeholders and innovate in their value proposition to target key social and environmental impacts. By applying the three UCD principles (early focus on users, empirical measurement, and iterative design) stated in *Section 2.1.1* companies will be able to place the consumer at the heart of the business strategy to develop successful new business models.

To understand design at a strategic level of a company in order to leverage sustainable consumption, the main strategy found was "*to implement lateral and creative thinking*" to communicate the value of design and design

thinking to the company's workforce and to other stakeholders, to find innovative ways of collaboration inside and outside the company and to deliver products, services and business models that can leverage sustainable consumption but at the same time meet the real needs of consumers.

In addition, the application of UCD principles (*Section 2.1.1*) can help global companies to develop programmes that target the company's stakeholders including employees to implement lateral and creative thinking to develop new products, services and business models that place the consumer at the heart of the business strategy with the overall aim of leveraging sustainable consumption.

As part of the strategies based on UCD to leverage sustainable consumption, two main strategies were found:

“Developing more sustainable markets” and

“Having an in-depth understanding of consumers’ aspirations and behaviours.”

In order to do this, it will be necessary to understand consumers' motivations in order to align sustainability benefits with those motivations and collaborate with other stakeholders to deliver feasible solutions. However collaboration will depend on the type of innovation to be achieved according to the established goals of the company about the level in which they want to influence consumer's behaviour. UCD principles (*Section 2.1.1*) can be applied to identify and understand the needs, wants, habits, attitudes and behaviours of consumers to design appropriate solutions that can develop more sustainable markets with the overall goal of leveraging sustainable consumption.

The findings also showed that companies could be driven towards influencing sustainable consumption. Being aware of such drivers will depend on the ability of a company to communicate, collaborate and innovate.

By accounting for a business perspective of what is needed to leverage sustainable consumption through applying UCD principles, it was found that innovation in the value proposition by delivering new business models, products, and services; would be the key to the transition towards sustainable consumption. In order to innovate, it will be necessary to effectively communicate and collaborate with different stakeholders including governments, NGOs, consumers and other businesses.

As such, the findings helped to account for a more holistic and strategic consumer-focused approach in which by communicating, collaborating and innovating companies will be able to leverage sustainable consumption. Therefore it seemed necessary for this research to develop a mechanism that enables companies to achieve this. This is how the Sustainable Consumption Leveraging (SCL) Model emerged. *Chapter 5* will explain how the SCL Model was created.

5 Phase 2: Development of the Model

5.1 Introduction

The Sustainable Consumption Leveraging (SCL) Model is a mechanism that accounts for a more holistic and strategic consumer-focused approach that aims to help companies to increase their opportunity to examine their potential to leverage sustainable consumption, whilst identifying areas of opportunity for improving their business model and the value proposition to consumers.

A toolkit (*described in the next Chapter*) was developed as a resource that companies could use to apply the SCL Model towards establishing possible actions for leveraging sustainable consumption.

5.2 Translating the findings into the three components of the SCL model

The SCL model is comprised of:

- The evaluation criteria,
- The consumer-focused strategies, and
- A sustainable consumption index.

The development of the model and its components comprises Phase 2 of this research. *Figure 5-1* depicts Phase 2 of research and how these components were devised from the findings in *Chapter 4* related to the Theoretical Framework, and how this was translated into the SCL Model.

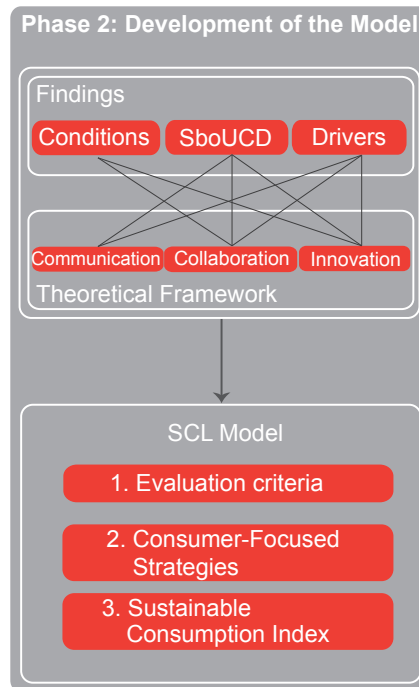


Figure 5-1 Components of the SCL Model devised from key findings and their relationship to the Theoretical Framework

5.2.1 Evaluation criteria

The evaluation criteria were divided into four main areas - Business Model, Consumer, Design/R&D and Sustainability - and their main objective was to allow companies to foresee how any sustainability efforts implemented in the production stages of the production-consumption dichotomy (*figure 2-2 p.14*), can be minimized or hindered by the consumption stages, and thus capitalized on as an area of opportunity.

The four areas of the evaluation criteria were defined by the main strategies related to each strategy based on user-centred design (SboUCD) described in *Section 4.2.2* of the previous chapter: “*developing new business models*”; “*applying lateral and creative thinking*”; “*developing more sustainable markets*” and “*having an in-depth understanding of consumers aspirations and behaviours.*”

This was because it was considered that an evaluation of the current business model is necessary in order to develop new business models; an evaluation of the relationship with, and understanding of, consumers is necessary in order to develop more sustainable markets; an evaluation of the

capability of a company to apply design as a strategic tool is essential in order to apply design thinking to innovate, and an evaluation of the understanding of a company about sustainability is needed in order to see if it is part of the company's strategic view.

The evaluation criteria for each area were devised from the conditions, the SboUCD, and the drivers described in *Chapter 4*, and their relation to the theoretical framework. The criteria were considered from a business perspective, in order to examine opportunities for a company to innovate towards leveraging sustainable consumption and it is presented in a self-explanatory format. *Figure 5-2* illustrates the four areas with their corresponding criteria to be assessed. *Section 5.2.1.1* explains how the criteria for each area were chosen and shows the meaning of each of them.

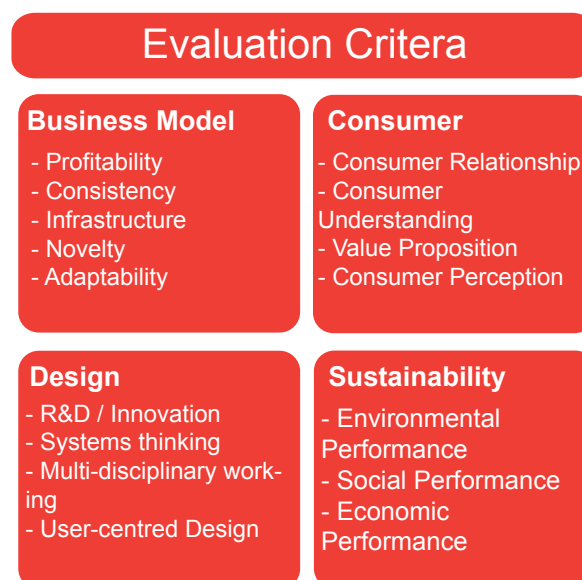


Figure 5-2 Evaluation Criteria according to four areas of the business

5.2.1.1 Choosing the evaluation criteria

For the Business Model Area, the criterion '*Profitability*' was chosen in order to examine the profit stability of a business as this was found to be a determining factor in the *communication driver to leverage sustainable consumption* (see *Section 4.2.3*). It was found that companies should recognise that consumers are interested in fostering more sustainable patterns of consumption and capitalise on this to gain a business benefit.

In addition, from the literature review (*Chapter 2*), it was found that profitability is one of the main motivators for a company to implement measures and strategies that can influence consumers towards more sustainable patterns of consumption. '*Profitability*' was then related to the concept of communication from the theoretical framework, as it will be important to assess and communicate the profit stability of a business approach aiming to leverage sustainable consumption. The research defined '*Profitability*' as:

“A measure of a company’s ability to generate sales and to control its expenses” (Berman et al., 2008 p.149).

The criterion '*Consistency*' came about as it was found that in order to leverage sustainable consumption, consumers have to perceive consistency between what the company does and its commitment to sustainability. *Section 4.2.2* discusses how companies should have a common objective within the management and the operations about what it wants to achieve in terms of sustainability. '*Consistency*' was related to the concept of communication from the theoretical framework, as *part of the SboUCD1* points that this common understanding will have to be transmitted to consumers in order to leverage sustainable consumption. The research adopted Hamel's (2000) definition of "*Appropriateness*" of a business model to define '*Consistency*' as:

The ability to align the business model components (being business strategy, customer, resources, processes, and key partners including suppliers) to work for a common objective and reflect it to consumers to achieve consumer expectations.

'*Infrastructure*' was also considered an important criterion to be assessed as part of the Business Model. The literature review (*Chapter 2*) revealed that to leverage sustainable consumption, changes in their actual infrastructure should be considered, especially if the goal is to develop business models that are based on reducing the consumption of goods in favour of services with the overall aim of achieving systemic changes. The findings in *Section 4.2.2* also indicated that to develop business models towards influencing

sustainable consumption, a review of the infrastructure would be needed. Infrastructure is related to the concept of collaboration as studying the current business infrastructure with collaborators inside and outside of the company will help to define the channels, processes, actions, resources, and partnerships needed to develop business models that can leverage sustainable consumption. The research adopted the Osterwalder and Pigneur's (2010) definitions of channels, key resources, key activities and key partnerships to define what the research considered as *"Infrastructure"*:

Infrastructure refers to the communication, distribution and trading channels; alongside the actions, resources and partnerships that a business model needs to operate to deliver the value proposition.

'Novelty' was seen as a criterion to be integrated among the Business Model as the findings in *Section 4.2.2 and 4.2.3* showed that to develop business models that can leverage sustainable consumption, innovation would be needed to deliver optimal products and services that target key social and environmental impacts. Thus, 'Novelty' was related to the concept of innovation and was define as:

How innovative the business model is compared to the competitors.

Novelty was defined according to the concept of innovative business model made by Hamel (2000).

Finally, the criterion of *'Adaptability'* emerged from the drivers related to collaboration (see *Section 4.2.3*), in which it is described that external forces such as legislation, other companies, and supply chains amongst others have a big influence in businesses willingness to implement measures and strategies to leverage sustainable consumption. As such it was considered necessary to assess how adaptable a business model is to other forces as this can influence company's ability to work towards leveraging sustainable consumption. Osterwalder and Pigneur (2010), argue that understanding changes in the environment where the business operates helps the business model effectively adapt to external forces. As such the research defined Adaptability as:

The ability to adapt effectively to external forces in the environment (for example: market forces, industry forces, key trends, and macro-economic forces), which can influence your business model.

For the Consumer Area, the criteria ‘*Consumer Relationship*’ and ‘*Consumer Understanding*’ emerged as the findings in *Section 4.2.2* revealed that to develop more sustainable markets, an assessment of the relationship with, and understanding of, consumers will be needed. To define the type of ‘*Consumer Relationship*’ a company wants to have with their consumers to support a strong pro-sustainable message, companies will need to communicate with them to see which type of relationship is best to enhance a pro-sustainable experience. Thus, ‘*Consumer Relationship*’ was associated with the concept of communication from the theoretical framework. In addition, ‘*Consumer Understanding*’ was related to the concept of collaboration as the findings in *Section 4.2.2* revealed that collaboration with consumers and other stakeholders can help to gain more knowledge about consumer’s behaviours, habits, motivations, needs, wants and contexts; to deliver pro-sustainable products, services or business models. ‘*Consumer Relationship*’ was defined following as:

Consumer Relationship comprises the type of relationship your company wants to establish with their consumers according to their business model and the consumer experience they want to deliver. Relationships can range from personal (e.g. a waitress serving at a restaurant) to automated (e.g. Online-banking internet)(Osterwalder & Pigneur, 2010).

‘*Consumer Understanding*’ was defined according to what Fraser (2010) states about companies needing to understand human factors in more depth than just demographics, habits and segmentation. As such consumer understanding was defined as:

Gaining deeper insights and a broader behavioural and psychographic perspective of consumers by exploring about their habits, routines, attitudes, behaviors, aspirations, concerns, needs, wants, and contexts.

'Value proposition' was integrated as part of the Consumer Area, as *Section 4.2.2* discussed the importance of understanding the value offered to consumers through the products and services provided. This understanding will help companies to transform the value proposition to be more sustainable, without losing the value that is currently delivered to consumers. Value proposition was associated with the concept of innovation from the theoretical framework, as innovating in the value proposition will allow a company not just to leverage sustainable consumption but also gain business benefits, if it ensures the delivery of similar values to consumers. Value proposition was defined according to Osterwalder and Pigneur (2010) as:

The benefits that your company offers to its consumers.

The last criterion for the Consumer Area is '*Consumer Perception*'. This Criterion came about because the findings in *Section 4.2.2* showed that communication with consumers is important in order to understand their perceptions and experiences about the company's performance to assess strategic options to leverage sustainable consumption. Therefore this criterion was related to the concept of communication and its definition was based on Chitturi's (2009) concept of '*Consumer Perception*'.

Consumer Perception comprises the negative and positive consumer experiences, which informs a company of the perception of consumers in regards to the company's performance.

In the evaluation criteria, the area of Design is considered as a strategic approach that can lead to innovation to leverage sustainable consumption. As such, the criteria chosen to examine Design was related to the company's capabilities in applying design as an intellectual process to facilitate design thinking, as the condition related to innovation in *Section 4.2.1* affirms it.

The first criterion related to the Design Area is '*Research and Development (R&D)*' and it is about the level of investment that a company commits to, to assess the importance and ability of innovating inside a company. Jenkins (2010) advises that it is important to assess how much an organization is

willing to invest in terms of time and resources to assess its interest in innovating through design.

The criterion 'Systems thinking' came about as it was found in *Chapter 4* that by taking a holistic approach companies could understand the system in which consumption takes places with the overall aim of leveraging sustainable consumption. It was related to the concept of Design as it was found that the design discipline is moving from the focus of function and aesthetics to address more complex problems such as environmental and social challenges through the application of design thinking (Neumeier, 2010). Design thinking was found (*Section 4.2.2*) to be a process that can be used by businesses to innovate in order to leverage sustainable consumption. Design thinking is generally referred to as a process in which by applying a designer's sensibility and methods complex problems can be addressed. It is considered as a methodology for innovation and enablement (Lockwood, 2010). To introduce design thinking to an organisation, Jenkins (2010) advises that the designer should be a systems thinker. 'Systems Thinking' can help to provide a holistic way to take into account all the components of a complex problem in order to address it. Based on the definition of The Open University, (2010) 'Systems Thinking' was defined as:

A holistic approach that looks at the behaviour of wholes, and the many interconnections that exist between a system and its different components to solve complex problems.

The criterion '*Multi-disciplinary Working*' relates to the collaboration SboUCD1 explained in *Section 4.2.2*. As explained in this section, collaboration and '*Multi-disciplinary Working*' were found to be important components towards facilitating innovation. Botsman and Rogers (2011) talked about how designers are starting to get engaged in collaborating with other experts, as such multi-disciplinary working, was defined as:

Bringing together a range of expertise from different fields to inform the design/innovation process. This can be done internally (bringing together different departments inside a company to solve design problems) or

externally (bringing different expertise from outside the company to contribute to the design process).

Finally, the criterion of 'User-centred Design Approaches' is concerned with the innovation SboUCD2 described in *Section 4.2.2*. As explained in this Section, companies can apply UCD to find a correlation between what consumers do or want and the business objectives, in order to leverage more sustainable patterns of consumption. To assess the ability of a company to apply UCD approaches, from the literature two approaches were identified: Informers and co-creators. The definition of UCD and the definition of these two approaches that the research followed are:

UCD is an innovation process, which focuses on users' needs, wants, and limitations through the planning, design and development stages of a product/service/business model (UPA, 2011). User-centered approaches require the involvement of real users in different ways. Two ways of involving users cited by Sanders & Kwok (2007) to be evaluated are:

- ***Informers:*** *users are seen as subjects of study to get information*
- ***Co-creators:*** *users are active participants in the design process*

In terms of the Sustainability Area, it was considered important to analyse a company's sustainability performance, as it was found in *Chapter 4* that sustainability should be understood and embedded at the strategic level of a company. To assess the sustainability performance it was considered to base it on the three pillars of the Triple Bottom Line, and thus assess the 'Environmental Performance', the 'Social Performance', and the 'Economic Performance' of a company. The elements of each pillar were chosen according to Bennett and James (1999), Esty and Winston (2009), and the Ethical Investment web site (Ethical Investment, 2011).

'Environmental performance': the benefits and costs in relation to your business model and the environment. A good environmental performance can be achieved by:

- Complying with environmental legislation: air, chemicals, conservation, energy, environmental permitting, land legislation, noise and statutory nuisance, pesticides and biocides, radioactive substances, waste and water
- *Applying an environmental management system*
- *Obtaining certifications such as ISO 14001*
- *Applying energy programs*
- *Applying eco-design strategies*
- *Ensuring a responsible supply chain*
- *Having environmental metrics of the environmental performance to show progress e.g. E-KPI*
- *Partner with other stakeholders to learn from them and find innovative solutions to environmental problems*
- *Engage employees into an environmental vision through training*
- *Establishing environmental campaigns internally and externally including using eco-labels*

'Social performance': the benefits and costs in relation to your business model and the society. A good social performance can be achieved by:

- ***Applying good employment practices:*** *the provision of safe working environment, financial and job security, freedom from discrimination, and opportunity for professional development*
- ***Having good community relations:*** *the contribution of a firm to community development including job creation, philanthropy and employee volunteerism*
- ***Ethical sourcing:*** *engage in fair trading practices with suppliers, distributors and partners*

- **Social impact of a product/service:** *the contribution of products and services to: social welfare, equity, health, and encourage more sustainable living. Also the contribution that products and services can make towards providing access to basic needs such as food, shelter, water and healthcare*
- **Corporate Social Responsibility:** *have a full account of social, environmental and economic impacts and report them and establish a plan of driven actions*

'Economic performance': the negative and positive impacts in relation to your business model and the economic environment. A good economic performance can be achieved by:

- **Contributing to the socio-economic environment:** *through employment creation, equitable distribution of wealth, creating business models that serve social needs, invest in employee education, and contribute to the local economy*
- **Having stocks in ethical investment schemes indexes:** *such as FTSE4Good, Dow Jones Sustainability Index, corporate sustainability index, and Truecost*
- **Passing through an ethical screening process to get ethical funds:** *the funds should be used to make a positive contribution to society*

5.2.2 Consumer-focused Strategies

The model also contains a series of consumer-focused strategies devised mainly from the strategies based on UCD to leverage sustainable consumption (SboUCD3) described in *Chapter 4*. The consumer-focused strategies aim to assist companies to develop ideas that can lead to the creation of a plan of action towards leveraging sustainable consumption. The strategies are also related to the sustainable consumption index (SCI) described in the next section of this chapter.

Specifically, most of the consumer-focused strategies were devised from the two main strategies of SboUCD3 described in *Section 4.2.2. Table 5-1* describes the consumer-focused strategies that were developed from the main strategy of “*Bringing systemic changes by developing the market*”. *Table 5-2* describes the consumer-focused strategies that were devised from the main strategy of “*Having and in-depth understanding of consumers aspirations and behaviours.*”

Both tables show that a relationship exists between the consumer-focused strategies and the three concepts of the theoretical framework: communication, collaboration and innovation.

Table 5-1 Consumer-focused strategies devised from the key strategy of "Bringing systemic changes by developing the market"

“Bringing systemic changes by developing the market”	
Strategies related to communication	Development of the consumer-focused strategies
1. Empower consumers	
2. Communicating through the company’s brands	Communication Strategy: Build your consumer trust by showing credibility about your brand.
3. Providing confidence to the consumer	
4. Having an effective behaviour change message that: <ul style="list-style-type: none"> Provides information which is accurate, simple and straightforward, 	Communication Strategy: Make pro-sustainable consumption/behaviour rewarding, fun, and interesting to the consumer
<ul style="list-style-type: none"> Creates awareness so consumers can make more informed decisions, Triggers behavioural change of consumers 	
<ul style="list-style-type: none"> Positively motivates consumers 	Communication Strategy: Communicate with consumers in order to have an in-depth understanding of the barriers, triggers and motivators to adopt new sustainable behaviours.
<ul style="list-style-type: none"> Uses different communication channels to rich the user, 	
<ul style="list-style-type: none"> Enables partnerships with collaborators to deliver efficient educational programmes and campaigns 	Collaboration Strategy: Enable partnerships with collaborators to deliver efficient educational programs and campaigns
<ul style="list-style-type: none"> Communicates sustainable attributes of the product/service, to make them interesting to the consumer 	Communication Strategy: Create and communicate product service attributes that offer direct benefits to the consumer

<ul style="list-style-type: none"> • Considers economic and social costs to the consumer 	
5. Assess the effectiveness of campaigns by having following up programmes	
6. Apply communication platforms and mobile technologies to obtain two-way feedback	<i>Used to create the collaboration strategy in Table 5-2</i>
7. Looking into actual trends in “consumer markets”	
Strategies related to collaboration	Development of the consumer-focused strategies
8. By involving different stakeholders to develop a project	Collaboration Strategy: <i>Collaborate with different people inside and outside of the company</i>
9. By working in partnerships in roundtables and boards e.g. Rain Forest Alliance	
10. By influencing other actors through promoting awareness and optimism	Collaboration Strategy: <i>Have a pro-sustainable message that promotes awareness and optimism that can engage other stakeholders</i>
11. By having common objectives and listening to different views	
Strategies related to innovation	Development of the consumer-focused strategies
12. Apply visible/invisible pro sustainable interventions	
13. Apply technological interventions	
14. By developing interactions between products/services and the consumer	
15. Through creating consumers experiences	Innovation strategy: <i>Create experiences that make consumers feel good</i>
16. By developing optimal product/services and testing them with the consumer to get feedback	Innovation Strategy: <i>Continual evaluation of a new product/service/campaign/business model through iterative processes, procedures or/and appraisals.</i>
17. By seeing products/services as problem solvers	Innovation Strategy: <i>Think systemically to identify and address real problems by thinking beyond product towards system/services.</i>
Created in the consumer-focused strategies workshop	Innovation Strategy: <i>Think systemically to account for environmental, social and economic impacts of the product/service/system</i>

Table 5-2 Consumer-focused strategies devised from the key strategy of "Having an in-depth understanding of consumers' aspirations and behaviours"

Having an in-depth understanding of consumers' aspirations and behaviours	
<p>Strategy related to communication</p> <p>Communicate with consumers in order to have an in-depth understanding about their perceptions to assess the strategic options that a company has to leverage sustainable consumption.</p>	<p>Communication Strategy: Communicate with consumers in order to have an in-depth understanding of the barriers, triggers and motivators to adopt new sustainable behaviours.</p>
<p>Strategy related to collaboration</p> <p>Collaborate with consumers and other stakeholders in the design process to gain more knowledge about the consumer that will help to identify consumers' motivations, perceptions and their overall experiences to design optimal products/services/business models.</p>	<p>Collaboration Strategy: Provide opportunities for collaboration between consumers and the company to enable two-ways feedback, and as such improve consumer experience.</p>
<p>Strategy related to innovation</p> <p>Innovate in the value proposition to deliver the same performance, price and convenience that consumers' are used too, but with the overall aim of leveraging sustainable consumption.</p>	<p>Innovation Strategy: Innovate to create and communicate a strong value proposition to the consumer.</p>

As seen in *Table 5-1* and *Table 5-2* joining two or more of the SboUCD, formed some of the consumer-focused strategies. For example, strategies eight and nine in *Table 5-1* were used to create the following consumer-focused strategy:

'Collaborate with different people inside and outside of the company'

Or strategy six in *Table 5-1* was merged with the strategy related to collaboration in *Table 5-2*.

Table 5-1 also shows that some of the consumer-focused strategies that are considered as a collaboration strategy were inspired from the strategies related to communication. As the conclusions of the literature review in *Section 2.10* explained, there is a correlation between communication and collaboration in which communication also refers to the engagement that should exist between the company and other stakeholders including consumers in order to start influencing sustainable consumption.

In addition, the consumer-focused strategies were also inspired by the results of the Refinement of the Consumer-focused Strategies Workshop.

This study aimed to find insights, which could lead to improvement of the consumer-focused strategies. Participants started to create new strategies based on the strategies presented. Two teams (sustainability and design team) suggested a new strategy to account for social and environmental impacts or closed loop systems and then related this to systems thinking.

‘So we create a [new] strategy - Create the right product with zero impacts...is getting the product right within the systems context...’

(Consumer-focused strategies workshop, Sustainability team)

As such, the following innovation consumer-focused strategy, was devised from this study:

Think systemically to account for environmental, social and economic impacts of the product/service/system

In summary, fourteen consumer-focused strategies were developed. From the fourteen strategies, five were labelled as *Communication Consumer-focused Strategies*:

- Make pro-sustainable consumption/behaviour rewarding, fun and interesting to the consumer
- Communicate with consumers in order to have an in-depth understanding of the barriers, triggers and motivators to adopt a new sustainable behaviour
- Create and communicate product/service attributes that offer direct benefits to the consumer
- Understand consumer needs within their context of use
- Build your consumer trust by showing credibility about your brand.

Four were labelled as *Collaboration Consumer-focused Strategies*:

- Enable partnerships with collaborators to deliver efficient educational campaigns

- Have pro-sustainable message that promotes awareness and optimism that can engage other stakeholders
- Collaborate with different people inside and outside the company,
- Provide opportunities for collaboration between consumers and the company to enable two-way feedback, and as such improve consumer experience.

And five were labelled as *Innovation Consumer-focused Strategies*:

- Continual evaluation of a new product/service/campaign/business model through iterative process, procedures or/and appraisals
- Thinking systemically to identify and address real problems by thinking beyond products towards services/systems
- Thinking systemically to account for environmental, social and economic impacts of the product/service/system
- Create experiences that make consumers feel good
- Innovate to create and communicate a strong value proposition to the consumer.

5.2.3 Sustainable Consumption Index (SCI)

The conclusions from the findings in *Section 4.3* revealed that innovation is key to the transition towards sustainable consumption and in order to innovate, it will be necessary to communicate and collaborate with different stakeholders. The three main concepts of communication, collaboration and innovation that formed the theoretical framework were used to create a sustainable consumption index (SCI) to qualitatively measure the levels of sustainable consumption that a company wants to motivate and set its targets to, dependent on their objectives and business strategy.

The sustainable consumption index (SCI) is inspired by similar models that explain different levels of eco-efficiency related to different types of innovation (see *Section 2.6.1: Systems Innovation Theory*). The premise of

the SCI is that there is a fundamental relationship between communication, collaboration and innovation. Thus, to motivate more sustainable patterns of consumption, different innovative actions and degrees of engagement among stakeholders are required in order to enable incremental, disruptive or systemic changes within the business model of a company. The former is grounded in the idea that to achieve higher levels of sustainable consumption a greater level of innovation and involvement of stakeholders is needed (Nilstad & Boks 2008; Mon & Plepys, 2008).

The Green Marketing Manifesto (Grant, 2007) (see: *Section 2.8.1*) also inspired the SCI. Grant (2007) described three green marketing objectives, 1) to set new standards and communicate, 2) to share responsibility and collaborate, and 3) to support innovation and reshape culture (see *Section 2.8.1 for a detail description of these green marketing objectives*), which are associated to the three main concepts of communication, collaboration and innovation, identified in this research.

These marketing objectives are interpreted as three different stages that companies can apply to leverage sustainable consumption. To integrate these three different stages into a scale of sustainable consumption, three outcomes (commercial, environmental and/or ethical, and cultural) must be considered. Grant (2007) related these three outcomes to the green marketing objectives (see *Section 2.8.1 for a detail description of this relationship*), and argued that a higher level of sustainable consumption would be accomplished by achieving simultaneously these three outcomes through communicating, collaborating and innovating.

The SCI is depicted in *Figure 5-3*. It shows the levels of sustainable consumption (y axis) as a function of the level of innovation and stakeholder engagement (x axis) in relation to the three different stages identified by Grant (2007). The aim of the SCI is to guide companies to evaluate where to set their targets to the level of sustainable consumption they want to motivate by applying the different consumer-focused strategies described above.

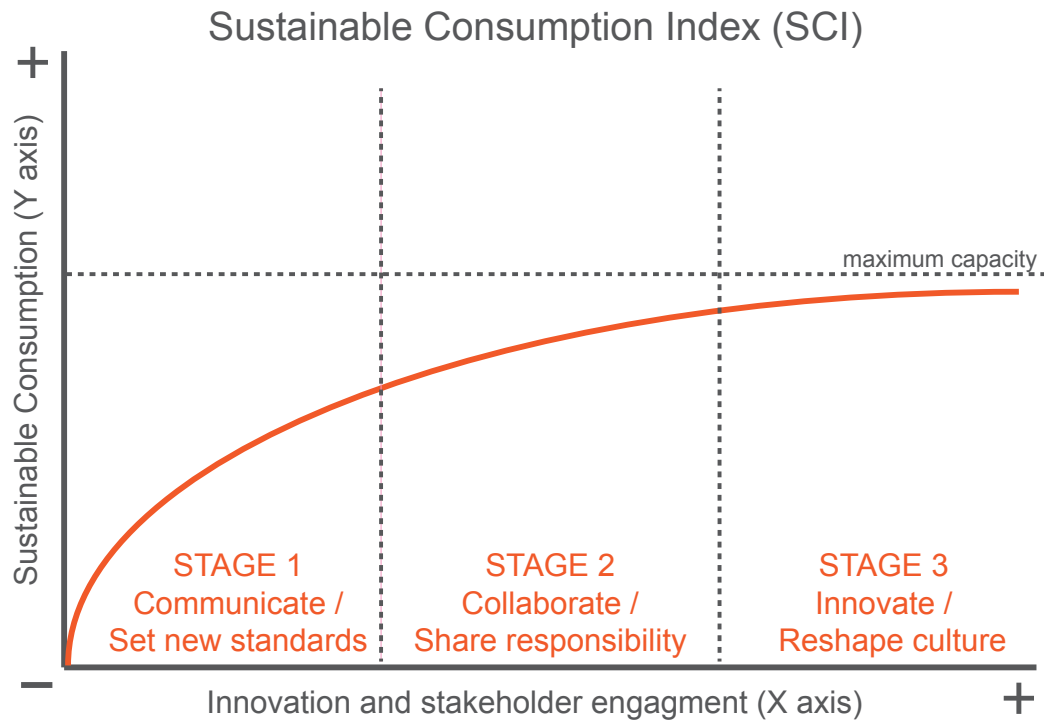


Figure 5-3 Sustainable consumption index: Three different stages to motivate sustainable consumption

What it is argued with the SCI is that certain levels of innovation and stakeholder engagement are always involved in the process of motivating sustainable consumption. However, to motivate higher levels of sustainable consumption, disruptive innovation will be needed (Mont & Plepys 2008); and according to Lockwood (2010), a strong engagement and collaboration with stakeholders including the consumer could move a company toward disruptive innovation. Thus with the SCI, companies can choose the consumer-focused strategies according to their targets depending on the business strategy and resources.

For example, a company can set its targets to motivate levels of sustainable consumption within the communication stage by applying only communication consumer-focused strategies. However, if it wants to scale up, it will have to then also apply a mix of communication, collaboration and innovation consumer focused-strategies to possibly achieve a disruptive innovation that motivate a higher level of sustainable consumption. As such, there is no clear boundary between the stages and they may even overlap.

The SCI shape has an ever-decreasing slope (*Figure 5-3*) in which an innovation has a maximum capacity of disruptiveness, and improvements towards leveraging sustainable consumption diminish as one progress through the stages. In economics this behaviour is called the law of diminishing returns. Paap and Katz (2004) argue three cases in which innovation reaches its maximum capacity of disruptiveness to the point of saturation leading to develop further innovations, these cases are:

1. The innovation becomes obsolete as no longer satisfy the needs of consumers.
2. Incremental improvements responding to emerging needs of consumers are not longer seen as valuable.
3. There are changes on the environment due to political, economic, sociological, technological, legal and environmental factors.

In order to avoid stagnation of sustainable consumption, new innovations are needed, resulting in a process where new innovations are required at the end of the life cycle of the preceding ones (*Figure 5-4*). Such cycles of innovation have been studied in the growth of cities where innovation is necessary to maintain a city viable (see: Bettancourt *et al*, 2007).

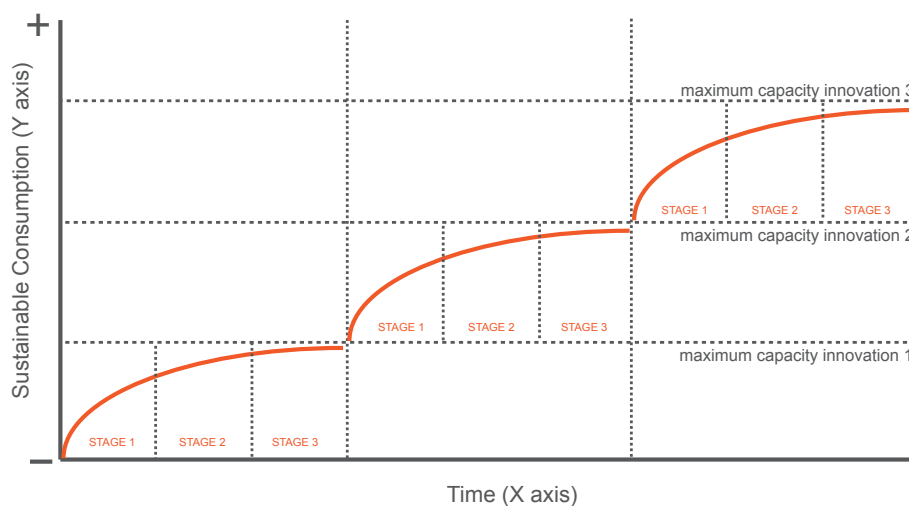


Figure 5-4 Innovation's dynamic cycles through time

5.3 Conclusions and next steps

This chapter aimed to achieve part of the fourth research objective.

- To develop a model and appropriate tools, to enable global companies to set tangible actions towards leveraging sustainable consumption.

In order to achieve part of this objective, the researcher developed the SCL Model. The SCL Model takes into account a business perspective, in which sustainable consumption can only be achieved if it ensures economic stability to the company by growing the business but at the same time halving environmental and social impacts by meeting the real needs of consumers. This is grounded in the idea that the SCL Model takes a holistic perspective that takes into account a mix of communication, collaboration and innovation criteria and strategies that can guide companies towards sustainable consumption.

The evaluation criteria was developed to evaluate the existent opportunities that companies have to leverage sustainable consumption, and to identify current companies practices and behaviours that a company should improve upon in order to successfully motivate more sustainable patterns of consumption. The consumer-focused strategies were developed to assist companies to develop ideas that can lead to the creation of a plan of action towards leveraging sustainable consumption. The consumer-focused strategies can then be related to the sustainable consumption index (SCI) to decide to decide which levels of sustainable consumption the company wants to motivate according to their business strategy and resources.

However, to assist companies to apply the SCL Model, it seemed necessary to develop a toolkit, described in *the next chapter* of this doctoral thesis.

6 Phase 3: Development of the Toolkit and Workshops

6.1 Introduction

The SCL Toolkit was developed as a resource to assist global companies to implement the SCL Model described in the previous Chapter. In addition two different types of workshops and their activities were developed to evaluate perceptions of the SCL Model and its Toolkit. The Development of the SCL Toolkit and Workshops comprised Phase 3 of this research (*Figure 6-1*).

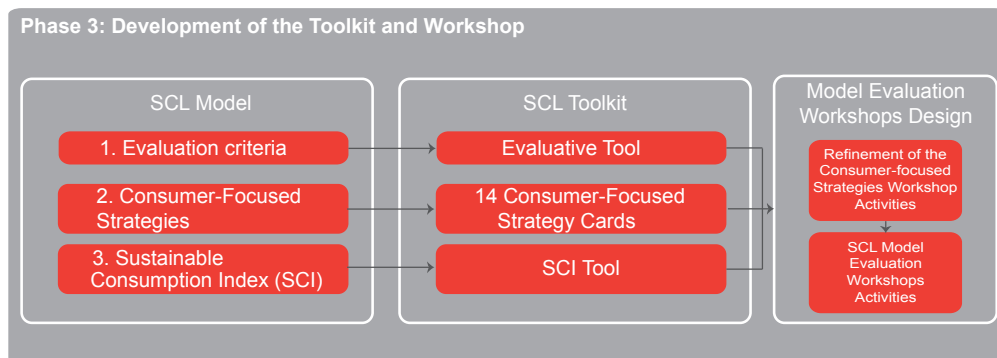


Figure 6-1 Phase 3: Development of the SCL Toolkit and Workshop

6.2 Development of the SCL Toolkit

The toolkit (*Figure 6-2*) consisted of an Evaluative Tool, Fourteen Consumer-Focused Strategy Cards, and the Sustainable Consumption Index (SCI) Tool. Each of these components is described below.

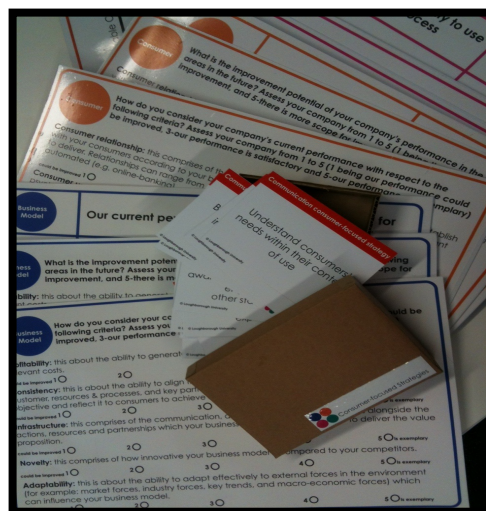


Figure 6-2 Snapshot of the SCL-Toolkit Evaluative tool

6.2.1 Evaluative Tool

The evaluative tool emerged from the evaluation criteria of the SCL Model, and aimed to find areas of opportunity to improve upon. It consists of three types of self-completion templates including: two self-evaluation canvases, a score canvas and a strength and weakness canvas. These canvases were designed to be re-used, as they were made from vinyl mounted on hard foam board which can make them more durable to increase their lifespan. The Vinyl material was used as it allows writing on top of the canvases with an erasable marker. The design and purpose of each canvas is described below.

The SCL Self-evaluation Canvases consisted of two questionnaires for each area of the evaluation criteria – Business Model, Consumer, Design and Sustainability -. The questionnaires followed a scale of 1 to 5 to evaluate the current performance and future improvement of the company regarding the criteria for these four areas (see: *Section 5.2.1.1*). *Figure 6-3* depicts an example of these questionnaires for the Business Model Area.

Business Model How do you consider your company's current performance with respect to the following criteria? Assess your company from 1 to 5 (1 being our performance could be improved, 3-our performance is satisfactory and 5-our performance is exemplary)


Profitability: this about the ability to generate earnings as compared to your expenses and other relevant costs.
could be improved 1 2 3 4 5 is exemplary

Consistency: this is about the ability to align the business model components (being business strategy, customer, resources & processes, and key partners including suppliers) to work for a common objective and reflect it to consumers to achieve consumer expectations.
could be improved 1 2 3 4 5 is exemplary

Infrastructure: this comprises of the communication, distribution and trading channels alongside the actions, resources and partnerships which your business model needs to operate to deliver the value proposition.
could be improved 1 2 3 4 5 is exemplary

Novelty: this comprises of how innovative your business model is compared to your competitors.
could be improved 1 2 3 4 5 is exemplary

Adaptability: this is about the ability to adapt effectively to external forces in the environment (for example: market forces, industry forces, key trends, and macro-economic forces) which can influence your business model.
could be improved 1 2 3 4 5 is exemplary

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Business Model What is the improvement potential of your company's performance in the following areas in the future? Assess your company from 1 to 5 (1 being there is less scope for improvement, and 5-there is more scope for improvement)

Profitability: this about the ability to generate earnings as compared to your expenses and other relevant costs.
less scope for improvement 1 2 3 4 5 more scope for improvement

Consistency: this is about the ability to align the business model components (being business strategy, customer, resources & processes, and key partners including suppliers) to work for a common objective and reflect it to consumers to achieve consumer expectations.
less scope for improvement 1 2 3 4 5 more scope for improvement

Infrastructure: this comprises of the communication, distribution and trading channels alongside the actions, resources and partnerships which your business model needs to operate to deliver the value proposition.
less scope for improvement 1 2 3 4 5 more scope for improvement

Novelty: this comprises of how innovative your business model is compared to your competitors.
less scope for improvement 1 2 3 4 5 more scope for improvement

Adaptability: this is about the ability to adapt effectively to external forces in the environment (for example: market forces, industry forces, key trends, and macro-economic forces) which can influence your business model.
less scope for improvement 1 2 3 4 5 more scope for improvement



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Figure 6-3 Example of a SCL Self-evaluation Canvases

The SCL Score Canvas (*Figure 6-4*) was designed to transfer the scores after the self-evaluation canvas was completed, with the purpose of easily compared and understand the current performance and future scope for improvement for each criterion.

 Business Model	Our current performance	Our future scope for improvement
Profitability		
Consistency		
Infrastructure		
Novelty		
Adaptability		

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 SCL Score Canvas

Figure 6-4 Example of a SCL Score Canvas

Finally, the SCL Strength and Weaknesses Canvas (*Figure 6-5*) was designed to identify strengths and weaknesses, according to the evaluation previously done for each area of the evaluation criteria.

 Business Model	Strengths
Criteria Profitability Consistency Infrastructure Novelty Adaptability	Weaknesses

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 SCL Strengths and Weaknesses Canvas

Figure 6-5 Example of SCL Strengths and Weaknesses Canvas

6.2.2 Consumer-focused Strategy Cards

The fourteen consumer-focused strategies found in *Section 5.2.2* were presented in a card format as part of the SCL Toolkit. The aim of the consumer-focused strategies was to prompt ideas to develop possible initiatives that could leverage sustainable consumption.

To present the strategies in a way that could prompt ideas, the researcher considered a series of methods e.g. listing the strategies on flip-charts, using cards featuring each strategy, using post-it notes representing each strategy, amongst others. However, the use of cards was considered as the best format to present each strategy in a clear and legible way. This is because cards can be handled easily while developing ideas as participants could flip them over, lay them out in different orders, and share them with different members of the team. Using cards as a source of inspiration has been used by different design consultancies such as IDEO (see: IDEO, 2002).

During the Refinement of the Consumer-focused Strategies Workshop, using cards as a source of inspiration was tested. The results showed that the use of cards was effective to create ideas.

“The consumer-focused strategy cards were useful to develop ideas”

(Sustainability team)

Two different card formats were developed. The first format of the consumer-focused strategy cards featured at one side the strategy, and the other side an example illustrating how the strategy could be applied (*Figure 6-6*).

STRATEGY 3

Create and communicate product/
service attributes that offer direct
benefits to the consumer

Ariel 30° Campaign:

Ariel 30° marketing campaign advises consumers to wash their clothes at lower temperatures. This results in reduced energy consumption and costs, without reducing the quality of the wash.



Figure 6-6 Example of a card illustrating a consumer-focused strategy

However in the Refinement of the Strategy Workshop, this format was highly criticised. Participants (CoBM01, AcCo02, AcDe04, AcDe03, AcSus03) perceived that having an example illustrating how the strategy could be applied (as in *Figure 6-6*) was not effective as they found the examples did not illustrate the meaning of that strategy.

“The examples are very subjective – what is feel good could be different to everyone” (AcCo02)

Thus, it was recommended *“to include prompt questions that could enable participants to reflect on how and when to apply the strategy” (AcDE03)*, as this could help participants to generate ideas when applying the strategy.

As such, the new format of the consumer-focused strategy cards (*Figure 6-7*) featured at one side the strategy and at the other side prompt questions that could be used to apply the strategy or as inspiration.



Figure 6-7 Example of a consumer-focused strategies card with changes regarding finding of the Refinement of the Consumer-focused Strategy Workshop

6.2.3 Sustainable Consumption Index (SCI) Tool

The SCI Tool comprised the SCI Canvas (*Figure 6-8*), which is made from the same materials as the Evaluative Tool Canvases. The aim of the SCI tool was to assist companies to decide which levels of sustainable consumption the company wants to motivate according to their business strategy and resources.

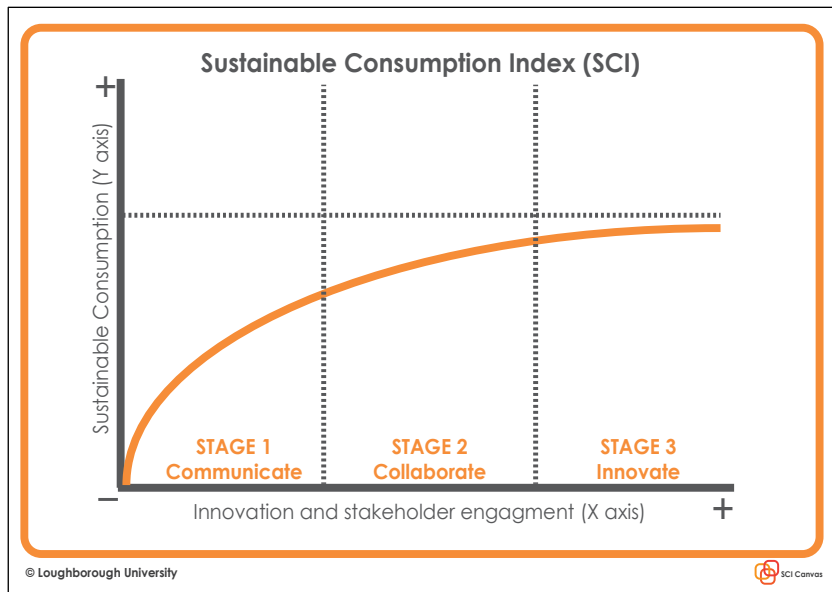


Figure 6-8 SCI Canvas

6.3 Development of the Workshops

Two types of workshops were developed: The Refinement of the Consumer-focused Strategies and the SCL Model Evaluation Workshops, described in *Section 6.3.1 and 6.3.2 respectively*. The workshops were developed to evaluate perceptions of the SCL Model and its Toolkit.

6.3.1 Refinement of Consumer-Focused Strategies Workshop

This workshop was designed with the purpose of assessing the best way to use the consumer-focused strategy cards. The main focus of this workshop was to gain insights from the participants about the coherence and application of the consumer-focused strategies. It was divided in six activities explained below.

Refinement of Consumer-Focused Strategies Workshop activities:

- **Activity 1:** A presentation of the research context and the overall aims and objectives to the participants.
- **Activity 2:** A case study (Rangan and Rajan. 2007) of a subsidiary company from Unilever in India – Hindustan Lever Ltd Project Shakti - was presented. The case study represents an innovative business model from the fast moving consumer good sector that claims to apply the Triple Bottom Line of sustainability – social, environmental and

economic pillars (Rangan and Rajan. 2007). *Due to* the limited time to conduct the workshop, the researcher previously assessed the case study using the evaluation criteria (explained in detailed in *Chapter 5*). Assessing previously the case study enabled participants to focus on evaluating the consumer-focused strategies and not the complete toolkit.

- **Activity 3:** The participants gathered in a single group and were asked to identify strengths and weaknesses of the case study, for each area of the evaluation criteria. The participants used post-it notes (*Figure 6-9*) to record their ideas and placed them on a template provided similar to the SCL Strengths and Weaknesses Canvas described above (*Section 6.2.1*).



Figure 6-9 Participants identified strengths and weaknesses of the case study according to the four factors of the evaluation criteria

- **Activity 4:** Participants were divided into groups (*described in Section 3.7.2.2*) according to the areas of the evaluation criteria (explained in detail in *Chapter 5*), and were asked to select appropriate consumer-focused strategy cards to brainstorm ideas towards sustainable consumption.

- **Activity 5:** With the chosen consumer-focused strategy cards, participants' elaborated ideas to develop initiatives that could possibly leverage more sustainable patterns of consumption.

- **Activity 6:** The participants gathered again into a single group to share their ideas. Finally a discussion was encouraged to elicit feedback from participants about their experience of using the cards.

6.3.2 Development of the SCL Evaluation Workshops

As part of the SCL Evaluation Workshops, a pilot (*Section 6.3.2.1*) and a main workshop (*Section 6.3.2.2*) were developed. As the research methodology followed an iterative process, the findings from the Pilot Workshops (*Section 7.2*) had an effect on the development of the Main Workshop. These changes are reported in this section.

6.3.2.1 Pilot Workshop

The pilot workshops were comprised of six activities and were conducted with three different companies:

- **Activity 1 - Introduction:** The context of research was introduced to the participants (referring to the lifecycle of a product/service and the environmental/social impacts of consumers, and giving an overall introduction to the model), followed by asking for their expectations of the workshop. This helped the moderator to know exactly what the participants were expecting, to then know how to conduct the workshop properly according to its aim.

Activity 2 – Application of the Evaluative Tool: The evaluative tool was introduced. Participants completed the two SCL self-evaluation canvases by answering the two different questionnaires introduced. After answering both questionnaires, the participants transferred their scores to a SCL Score Canvas.

Having transferred their scores to the score canvas, participants used post-it notes to identify strengths and weaknesses for each criterion regarding their scores to their current performance and its possible scope of improvement in the future. To complete this task, participants used a Strengths and Weaknesses Canvas (*Figure 6-10 and 6-11*). Through identifying strengths and weaknesses, a list of areas of opportunity that could be improved upon was generated

Consumer	Where is our company	Where our company wants
Consumer relationship	3	2
Consumer understanding	2	2
Value proposition	4	2
Consumer perception	3	2

Figure 6-10 An example of a Score Canvas with the identification of areas of opportunity done by participants

Consumer	Strengths
Criteria	
Consumer relationship	
Consumer understanding	
Value proposition	
Consumer perception	
	Weaknesses

Figure 6-11 An example of a Strength & Weaknesses Canvas with post-it notes used to identify strengths and weaknesses

This activity was conducted differently with each company due to the difference of number of participants (*described in Section 3.7.3.1*). For Company 1 (C1) and Company 3 (C3), participants were divided into four different teams (*see Section 3.7.3.1 to see the different teams formed*) according to the four areas of of the evaluation criteria, to answer each questionnaire regarding their expertise. Due to the reduced number of participants in the workshop conducted with Company 2 (C2), all participants answered the questionnaires together. The results of this task were not affected as the participants had sufficient knowledge to answer the questionnaires regarding each area of the model.

• **Activity 3 – Identify overall areas of opportunity to improve upon:**

This activity was also conducted differently for each company. During the workshops with C1 and C3, all groups gathered together to present their scores and the areas of opportunity identified. The moderator facilitated a discussion between the teams to identify the major areas of opportunity that they thought were most important to work upon. All ideas were recorded on flip charts regarding each area of the model (Figure 6-12).



Figure 6-12 Example of record of areas of opportunity identified by participants

With C2, the discussion was conducted between the three participants. The moderator recorded all their ideas on flip charts and then they choose one area of opportunity to work on.

• **Activity 4 – Apply the consumer-focused strategy cards:**

In the workshops conducted with C1 and C3, new teams were formed by mixing the people from each area of the evaluation criteria. This resulted in having four new teams for C1 and three new teams for C3 (Table 6-1). For C2, this activity was conducted with one single team.

Table 6-1 New Teams formed for Activity 4 - Apply the consumer-focused strategy cards in the workshops conducted with C1 and C3

New Teams C1	New Teams C3
Blue Team	Blue Team
Purchasing and Logistics Director (BMC101)	Innovation Group Brand Senior Manager (DesC302)
Factory Manager (SusC106)	Regulatory Senior Manager (SusC302)
Raw Material Purchasing Coordinator (SusC104)	Nutrition Senior Manager (CoC302)
R&D Product and Packaging Manager (CoC102)	Yellow Team
Yellow Team	Innovation & Snacks Regional Director (DesC301)
Corporate Affairs Director (BMC104)	Pull tools Head (BMC302)
R&D Manager (DesC103)	Safety Manager (SusC303)
Raw Material Purchasing Coordinator (SusC101)	Red Team
Red Team	Quality Director (BMC301)
Manufacture Director (BMC103)	Corporate Responsibility Manager (BMC303)
Packaging Purchase Coordinator (CoC101)	Intellectual Property Consumer Analytics Manager (CoC301)
Technician on Environmental Security (SusC105)	Agricultural Development Manager (SusC301)
Raw Material Purchasing Coordinator (susC102)	
Green Team	
R&D Director (BMC102)	
Packaging Manager (DesC101)	
Product Manager (DesC102)	
Environmental and Sanitation Coordinator (SusC103)	

The consumer-focused strategy cards were presented to all participants and it was explained to them that each strategy was related to the three key concepts of the theoretical framework – communication, collaboration and innovation (*Explained in detailed in Chapter 5*).

The participants were asked to choose one area of opportunity they thought as important and to apply the number of strategies presented in the cards that they considered appropriate to target that area of opportunity.

During activity 4, participants were also asked to think about why they choose certain strategies over others. The outcome of this activity was a brainstorm of ideas that the company could follow up in the near

future to create a plan of action towards targeting the areas of opportunity previously identified.

- **Activity 5 – Presentation of ideas:** The ideas generated by each sub-group were presented to the whole group. Within the presentation, each team said which strategies they used and why those strategies were useful to target that specific area of opportunity.

- **Activity 6 – Introduction to the sustainable consumption index (SCI):** The sustainable consumption index (SCI) canvas was introduced to the whole group. The idea of introducing the SCI to the participants was to give them the opportunity to picture which possible levels of sustainable consumption they could motivate with the strategies they used. *Chapter 5, Section 5.2.3* outlines in detail the purpose of the SCI.

6.3.2.2 Main Workshop

As explained in *Section 3.7.3.2* the Main Workshop was divided into two sessions. The activities for each session are described below.

First Session Activities:

- **Activity 1 - Introduction:** The context of research was introduced to the participants. In the pilot workshops it was found that a longer introduction should be made explaining the origins of research which referred to the lifecycle of a product/service and the environmental/social impacts of consumers; and explaining how the model, its components, and criteria emerged and how they related to each other with the overall aim to leverage sustainable consumption. This time the moderator did not ask for the expectations of participants. Questions were asked constantly to make sure that participants understood the grounds of the research.

- **Activity 2 – Application of the Evaluative Tool:** The application of the Evaluative tool was carried out exactly the same as in the pilot workshops (*See Section 6.3.2.1*).

• **Activity 3 – Identify overall areas of opportunity to improve upon:**

This activity was implemented as in the pilot workshops with C1 and C3, in which participants gathered together to present their scores and the areas of opportunity identified (*Figure 6-13*).



Figure 6-13 Participants presenting the areas of opportunity identified

Second Session Activities:

• **Activity 1 – Choosing the areas of opportunity to work on:** For this activity, participants were re-organized into two new teams as in Activity 4 of the pilot workshops. The new teams are depicted in *Table 6-2*.

Table 6-2 New teams formed in the workshop conducted with C4 to apply the consumer-focused strategy cards.

Blue Team	
Participants' Description	Code
Brand Management	CoC401
Packaging Technology	DesC402
Energy Management	BMSusC402
Red Team	
Sustainable Development Manager	BMSusC401
Brand Management 2	CoC402
Packaging Technology	DesC401
Energy team	BMSusC403

Having two sessions allowed the researcher to filter the areas of opportunity identified to select those deemed most influential in

motivating more sustainable patterns of consumption. Regarding the findings of the pilot workshops (*Section 7.2.4 and 7.2.5*), the process undertaken to filter the areas of opportunity was by analysing the internal and external aspects of the business that were identified by participants as important to think about when generating opportunities to leverage more sustainable patterns of consumption. These aspects were considered as influencers and are presented in detail in *Section 7.3.1.1 and 7.3.1.2*.

Before the session, six major areas of opportunity were identified and categorized by identifying what opportunities were considered by most participants as feasible to explore for the business (*Section 7.3.1.1 and 7.3.1.2 have a detail account of the six areas of opportunity identified*).

Each team chose one area of opportunity for each category identified. In the next activity, participants used the sustainable consumption index (SCI) and fourteen consumer-focused strategies to brainstorm ideas towards targeting the area of opportunity chosen.

• **Activity 2 – Introduction to the sustainable consumption index (SCI) and applying the consumer-focused strategy cards:** The SCI was introduced at an earlier stage of the workshop to be used while applying the consumer-focused strategy cards, so participants could use it as a tool to co-relate the strategies, and form targets for the level of sustainable consumption they could aim to motivate, while developing ideas. While introducing the SCI, the consumer-focused strategy cards were also introduced so participants could see the relationship between these and the three key concepts of the theoretical framework upon which the consumer-focused strategies and the SCI was built. Participants had an hour to use these tools to brainstorm ideas that could target the areas of opportunity previously chosen (*Figure 6-14*).



Figure 6-14 Participants using the strategies and the sustainable consumption index to brainstorm ideas

- **Activity 3 – Presentation of ideas:** As done in Activity 5 of the Pilot Workshops.

6.4 Conclusions

This chapter aimed to complete Objective 4.

- To develop a model and appropriate tools, to enable global companies to set tangible actions towards leveraging sustainable consumption.

In order to complete this research objective, the SCL Toolkit was designed as a mechanism to assist companies to implement the SCL model. The SCL Toolkit is comprised of an Evaluative Tool, Fourteen Consumer-focused Strategy Cards and the Sustainable Consumption Index (SCI) Tool.

This chapter also aimed to complete Objective 5.

- To evaluate and elicit reactions to the model and appropriate tools, in order to distinguish further opportunities for improvement.

To complete this aim, two types of workshops were designed to evaluate perceptions of the SCL Model and its toolkit. The workshops activities were designed specifically to guide participants to use the SCL Toolkit or components of it, to obtain feedback about its implementation. This was with

the purpose to inform the subsequent workshops in order to iteratively improve the model.

Chapter 7 will describe the findings of the SCL Model Evaluation Workshops. In this study, corporate reactions of the SCL Model were identified through three pilot workshops, which led to a main workshop. *Chapter 7* also evaluates the potential of the ideas generated at these workshops in motivating more sustainable patterns of consumption.

7 Findings - Phase 4: SCL Model Evaluation Workshops

7.1 Introduction

This chapter gives a detailed description of the findings of the pilot workshops and the main workshop conducted as part of Sustainable Consumption Leveraging (SCL) Model Evaluation Workshops shown in *Figure 7-1* reproduced below.

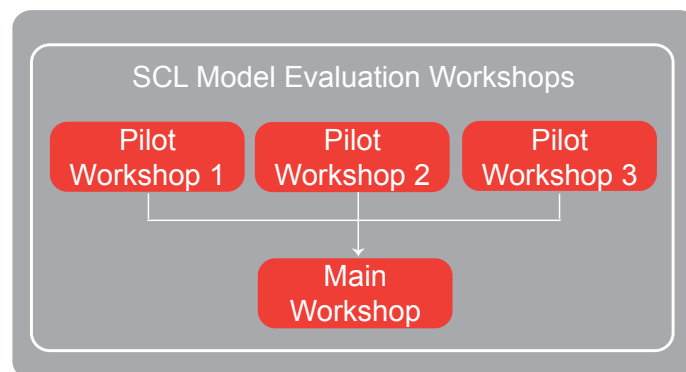


Figure 7-1 SCL Evaluation Workshops

In the three pilot workshops, corporate reactions to the SCL Model (*Chapter 5*) were studied by applying the SCL Toolkit (*Chapter 6*) in a workshop with three different multinational companies. The findings of these pilot workshops (*Section 7.2*) were compared to elicit general perceptions of, and reactions to, the SCL Model, and its application.

This chapter also reports on the findings of the main workshop (*Section 7.3*), in which, apart from analysing corporate reactions to the model, the potential of the ideas generated to motivate sustainable consumption were analysed and compared to those gathered through the pilot workshops.

The chapter concludes by reflecting on how objectives 5 and 6 of the research (*described in Section 1.2*) were met.

7.2 Findings – Pilot Workshops

The pilot workshops were conducted with three global companies from different sectors including a pet food manufacturer, a breakfast cereal manufacturer, and a large chain of retailers within the Mexican and Latin-

American division but focusing on the Mexican market (*Section 3.7.3 shows a full description of the sampling strategy, and Section 3.7.3.1 gives a full description of each company*).

The sampling strategy followed the conditions identified in *Section 4.2.1* and looked for companies that could possibly meet these conditions. However, the findings (*Section 7.2.1*) revealed that meeting the conditions had certain effects on applying the SCL Model and its toolkit, specifically in identifying areas of opportunity. In addition, the workshop methodology and the different configurations used to conduct the workshop also had some effects on perceptions of the SCL Toolkit and how it was applied. These effects are described in *Section 7.2.2* and *7.2.3*.

Finally, the findings from the pilot workshops examine the potential of the ideas generated to motivate sustainable consumption (*Section 7.2.4*), and discusses further improvements to the methodology that were applied in the main workshop (*Section 7.2.5*).

7.2.1 Meeting the conditions to apply the SCL Model and its toolkit

This section reflects on how meeting the conditions in *Section 4.2.1* affected the application of the SCL Model and its toolkit, specifically in identifying areas of opportunity to work upon.

The two main conditions (*Chapter 4*) to follow were to have an understanding of the value of integrating sustainability into the core strategy of the company and to recognize the importance of research and development (R&D) as a way of ensuring continual improvement. Although the sampling strategy aimed to identify companies that have in place a global sustainability strategy, the findings revealed that some of these companies still need to work upon a stronger localized sustainability strategy that is understood by all employees.

In addition, the sampling strategy also sought to target companies that apply research and development (R&D) for the continual improvement of their products and services. Despite this, the findings revealed that they had limited understanding and capabilities to implement design thinking. The disparity between assessing the conditions to truly meet them, and the

findings, was due to the use of secondary data to validate that the companies could meet the described conditions.

Through analysing secondary data, all companies were found to have a global corporate sustainability and innovation strategy in place. Approaching multinational companies in general was considered a limitation (see *Section 8.3*). But contacting them, to get the main contact of the company to answer a detailed questionnaire to assess if they really met the conditions, was also a constraint. Assessing how the evaluative tool was used, allowed the researcher to account for these differences. For example, the different configurations in which the pilot workshops were conducted (see *Section 6.3.2.1 for a full account of these configurations*) revealed the different understanding and actions taking place towards sustainability and towards implementing design thinking in each company.

In the pilot workshops with Company 1 (C1) and Company 3 (C3), (see *Section 3.7.3.1 for a full description of each company*) participants were chosen from a range of areas in which their activities fit within the four areas of the evaluation criteria of the SCL Model – Business Model, Consumer, Design and Sustainability (*Section 5.2.1*). This helped to build a multi-disciplinary team around these areas, which enabled participants to evaluate their company according to these areas, and enriched discussion of the different challenges towards sustainability and sustainable consumption. Both companies were manufacturers, thus participants in both companies (SusC301, SusC303 SusC101, SusC105, SusC106), agreed that up to now their efforts have concentrated on improving their environmental performance in the manufacturing stages.

“We have done extremely well to reduce environmental impacts in the manufacture stages, but we haven’t done much with our supply chain...[but in order to do more, we have to have a common understanding to what] sustainability means, every one has their own definition to what sustainability means” (SusC301).

Participants in both companies (BMC101, BMC103, BMC302, Sus0301) agreed that in order to engage in improving other aspects of sustainability, a

common meaning of sustainability should be embedded throughout the workforce of the company at a local scale.

“We have to have a deep understanding [of sustainability] so we can demonstrate what benefits could sustainability bring to the business specifically from my area of collaboration and influence” (BMC302).

This will help not just to communicate with consumers and other stakeholders about their current actions towards halving environmental and social impacts, but also to make a connection between the sustainability efforts carried out within the production stages including the supply chain, and those within the consumption stages. As such, participants (SusC104, DesC103, SusC301) realized that if they start to think in a more integrated way about the sustainability efforts carried out at the moment, they would be able to think about efforts that could go beyond the manufacturing stages and consider, more holistically, how to influence consumers to adopt more sustainable patterns of consumption.

“It is not just about to communicate your sustainability efforts, it is also about communicating actions that could make the consumer more sustainable” (SusC104)...“the opportunity...is to make the connection between the consumption stages with the productive/supply chain stages – who is us” (DesC103).

As a result, two teams of four during the workshop with C1, and one team of three during the workshop with C3, worked on areas of opportunity that were related to improving the understanding of sustainability within the workforce to engage employees to put in place more actions towards sustainability to then look into ways of influencing consumers to make more sustainable choices (*Table 7.1*). The other C1 teams worked on areas of opportunity that related to engaging more with consumers to leverage more sustainable patterns of consumption. The other teams in C3 worked upon areas of opportunity to enhance business innovation through applying aspects of design thinking. The latter will be described later in this section. *Table 7.1* depicts the areas of opportunity identified relating to the company’s understanding of sustainability.

Table 7-1 Areas of opportunity related to the understanding of each company about sustainability.

Areas of opportunity to apply the consumer focused strategies related to the understanding of each company about sustainability			
Areas of opportunity to engage employees into sustainable actions		Areas of opportunity to engage consumers into sustainable actions	
Create sustainability awareness inside the company	C1	Communicate simple sustainability actions to the consumer through our packaging	C1
Create a stronger social responsibility programme to engage employees to volunteer in educational programmes that can impact consumers to make more sustainable choices	C1	Engage consumers into sustainability actions through programmes and innovation in our products.	C1
Create sustainability awareness inside the company to be able to transmit our sustainability efforts outside the company	C3		

In contrast, the workshop conducted with Company 2 (C2) was with three members of the sustainability area (*as described in Section 3.7.3.1*). As a retailer, the area of opportunity they chose was based on designing “*new business models, or service models that are not just efficient or eco-efficient, but also that are more convenient to the consumer. [They recognized that they] need to have different business models with different services that are more sustainable in general*” (SusC202).

According to the findings in *Section 4.2.2*, new business models will have to be set in place in order to deliver more sustainable businesses and thus leverage sustainable consumption. As such, to innovate in order to create not just better products or services but also better business models, it will be necessary to challenge the actual business model of a company. All participants from C2 agreed with this by acknowledging that despite the fact that their business model is considered to be novel and has proved to be successful; they still have to innovate to continue competing with new business models.

“Our business model has been quite novel, as such that it is leader in the traditional market...however now a day there are some competitors which are more novel than us (SusC201). [Thus], we are looking for new business models that involve new channels” (SusC202).

As described in *Section 4.2.2.* and *5.2.1* design thinking can play a valuable role in unlocking new business opportunities, especially to leverage sustainable consumption. However, the three companies involved in the pilot workshops did not have a clear idea of what design thinking means. The application of the evaluative tool which is part of the SCL Toolkit, helped the researcher to assess their understanding of design thinking by searching for their current abilities in utilizing user-centred design methods to gain a deep understanding of users' needs, their abilities to think systemically and their abilities to work in multi-disciplinary teams.

Through the evaluative tool, the findings revealed that although all three companies reportedly follow an innovation process; they still have to learn about the value of design thinking. Participants of C3 looked at this as an area of opportunity. They recognized that multi-disciplinary working, prototyping early and iterating and testing in the lab and in the market, could be beneficial to their innovation process.

We are starting to iterate earlier in the process [of innovation] – we did some user testing on the shelves, at home, with nutritional experts, with schools... (DesC302).

In terms of multi-disciplinary working we see an opportunity...we work already in multi-disciplinary teams but there is a great opportunity to integrate it more, especially when you talk about working with external actors... (DesC302).

As such, one team in C3 identified “*know[ing] about consumers’ environmental impacts and consumers’ perceptions about [their] products [and] integrat[ing] this knowledge in [their] innovation process and corporate strategy*” (DesC301) as an area of opportunity. A second team identified exploring the benefits of “*creating strong partnerships to communicate sustainability to [the] consumers in order to influence them*” (DesC302) as a further opportunity area.

In terms of systems thinking, four participants assessing the design area in the three workshops recognized that there is great scope for improvement in applying systems thinking in their company to shape business strategies, map strategic models, and connect intentions to outcomes.

While presenting the scores of the evaluative tool, C1 talked about *“how as a culture, [they] have to think in a more integrated way to work in effective multi-disciplinary teams, as sometimes there is certain disintegration that limits the way they visualize their own systems”* (DesC102). C2 recognized that they do not think systemically as they do not challenge themselves to put in place new systems. This is because they consider that they are *“very good in replicating what already worked [for them]”* (SusC202). Finally C3 recognized that *“in order to connect intentions to outcomes, [they] need to work as a machine that integrates all the parts... from how [they] buy [their] raw material, to how [they] sell [their] product in the point of sale and [to which is] the experience that the shopper has”* (DesC302).

The different configurations in which the pilot workshops were conducted and the use of the evaluative tool (part of the SCL Toolkit), helped the researcher to comprehend the different understandings and actions taking place towards sustainability and towards implementing design thinking in each company. This understanding had an implication on choosing the areas of opportunity to work upon.

Areas of opportunity related to the companies' understanding of sustainability

- C1 and C3 chose areas of opportunity that are related to improving the understanding of sustainability within the workforce to engage employees to put in place actions towards sustainability to then look into ways of influencing consumers to make more sustainable choices. They chose this area of opportunity because they realized that a common meaning of sustainability should be embedded throughout the workforce at a local scale.
- C1 also chose areas of opportunity related to engaging consumers in more sustainable actions.
- C2 chose areas of opportunity related to innovating in their business model as their strategic understanding of sustainability was more solid and thus they recognized that to leverage more sustainable patterns of consumption, new business models should be set in place.

Areas of opportunity related to the companies' understanding of design thinking

- Although it was found that all companies still need to understand the value of design thinking, only C3 looked at this as an area of opportunity and recognized that design thinking could be beneficial in their innovation process.

7.2.2 Workshop Methodology: Effects on applying the SCL Toolkit

This section describes how some methodological choices of the SCL Model Evaluation Workshop affected the application of the SCL Toolkit, specifically in applying the consumer-focused strategies cards. First, the section describes more in depth the implication of having a degree of freedom in selecting and using the strategy cards. The effects of showing the sustainable consumption index (SCI) tool after applying the consumer-focused strategy cards are then discussed. Finally, this section reflects on the time allocated to conduct the workshops and its effects on the outcomes of applying the consumer-focused strategy cards.

The findings in *Section 7.2.1* reflected on the factors that influenced how each company's participants identified areas of opportunity and then chose those which were considered as important to them to apply the consumer-focused strategy cards. The methodology of the pilot workshops allowed a degree of freedom for participants in the way they selected and applied the consumer-focused strategy cards. As such, the teams in C1 and C3 that chose to work on areas of opportunity to engage employees into sustainable actions (*see Table 7-1 p.161*) adapted those consumer-focused strategies directed to the consumer by changing "consumer" to "our workforce."

"The strategy says: create experiences that make consumers feel good – so we can adapt the strategy and say – to transmit internally the corporate sustainability strategy we can – create experiences that make our workforce feel good" (BMC103).

Having a certain amount of freedom in the selection and use of the consumer-focused strategy cards, also allowed some teams from C1 and C3 and participants from C2 to "order the most important strategy cards in categories or steps, to develop ideas" (SusC101). As such, some of these teams linked the consumer-focused strategies with others to develop chronological phases to target a specific area of opportunity.

"Lets see the strategies to put an order in them (BMC303)... yes lets order the strategies according to what goes first, second and last... [So, to know what consumer's expect from sustainable products] we need to understand which are the sustainable attributes the consumer sees in our products, [to influence consumers to behave more sustainably] you need to understand what triggers them...so first you understand the consumer, then you

establish certain rules to integrate them in the innovation process and finally you establish an iterative process to test the developed concepts to get as much feedback as you can”
(DesC301).

Some of these chronological phases were linked to the theoretical framework in the three pilot workshops as six participants saw that *“some strategies are related between communication and collaboration and between collaboration and innovation”* (BMC104). However, as the sustainable consumption index (SCI) tool was introduced after choosing the consumer-focused strategy cards, they did not see a correlation of applying them and the possible levels of sustainable consumption that they can motivate.

Subsequently, four participants from the three companies acknowledged that presenting the SCI tool beforehand could *“guide them on how to use better the strategies and to set certain targets”* (BMC103). The reason is that some of them perceived that they needed a *“metric as a guidance to measure the possible levels of sustainability of the different ideas or projects”* (DesC101).

In general, eight participants from C1 and C3, perceived the consumer-focused strategy cards as *“helpful to brainstorm around a central idea”* (DesC103) and as a good tool *“that guides you to develop strategies”* (CoC102). However four participants from the same companies considered that some of the ideas developed *“needed further work to be finalized”* (BMC103).

The former could be related to the fact that three participants from C1 perceived that they needed *“more time for the session ...than four or five hours... to discuss and to create, [and] to develop detailed ideas [that can be transferred to] action plans, objectives, timetables, etc”* (BMC103). Even three participants from C1 and C3 suggested having a *“follow up session to develop the ideas into action plans”* (CoC302). Two participants from C1 also perceived that only one session could be *“ambitious to complete all the tasks...as, some [participants] lost the objective of [some of the activities including] applying the consumer-focused strategy cards”* (CoC101).

Three methodological implications were identified that affected how participants applied the consumer-focused strategy cards.

- Having a degree of freedom in using the consumer-focused strategy cards allowed participants to change the wording of some of them. It also allowed participants to order the consumer-focused strategy cards in chronological phases linking them to the theoretical framework.
- The sustainable consumption index (SCI) was presented after using the cards. However presenting it beforehand could have helped participants to set targets while using the strategy cards.
- The time allocated to conduct the workshop was a constraint as it was identified that there was not enough time to develop further the ideas generated and transfer them into action plans.

7.2.3 Different configurations of the SCL Model Evaluation Workshop

As explained in *Section 7.2.1* the configuration applied with C1 and C3 helped to create a multi-disciplinary team. Six participants from C1 and C3 agreed that creating a multi-disciplinary team helped *“to encourage interesting discussions that provoke reflection about the current and future performance of the company amongst the four factors to implement future strategies ”* (BMC103).

Despite this, four participants from all three companies felt that there should be a closer correlation between the four areas of the evaluation criteria used in the evaluative tool of the SCL Toolkit. BMC104 realised that this disconnection could be because *“it was not clear why [the researcher] chose those areas and its criteria.”* Other three participants from the three workshops felt that *“the areas should be more embedded between each other.”* (SusC201) Despite this, in general participants from C1 and C3 recognized that *“having a multi-disciplinary team encouraged a discussion which gives a better understanding of the chosen areas, especially whilst identifying areas of opportunity”* (CoC302). Two participants also recognized that facilitation of the workshop was important to make a correlation between areas.

“At the beginning I felt that the activity had to do with innovation, business strategy, communication. I felt that sustainability was lost amongst these concepts...but at the end you guided us to see the correlation [between the areas of the model]” (BMC101).

In contrast within C2, the discussion was within a single team from the same area. As such, they did not benefit from having a multi-disciplinary team and as a consequence, the discussion was not enriched with the point of view of other areas within the company. As a result, they felt that *“sustainability was isolated from the business model”* (SusC202), and they suggested the use of scenarios to interconnect sustainability within the business model and to foresee changes in the future.

“A stronger link exists between the four factors...[to make that connection], creating possible scenarios are useful as they can challenge the actual business model...specially by linking sustainability to the other factors...for example [create a scenario about the] climate change implications on the business model” (SusC201).

Despite this, the three participants from C2 also recognized that a facilitation process is needed *“as questions may arise during the process”* (SusC203). As such, thirteen participants from the three pilot workshops agreed that a guided process with a facilitator is needed as *“[facilitation] is imperative for the success of the implementation of the SCL Model and its toolkit (BMC104)...especially during the introduction [given about] the SCL Model”* (BMC301).

Participants from the three workshops perceived the SCL Model and its toolkit as a good mechanism to identify areas of opportunity and develop future strategies. However between the three companies there were different perceptions regarding whether the ideas created will be developed and implemented. In C1 and C3, nine participants agreed that they would develop further some of the ideas created, as they perceive it as a need of the company.

“Since the discussion enabled to see what different areas are doing, we could see that there is an opportunity to improve upon on what we do. We need to revise our processes but definitely there is an opportunity” (BMC303).

Three participants from C1 agreed that there is a big possibility of developing and implementing the ideas created because of the participants targeted to be in the workshop. For the workshop with C1 fifteen participants were chosen including directors, managers and coordinators. Participants felt that

because attendants with certain power in decision-making were involved into the process, *“they showed their commitment towards improving upon the areas of opportunity identified...[and thus] it will be possible to develop the ideas generated”* (Desc103, SusC101).

For the workshop conducted with C3, thirteen participants were chosen – including directors, senior managers and managers. Despite the fact that the level of participants was higher than those in the workshop conducted with C1, three participants perceived that there is not a great opportunity to further develop the ideas as *“big strategic directions come more from headquarters...and despite the level of attendants was appropriate, the regional leadership team should be involved to capitalize on the ideas generated”* (CoC302).

As such, including different participants within a range of areas and levels in which their activity fit within the four areas of the evaluation criteria of the SCL Model, is important to create a multi-disciplinary team, as having a multi-disciplinary team proved to generate interesting discussions. However to develop and implement the ideas generated, it is important to include participants that are part of the decision making of the company.

Different configurations regarding the number and the level of participants were assessed in the pilot studies to understand which is the best configuration to run the SCL Model Evaluation Workshop.

The findings revealed that the best configuration is to have a multi-disciplinary team and to facilitate the workshop as participants make a better connection between the four areas of the evaluation criteria of the SCL Model in which the teams are divided. It was also found that the level of participants that should participate at the SCL Model Evaluation Workshop should be decision makers or at least have a certain degree of influence with decision makers.

7.2.4 Potential of the ideas generated to motivate sustainable consumption

Drawing on participant reflections gathered through the evaluative questionnaire to identify different areas of opportunity (see *Section 7.2.1*); this section reflects on the ideas generated in the pilot workshops and their

potential to motivate more sustainable patterns of consumption compared to the areas of opportunity identified, the consumer-focused strategies applied, and to the position of companies in expanding upon the ideas generated after three months of conducting the SCL workshop. The findings in this section are reported for each company, as the potential to motivate more sustainable patterns of consumption varied between them.

In addition, through the analysis of the areas of opportunity identified, it was found that a series of internal and external aspects of the business act as influencers to think about opportunities to leverage more sustainable patterns of consumption.

7.2.4.1 Findings for Company 1 (C1)

Within C1, from four teams, two worked on areas of opportunity related to improving the workforces' understanding of sustainability, which can be considered as an internal aspect. To target these areas of opportunity, the ideas developed through the use of the consumer-focused strategies were related to engaging employees in sustainability actions. The consumer-focused strategies that they used were related to collaboration and to innovation.

The green team (*see Section 6.3.2.1- activity 4 for a full description of the teams formed to apply the consumer-focused strategy cards*) worked on: *creating sustainability awareness inside the company*, and used the following innovation consumer-focused strategy

- Create experiences that make consumers feel good.

However, as explained in *Section 7.2.2* they changed 'consumers' to 'employees'.

The yellow team worked on the area of opportunity: *creating a stronger social responsibility programme to engage employees to volunteer in educational programmes that can impact consumers to make more sustainable choices*. They used two collaboration consumer-focused strategies:

- Collaborate with different people inside and outside the company, and

- Enable partnerships with collaborators to deliver efficient educational programmes and campaigns.

In contrast, the two other teams (red and blue) that made up the C1 workshop, participants worked on areas of opportunity that engage consumers into adopting more sustainable behaviours. These areas of opportunity emerged from identifying what initiatives other companies are implementing to motivate more sustainable patterns of consumption.

“...Such as...who promotes their packaging as biodegradable (DesC103)...or the fizzy drink manufacturer that invested in a bio-bottle and is the strongest partner of Eco-PET... consumers know about these” (BMC102).

As such, these areas of opportunity relate to an external aspect of the company. Both teams applied communication and innovation consumer-focused strategies.

The blue team worked on: *communicate simple sustainability actions to the consumer through their packaging*, and applied a communication strategy

- Create and communicate product/service attributes that offer direct benefits to the consumer,

and an innovation strategy

- Continual evaluation of a new product/service/campaign/business model through iterative processes, procedures or/and appraisals.

The red team worked on: *engage consumers into sustainability actions through programmes and innovation in their products*, and applied a communication strategy:

- Make pro-sustainable consumption/behaviour rewarding, fun, and interesting to the consumer,

and a innovation consumer-focused strategy

- Create experiences that make consumers feel good.

However, although a mix of communication and innovation consumer-focused strategies were used, the teams that worked on areas of opportunity that engage consumers into adopting more sustainable behaviours just thought about communicating to the consumer about the actions towards sustainability that the company is implementing.

“We can evaluate if our services and processes are sustainable before, during and after we manufacture a product...[as such, we can] inform our consumers [about our sustainability actions] so they can be informed about what we are doing to then influence them” (CoC102).

In addition, as explained in *Section 7.2.2*, a relationship between the consumer-focused strategies was found.

“We focused on two strategies: one communication strategy and one innovation strategy. We found that these strategies are related to each other” (CoC101).

However, this relationship did not have any reference to the sustainable consumption index (SCI) as this was introduced afterwards, and thus it seemed difficult for them to measure the possible levels of sustainable consumption they could motivate.

Three months after the workshop had run, Company 1 (C1) acknowledged that *“first [they] have to work upon integrating a stronger sustainability strategy amongst all the company so it can be understood by all employees, to then develop a more detail action plan [towards the consumer]” (BMC103).* Thus it was inferred that at this moment the levels of sustainable consumption they could motivate could not surpass the communication stage. Despite this, the company acknowledged that the workshop had helped them to set a five year plan in which they are *“looking at the corporate efforts/metrics to align (them) as much as possible... to have a robust sustainability strategy in the company” (BMC103).*

7.2.4.2 Findings for Company 2 (C2)

Within the workshop conducted with C2, the participants worked on the following area of opportunity: *developing new business models that are more convenient for the consumer, but at the same time that can encourage more sustainable services.*

This area of opportunity emerged from identifying that “*as the business model evolves, consumers look for new ways to shop, and interact with the business...similar to the opportunities that e-commerce brought*” (SusC201). As such, it was considered that the opportunity found was related to an external aspect.

As no guidance on using the consumer-focused strategy cards was given, they ordered them into three phases to work upon the area of opportunity identified. The first phase was ‘to know the consumer’; the second ‘to interact with consumers to communicate with them’, and the third phase was ‘to promote initiatives to consumers that could foster more sustainable patterns of consumption’. For each phase they used different consumer-focused strategies without referencing the SCI as this was introduced after.

*“[To develop new business models] we need to know our consumer...so we saw these strategies as being very similar – **understand consumer’s needs within their context of use, provide opportunities for collaboration between consumers and the company to enable two-way feedback, and as such improve consumer experience, communicate with consumers in order to have an in-depth understanding of the barriers, triggers and motivators to adopt a new sustainable behaviour** – ... we cannot communicate without doing the former first. To communicate with the consumer we need to - **create and communicate product service attributes that offer direct benefits to the consumer, enable partnerships with collaborators to deliver efficient educational programs and campaigns, and innovate to create and communicate a strong value proposition to the consumer.** - We cannot move forward to the third phase of promotion in which - **we make pro-sustainable consumption rewarding, fun and interesting to the consumer and create experiences that make consumers feel good-**, without first knowing the consumers and interacting with them.” (SUSC202)*

Using a mix of communication, collaboration and innovation consumer-focused strategies allowed the team to develop a guidance with steps and strategies that will help them to develop new business models that could deliver more sustainable services in which the consumer could be motivated to practise more sustainable patterns of consumption.

According to the findings in *Section 4.2.2*, developing new business models can help to motivate more sustainable patterns of consumption. Thus, the potential of the level of sustainable consumption could be high. However the

team did not relate the strategies chosen to the three key concepts of communication, collaboration and innovation, so it is not clear which levels of sustainable consumption they could motivate and to what extent. In addition, after three months, C2 acknowledged that they had not followed up any of the ideas that emerged at the workshop as *“they have other priorities to attend with certain time frames”* (SusC202).

7.2.4.3 Findings for Company 3 (C3)

Within C3, three areas of opportunity were chosen to work upon. From these areas of opportunity, one was related to improving the understanding of sustainability within the workforce, which was considered as an internal aspect. This area of opportunity was: *to create sustainability awareness inside the company to be able to transmit our sustainability efforts outside the company.*

The yellow team (*Section 6.3.2.1*) worked in the area of opportunity described above and the communication consumer-focused strategies that they used were:

- Create and communicate product/service attributes that offer direct benefits to the consumer and,
- Communicate with consumers in order to have an in-depth understanding of the barriers, triggers and motivators to adopt new sustainable behaviours; -

They also used the collaboration consumer-focused strategy:

- Enable partnerships with collaborators to deliver efficient educational programmes and campaigns.

As with C1, they adapted the communication consumer-focused strategy by changing ‘consumer’ for ‘employee.’

In contrast, the two other areas of opportunity identified were related to external aspects such as exploring the benefits of applying multi-disciplinary working with other stakeholders and understanding in depth consumers’

perceptions and practices to integrate these into their innovation process and therefore leverage more sustainable patterns of consumption.

The red team worked on the area of opportunity related *to know about consumers' environmental impacts and consumers' perception to integrate this knowledge in the innovation process*, and used the communication strategy

- Communicate with consumers in order to have an in-depth understanding of the barriers, triggers and motivators to adopt new sustainable behaviours,

and the innovation strategy

- Continual evaluation of a new products/service/campaign/business model through iterative processes, procedures or/and appraisals.

In addition, the blue team worked on the area of opportunity: *create strong partnerships to communicate sustainability to the consumer in order to influence them*, and used the *collaboration consumer-focused strategies*:

- Collaborate with different people inside and outside of the company,
- Enable partnerships with collaborators to deliver efficient educational programmes and campaigns, and
- Provide opportunities for collaboration between consumers and the company to enable two-way feedback and as such improve consumer experience

and the innovation consumer-focused strategies

- Continual evaluation of a new products/service/campaign/business model through iterative processes, procedures or/and appraisals.

Even though a mix of communication and innovation strategies, and a mix of collaboration and innovation strategies were used, the discussion amongst these two teams focused on *“communicating to the consumer and other stakeholders what the company will do to innovate to deliver more*

sustainable products” (DesC301) and on “which collaborations are needed to design social and environmental programmes that can engage consumers into more sustainable actions e.g. packaging take back scheme” (CoC302).

Thus, it could be said that the levels of sustainable consumption could not surpass the communication-collaboration stages, as there was no evidence of ideas generated during the workshop that actually focus on innovating on the business model or their products. In addition, after three months of conducting the workshop, C3 also acknowledged *“that first the company has to recognize a sustainability strategy, to then create the awareness between the employees to start working on [influencing more sustainable patterns of consumption]” (CoC301).*

7.2.5 Further improvements to the SCL Model Evaluation Workshop

As the findings from the pilot workshops revealed, the participants felt that there was a disconnection between the four areas in which the teams were divided in the workshop. Despite this, participants of C1 and C3, for whom workshops were conducted within a multi-disciplinary team, agreed that this configuration helped them to understand the interconnection within the four areas of the evaluation criteria used in the evaluative tool of the SCL Toolkit. They also agreed that facilitation of the process was necessary to better understand why those areas and their criteria were chosen.

Thus, it deemed necessary that in the main workshop, the facilitator needed to spend more time explaining the research aim and objectives, which research questions were formulated, and how the factors of the SCL Model and their criteria emerged to the participants. These changes had a positive effect on the main workshop as four participants acknowledged that the SCL Model takes into account a holistic view of the business as *“it follows a life-cycle thinking approach, [which] focus on four aspects of the business” (SusBMC403).*

It was also found from the pilot workshops that some areas of opportunity to work upon were related to setting a stronger localized sustainability strategy in place that is understood by all employees. This was because the evaluative tool aimed to assess the company’s efforts towards achieving a

more sustainable business model, to then identify areas of opportunity towards more sustainable patterns of consumption. As such, it was identified (*Section 7.2.4*) that there are internal and external aspects of the business that could act as influencers to think about opportunities to leverage more sustainable patterns of consumption. Thus, it seemed necessary to set up a filter in which participants could distinguish between areas of opportunity that relate to internal aspects of the business, to those areas of opportunity that relate to external aspects.

As participants from the pilot workshops felt a bit overwhelmed by having to complete all the tasks in one session, it was decided to split the time into two sessions for the main workshop (see *Section 3.7.3.2 and 6.3.2.2 for a description of the workshop activities conducted in two sessions*). Participants from the main workshop agreed that splitting the time “*help[ed] participants to digest the information... to reflect [about the previous session] to develop ideas [in the next session]*” (SusBMC401).

Splitting the time into two sessions allowed participants to focus more on the activities, but also allowed the researcher to create a filter. This filter consisted of analysing the internal and external aspects of the business that were identified by participants as influential to think about opportunities to leverage more sustainable patterns of consumption.

This classification was then presented to participants in the second session of the workshop. It was explained to them that due to the aim of the model and its scope, the areas of opportunity identified were filtered regarding internal and external aspects of the company, which were considered as influencers to think about initiatives to motivate more sustainable patterns of consumption.

Also through facilitation, participants could choose between areas of opportunity that could be considered as priority to leverage sustainable consumption. The SCL Model considers a holistic approach as it takes into account the business model of a company and its value chain including the efforts done to minimize environmental and social impacts of products/services throughout their lifecycle. Therefore, just focusing on areas

of opportunity to improve internal issues, as some companies did, does not enable consideration of the holistic approach that the SCL Model tried to represent.

It was also found that participants of the pilot workshops felt that there was no guidance on how to use the consumer-focused strategy cards appropriately and as such they could not set appropriate targets. This lack of guidance was also related to the fact that participants saw a correlation between the strategies but they were not able to link them appropriately. Also by analysing the potential of the ideas generated to motivate more sustainable patterns of consumption, it was found that participants require guidance that they can refer to measure the possible levels of sustainable consumption they could motivate. As such, it was decided for the main workshop to introduce the sustainable consumption index (SCI) tool with the strategies. Like this, participants can make reference to the strategies, find a correlation between them, and set appropriate targets for the level of sustainable consumption they are aiming to motivate, while developing ideas.

Finally it was found that the best configuration to conduct the workshop was with a multi-disciplinary team that covers different areas of specialist knowledge that fit within the four factors of the SCL Model. This is because it not only encourages interesting discussions that provoke reflection but also helps participants to understand better the connection between the four areas of the evaluation criteria used in the evaluative tool of the SCL Toolkit. In fact, participants from the main workshop agreed that a multi-disciplinary team helped them to *“think about the business...through [analysing] current strengths and weaknesses to develop new ideas and evaluate them...[This analysis also helped] to make linkages that are already happening [to] make things better [without] saying that is always something about sustainability, [but] what comes out of this is more sustainable solutions that you can start to implement”* (SusBMC401).

In terms of targeting the right level of participants, it was found that participants who have the power to make strategic decisions or that could influence decision makers are necessary to develop and implement the ideas generated. Getting participants for the main workshop that take corporate-level decisions was considered as a limitation due to the time it requires them to be away from their daily activities. However the configuration for the main workshop comprised a multi-disciplinary team; in which attendants were considered to have a degree of influence in corporate-level decision makers.

Regarding the findings of the pilot workshops the following changes to the SCL workshop methodology were made in the main workshop:

- The SCL workshop should be conducted with a multi-disciplinary team.
- The session should be facilitated at all times, as the findings revealed that guidance is very important during the whole process.
- A filter should be set in place to identify areas of opportunity related to external and internal aspects of the business.
- The session could be divided in two sessions to apply the filter described above.
- The sustainable consumption index (SCI) tool should be with the consumer-focused strategy cards.
- It is important to recruit participants with a certain degree of influence in corporate-level decisions.

7.3 Findings – Main Workshop

The main workshop was conducted with the UK division of a leading pharmacy-led, health and beauty retailer and manufacturer. To identify this company the code C4 (Company 4) was allocated.

7.3.1 Finding Areas of Opportunity – methodological implications

This section reflects on some of the methodological changes to the SCL Model Evaluation Workshop and their implications in finding areas of opportunity. As part of the pilot workshops, it was identified that a filter to identify areas of opportunity was necessary (*Section 7.2.5*). This filter was created by looking at the internal and external aspects of the business, identified by participants, that act as influencers to think about opportunities to leverage more sustainable patterns of consumption. Six major areas of

opportunity were identified in the main workshop according to the following categorization:

1. Areas of opportunity that relate to internal aspects of the company and how they can help to find opportunities to leverage sustainable consumption (*Section 7.3.1.1*).
2. Areas of opportunity that relate to external aspects of the company, and how they could lead to opportunities to leverage sustainable consumption (*Section 7.3.1.2*).

7.3.1.1 Areas of opportunity that relate to internal aspects of the company

Through the analysis undertaken to filter the areas of opportunity according to internal influencers, the researcher identified three areas of opportunity described below. These were presented to one of the teams on the second session of the workshop (see *Section 6.3.2.2*) so they could choose one to work upon. This section also describes how these internal influencers are related to the drivers found in *Section 4.2.3*.

1. Take a sub-brand and build an exemplar sustainability business case

Four participants saw an opportunity to build a business case that could be used as an exemplar, to account for soft benefits that could represent major financial benefits.

“Which are the advantages of sustainability that we research?...there are none on the balance sheet, they are the soft benefits...but actually [building] a business case can [help] to justify it...[just] if you can find an opportunity breaking from that cost”

(SusBMC403, DesC401, SusBMC401)

This was because it was found as an internal aspect that influences Company 4 (C4) in considering implementing a sustainability strategy into their business model and brands, the difficulties they have as a business *“to quantify the commercial benefits of [implementing ideas] related to sustainability”* (SusBMC401). Three participants agreed *“it is difficult to [quantify] that this is actually worth X amount of pounds to the business, as [we] do not have ways to quantify it”* (SusBMC401).

Therefore, the company in many cases is not prepared to account for soft benefits that a sustainability strategy could bring, if these do not represent a financial benefit.

This aspect of influence is related to the communication driver (*Section 4.2.3*) that says that a company would only embark on a journey of sustainable consumption if it gains a business benefit. Five participants continually mentioned that *“any idea has to have a commercial benefit...otherwise will not be realistic”* (CoC401).

It was also identified by four participants that an exemplar business case should be built around a sub-brand because the company’s *“design and innovation [process is done] on a product brand level [rather than] on a corporate level”* (DesC401), which is typical of fast moving consumer goods companies.

2. How can we build upon and further strengthen our partnerships?

Five participants agreed that C4 has very strong relationship with some of their partners.

“[Our] partnerships it as a great strength...one of the great things in terms of our business model is with who we partner” (CoC401)

But also agreed that partnerships with their supply chain could be strengthened.

“ [We] looked at [our] suppliers carbon foot-print and what we discover is all the stuff suppliers are doing...we should know more about [what our suppliers are doing] because there are lots of opportunities of working together” (SusBMC401).

These factors were considered as internal influencers, and as such participants acknowledged that an opportunity exists to build upon and strengthen their partnerships.

In addition, these factors were related to the collaboration driver (*Section 4.2.3*) as embarking on a journey of sustainable consumption

might depend on whether other companies are doing something about it. For example *“[because other companies] are using palm oil from sustainable sources, [pressures] from the media are looking at [us] in how [we] use palm oil...no matter if [our] use of palm oil is very small”* (SusBMC401).

3. The opportunities provided by researching a macro-trend

Two participants saw an opportunity to research and understand better macro-trends. This was because it was found as an internal influencer by five participants from different teams, that C4's innovation strategy is to be 'fast-followers'. Being a 'fast follower' means to learn quickly from those companies who entered first to the market with a new product (Chiu *et al.*, 2006). Three participants felt that being fast followers was an advantage in the innovation process.

“Being fast followers...have been the ethos of inventing new things, we see what other people are doing and then we do it better” (SusBMC401)

However other participants acknowledged that sometimes they *“still do not understand why [they] are doing it”* (DesC401). As such, the design team proposed to *“understand the macro-trends to understand why they are [implementing a fast follow strategy]”* (DesC401).

In addition, it was recognized that *“in sustainability it can be very strong to understand the overall trends, [to assess if the company is ready] to move in that direction [before saying]...is not a realistic proposition”* (DesC401). As such, it was recognized that looking at macro-trends could help to see *“if the rest of the market moves on it”* (DesC401).

However, by looking for macro trends, C4 will have to consider where is the balance, as certain things like justifying changes on their supply chain i.e. have a bio-bottle in all of their products, would not be as easy to implement as *“[they] account for a very diverse supply chain, in which [they] source small [amounts] of a large range of [merchandises]...so it will be very [expensive for the company that suppliers] can make small quantities just for [them]”* (SusBMC401). On

the contrary, *“developing further [in their] infrastructure...[could] give [them] better opportunities...to innovate”* (CoC402). This is because participants acknowledged that they have a strong infrastructure as *“the integration of [their] supply chain and manufacture happen in [their] own belts”* (SusBMC401).

In addition - *getting a full account of consumers' insights* - was identified as an influencer related to an internal aspect of the company, because it was identified that *“[the company] have the skills and people required to gain a deep understanding of their consumers, before, during and after the design process”* (DesC401). However, *“[they] do not [apply technics] to know much about the [consumer]”* (SusBMC401).

This influencer was presented to participants as one that could affect the six areas of opportunity identified, as it was also related to the innovation driver found in *Section 4.2.3*, which says that thinking about leveraging sustainable consumption, will depend on finding relevant issues for a company. A relevant issue acknowledged by three participants was that *“[they need to [justify] sustainability in product/service development [by] proving it with consumers' insights”* (SusBMC401).

7.3.1.2 Areas of opportunity that relate to external aspects of the company

The areas of opportunity identified by the researcher that are related to external aspects of the company are described below:

1. To investigate the packaging experience. E.g. take back scheme or refillable bottles in store

Three participants recognized as an external influencer that the value proposition from C4 is in the *“service [experience] and not in price”* (CoC402). As such it was seen as an opportunity to rethink the business model of large product/brands by *“looking at services vs. products”* (SusBMC401). Different packaging experience that could deliver a service *“to reduce space in stores...and reduce, materials, waste and resources”* (CoC401) were the most mentioned at the workshop.

2. To examine the in-store comfort and shopping experience for consumers

This opportunity emerged as three participants saw as an external influencer that most of their stores are leased; therefore their stores are *“different in size, layout, and location, [which has an effect on consumers’ comfort and behaviour whilst shopping] (SusBMC402).*

3. To encourage more sustainable living by building on the trust that consumers have for the company’s brand.

It was found by five participants as an external influencer that C4 *“is a very trusted retailer”*. As such it was seen that *“[the company] has a huge opportunity to encourage more sustainable living, [as they can] give advice [on this]...because people trust on [them]” (SusBMC401).*

7.3.2 Ideas generated to motivate sustainable consumption – methodological implications

Section 7.3.2.1 reflects on the ideas generated in the main workshop and their potential to motivate more sustainable patterns of consumption regarding the methodology changes applied. *Section 7.3.2.2* reflects on the position of participants in expanding upon the ideas generated at the workshop during and after three months of conducting it. To give a better account of the methodological implications, these findings are compared to the findings of the pilot workshops.

7.3.2.1 Potential of the ideas generated to motivate sustainable consumption

The findings from the pilot studies suggested using the sustainable consumption index (SCI) tool with the consumer-focused strategy cards. Although five participants from the main workshop, felt that the SCI tool *“needed more explanation on how [it] works...to get the full value from it” (SusBMC401)*, they were able to correlate the strategies appropriately whilst developing ideas.

“Let start here by using the graph...so let start with communication...so now we can use the collaboration [strategies]...” (Red team using the SCI and the consumer-focused strategy cards).

As described in *Section 7.3.1*, a filter was set in place to identify areas of opportunity to work upon. The red team (*Table 6-2, p.153*) chose ‘*to encourage more sustainable living by building on the trust that consumers have for the company’s brand*’, which is related to an external influencer. The blue team (*Table 6-2, p.153*) chose ‘*to take a sub-brand and build an exemplar sustainability business case*’ which is related to an internal influencer.

The red team used three communication consumer-focused strategies:

- Make pro-sustainable consumption/behaviour rewarding, fun and interesting to the consumer,
- Create and communicate product/service attributes that offer direct benefit to the consumer, and
- Understand consumers’ needs within their context of use;

and one collaboration consumer-focused strategy:

- Collaborate with different people inside and outside the company -.

Although, just these four consumer-focused strategies were used to develop an overall idea that could target the area of opportunity identified, they used several collaboration and innovation strategies to evaluate their idea.

“Does it provide opportunities for collaboration between consumers and the company to enable two-way feedback, and as such improve consumer experience – Yes it does...Our idea is innovative and does it communicate a strong value proposition to the consumer – Yes it does” (Red team applying the consumer-focused strategy cards to evaluate their idea).

To evaluate their idea, the team used the SCI tool to plot each consumer-focused strategy card (*Figure 7-2*).

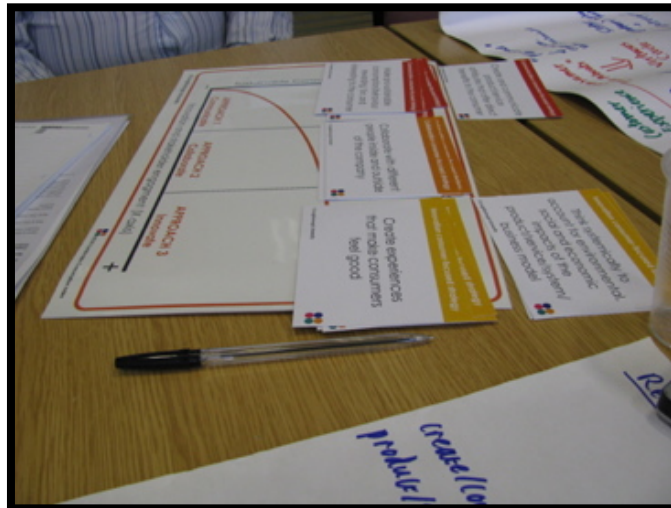


Figure 7-2 Red team plotting the consumer-focused strategies used to create and evaluate their idea

Their idea focused on innovating the service they provide as it *“relies on customers to help identifying meaningful sustainable initiatives [through social engineering using mobile technologies]...used to encourage more sustainable living”* (SusBMC401). As such the levels of sustainable consumption they could motivate were in the stage of innovation.

On the contrary, the blue team used one communication consumer-focused strategy:

- Communicate with consumers in order to have an in-depth understanding of the barriers, triggers and motivators to adopt new sustainable behaviours,

Two collaboration consumer-focused strategies:

- Provide opportunities for collaboration between consumers and the company to enable two-way feedback and as such, improve consumer experience, and
- Collaborate with different people inside and outside the company,

And two innovation consumer-focused strategies:

- Think systemically to account for environmental, social and economic impacts of the product/service/system/business model, and

- Continual evaluation of a new product/service/campaign/business model through iterative processes, procedures or/and appraisals.

This team used the SCI tool at the end of this activity to plot the strategy cards they used to generate ideas (Figure 7-3). This reveals that SCI tool was not used whilst generating ideas as two participants from this team thought that, “they were too many prompts, and the use of the cards with the graph [hindered the process of] plan[ing] a business idea” (CoC401).

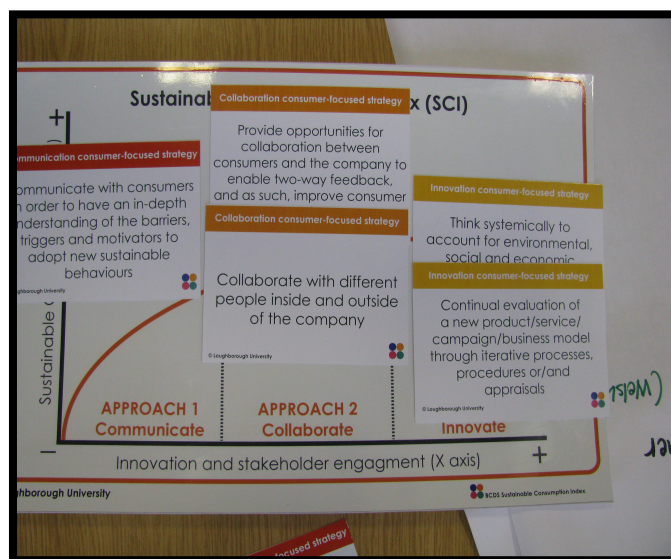


Figure 7-3 Blue team's plotted strategies in the SCI

The use of a mix of consumer-focused strategy cards resulted in developing an idea based on “*innovating on a product range [in which the innovation relays on] adding value to the consumer and establishing a massive partnership with an external*” (SusBMC402). To add value to the consumer they plan to use “*different research techniques and communication platforms to get consumer insights*” (CoC401) as previously it was recognized that they do not apply research methods and techniques to fully understand the behaviours, habits and motivations of consumers.

As such, there is sufficient evidence to say that the levels of sustainable consumption they could motivate were within the innovation stage.

In comparison with the findings from the pilot studies, the introduction of the SCI tool helped the two teams in C4 to develop ideas that could motivate levels of sustainable consumption that are within the innovation stage.

7.3.2.2 Expanding the ideas generated at the SCL workshop

The pilot studies' findings revealed that some teams build a chronological order whilst applying the strategies. In the main study, the blue team also started to *“put a time line and [developed] incremental steps [to build a plan of action]...of the things that have to be done to [implement their idea]”* (CoC401). Thus the SCL Model Evaluation Workshop methodology should consider adding an activity in which a plan of action is created. Three participants from the main workshop agreed with this by saying that the workshop misses an opportunity *“[to] capture outcomes and actions at the end of the workshop so participants know what to do next”* (SusBMC401). The findings from the pilot workshops (Section 7.2.2) revealed the same issue. However, time to conduct the workshop has been considered as a limitation in both, the pilot and the main workshops, as participants recognized that *“is always an issue to get a complete group to devote their time [for these type of activities]”* (SusBMC401).

In addition, four participants said that the company could expand on the ideas generated at this workshop. However, this will depend on being supported by higher management.

“ The [difficult] thing is actually making the company buy it off...but [you can do it] if you have a very good business case...that can actually help to deliver this” (SusBMC401).

Three participants acknowledged that it would be difficult to expand on the ideas as *“the people that [attend] were not the correct people to drive through such significant business changes”* (CoC401). Getting participants that take corporate-level decisions was considered as important to be able to expand on the ideas generated at these workshops. However, getting the right level of participants was considered as a limitation.

For this main workshop three participants with a degree of influence in corporate-level decision makers were chosen. These participants acknowledged, *“to start working bottom up...[so] sustainability [could] point...[as in other cases that they] had work bottom up... higher management had responded positively”* (DesC401). As such, building a business case *“with some of the ideas that are currently being investigated in*

the company [could prove more acceptable to higher management]” (SusBMC401).

In comparison with the companies from the pilot studies in which C1 and C3 acknowledged that they have to work first on embedding a much more integrated sustainability strategy within the business; C4 recognized after three months, that participants followed some of the ideas to *“incorporate [them] into a product sustainability strategy paper”* (SusBMC401). This reveals that they took action to work bottom up, and as such they also shared the outcomes of the workshop with internal colleagues and are planning to present them to internal and external stakeholders.

In addition, SusBMC4C2 recognized that the SCL Model *“will work very well for product development, but not so sure how it will work in practice to drive internal change thinking”*. SusBMC4C1 acknowledged that this would depend on whether higher management sees potential benefits on a more strategic level, and as such it was recommended that the SCL Model be applied with different teams inside the company

“so you get [different team including a team of] senior managers, to think about this...so [they] start thinking from the business point of view, and from there you start buying in”
(SusBMC401).

Finally, three months after the main workshop, participants discussed the session and agreed that they *“will discuss with a wider group if the SCL Model could be used in mainstream product development or if is it a more strategic tool”* (SusBMC401). As such there are plans of applying the SCL Model *“in a forthcoming engagement programme”* (SusBMC401).

7.3.3 Meeting the conditions – a comparison between the pilot and the main workshops.

The findings from the pilot workshops (Section 7.2.1) reflected on how meeting the conditions mentioned in *Section 4.2.1* had an effect on identifying areas of opportunity to work upon. This section accounts for a comparison between the pilot and the main workshop in meeting the described conditions. To recruit the company to conduct the main workshop,

the same strategy of using secondary data was followed, and through the evaluative tool the researcher analysed if C4 actually met the conditions.

The findings from the main workshop, revealed that C4 have a stronger sustainability strategy set in place in which *“[they] apply LEAN Manufacturing within sustainability to be more efficient...they comply with environmental regulation, they apply energy management programmes, they looked at the carbon footprint of certain suppliers and brands, they partner with different NGOs, and work together with different organizations i.e. carbon trust [to deliver a stronger sustainability strategy]”* (SusBMC401).

In contrast the findings from the pilot studies revealed that some of the Mexican companies (C1 and C3) need to start thinking about sustainability in a more integrated way (Section 7.2.1). Despite, the UK Company (C4) better met the condition related to sustainability described in Chapter 4, C4 recognized that they take a cost-benefit approach in which *“things like LEAN, energy reduction, packaging reduction, [will be easy to implement] as they save them money...but things like fair trade/accreditations [are more difficult to implement] because they cost them money”* (SusBMC401).

In terms of design and innovation, the findings revealed that C4 has a strong innovation strategy in product development as they *“account for a good range of expertise and knowledge around formulation and packaging”* (CoC402). They also recognized that they have *“the skills and people to apply [user-centred design, systems thinking and multi-disciplinary working]...[however, they] do not do it in a corporate level”* (DesC401). Though two participants from C4 acknowledged that there is still scope of improvement to apply design thinking, they seemed to better meet the condition related to innovation described in Section 4.2.1, than some of the Mexican companies (C1 and C2), as these did not have a clear idea of what design thinking means (Section 7.2.1).

7.4 Conclusions

This chapter aimed to achieve the fifth and sixth research objectives.

- To evaluate and elicit reactions to the model and appropriate tools, in order to distinguish further opportunities for improvement.
- To evaluate the potential of the model and tools towards motivating sustainable consumption.

In general, the findings from the pilot and the main workshops revealed that the SCL Model Evaluation workshop should be used also not just to evaluate reactions to the SCL Model, but also as a tool to implement the SCL Model and its toolkit.

To better benefit from the workshop, it should be conducted with a multi-disciplinary team, as this configuration enables a more collaborative approach to make linkages between what is happening in different teams or areas, to then pull them all together to identify opportunity and generate ideas for initiatives that could leverage sustainable consumption.

Participants that are recruited to attend the workshop preferably should be corporate-decision makers, or at least people that have certain degree of influence in corporate level decisions. The SCL Model was originally designed as a strategic tool for product/service/business model development through following a holistic consumer-focused approach to minimize environmental and social impacts of products/services/business models throughout their lifecycle. This will depends if decision makers or higher management buy-in, however the findings revealed that this could be done by working bottom up.

Facilitation seemed also imperative to explain and coax in more detail the purpose of the SCL Model. In terms of time needed to conduct the workshop activities there were mixed insights, as participants felt that the workshop missed an opportunity to conclude by capturing outcomes and actions to know what to do next, but also they acknowledged that getting time to do this type of activities is a big constraint. Despite this, in future work, consideration will be given to adding some activities that helps companies to capture future actions.

In addition, it was found that it is difficult to assess the best layout to conduct the workshop e.g. one or more sessions, as this will depend on the time that works better for each company. However, having more than one session was acknowledged by participants of the main workshop to be beneficial as they had time to reflect on what happened in the first session and come back 'fresh' to the second session. Having two sessions helped the researcher to have enough time to analyse the areas of opportunity identified to create a filter according to internal and external aspects that act as influencers to think about initiatives to motivate more sustainable patterns of consumption. However if the workshop came out in just one session, this analysis can be done during a break given to participants.

Achieving *objective 6* had methodological implications, as the findings from the pilot workshops revealed that evaluating the potential of the ideas generated to motivate more sustainable patterns of consumption could be dependent on introducing the SCI tool with the consumer-focused strategy cards.

By comparing both pilot and main workshops it was seen that in the pilots, where the SCI tool was introduced after using the consumer-focused strategy cards, the levels of sustainable consumption that their ideas could motivate did not surpass the communication-collaboration stages. In contrast, in the main workshop, where the SCI tool was introduced whilst using the consumer-focused strategy cards, the ideas generated reached the innovation stage. Currently, the SCI tool aids companies to just evaluate the levels of sustainable consumption they could motivate. However, to actually measure the levels of sustainable consumption that could be achieved, future work will have to build a case study around one of the ideas generated.

Finally what can be concluded from the comparison made between meeting the conditions by the Mexican companies (C1, C2 and C3) and the UK company (C4) is that C4 met the conditions better than C1, C2 and C3.

8 Discussion

8.1 Introduction

This chapter provides a bigger picture of the role of businesses in leveraging sustainable consumption, including a discussion as to why innovation should happen at all levels of the business to enable structural and cultural changes that support systemic changes towards more sustainable lifestyles. Cultural implications regarding different regions and companies, and the influence of these implications on the SCL Model are then discussed. The chapter also includes a discussion of the holistic consumer-focused approach of the SCL Model and features a critical review of the benefits of the SCL Model and its toolkit compared to existing tools to influence sustainable consumption. Finally, the importance of facilitation is outlined and the limitations of the SCL Model encountered through applying the SCL Model Evaluation Workshop are explored.

8.2 Overview of the role of businesses to leverage sustainable consumption

Several studies (WBCSD, 2008, 2010; Churet & Heyes, 2004; WEF, 2010, 2011, 2012; Munasinghe *et al.*, 2009) have recognized that businesses in general have an imperative role to play in leveraging sustainable consumption.

The role of businesses towards leveraging sustainable consumption lies in the capability of businesses to innovate (WBCSD, 2008). This section will discuss why innovation should happen at all levels of the business to enable structural and cultural changes that support systemic changes towards more sustainable lifestyles.

8.2.1 Innovation at all levels of the business

Innovation was identified in *Section 2.10* as a tool to facilitate structural and cultural changes to leverage sustainable consumption. Structural changes can be considered as technological innovations that attempt to increase the sustainability of consumption (*Section 2.6*). However technological

innovations are not enough, as the majority of the environmental impacts of consumption occur during use. In addition, most consumption practices are bound by individual routines and habits formed within an individual's contextual and cultural surroundings. These routines and habits are subsequently difficult to break (see *Section 2.2.1 and 2.2.6.3*). As such, contextual and cultural changes are also needed (Royal Society, 2012; Munasinghe *et al.*, 2009).

Studying the relationship between user-centred design (UCD) principles and the complexities around sustainable consumption in a business context helped the researcher to understand that structural and cultural changes should happen simultaneously. This is because introducing new technologies/products/services requires matching consumers' routines and behaviours with the way consumers interact with them to effectively reduce environmental impacts caused by consumption practices. It also requires offering the same price, performance, and convenience to consumers, as people are not prepared to trade off on these (see *Section 4.2.2*).

UCD principles have also been proven to be useful in engaging with people inside and outside the company to change companies' practices and behaviours (see *the conclusions of Chapter 4*). It can be argued that company's practices and behaviours are linked to structural processes and corporate cultures. To allow structural and cultural changes to happen inside a company, innovation should be encouraged at all levels of the business. This will help these companies to develop and deploy new business models that support more sustainable patterns of consumption and at the same time persuade policy-makers and society to engage towards more sustainable lifestyles.

Implementing innovation at all levels of the business means that innovation is not just a research and development (R&D) issue. As such, innovation should happen throughout all the lifecycle of a product or a service including the supply chain, manufacturing processes, and the value proposition offered to consumers; and in all business activities such as product management,

marketing, sales, customer support, business strategy, IT and even human resources.

Implementing innovation at all levels of the business will depend on the capabilities of each company to think systematically about innovation. These capabilities are related to the abilities that a company has for problem solving, as problem solving is core to innovation (Baya *et al.*, 2012).

To improve the abilities for problem solving Baya *et al.*, (2012) recommends incorporating creative problem solving as a daily activity throughout the whole organisation, and to start looking at innovation as an end to end process in which innovation happens in four stages: discovering, incubating, accelerating and scaling.

Innovation as a problem solving process is high on many company's agendas especially when developing new products and services. For example fast moving consumer goods companies such as Clorox, an American manufacturer of household cleaning products, have implemented systematic innovation processes for product development. Their approach to innovation can be explained with one of their revolutionary brands. 'Green Works' is a non-synthetic cleaning product brand that was born from identifying that house-cleaning products are the second biggest environmental concern in the United States. To address this problem, Clorox started a discovery phase in which they developed and selected ideas. In the third phase, incubation, working prototypes were created to identify potential problems and explore customer insights to inform and develop the value proposition on offer. Phase four, acceleration, involved tackling several marketing issues regarding price, branding, and potential partnerships before launching. Scaling was the final phase in which Green Works can be purchased in any major retailer in the United States.

Although in-house innovation to develop new products and services is increasing, companies are not used to implementing processes and problem-solving methodologies to innovate at all levels of the business, and thus they usually hire external consulting organisations to help them (Baya *et al.*, 2012). External consultants can be hired because they can bring a new perspective

to the company, as it is argued that innovating at all levels of the business can be challenging because a company may require far more creative thinking, analysis, knowledge control, and social interaction. A company may also require getting involved in activities such as idea management, problem solving and invention, which companies might not be used to apply outside R&D departments.

External consultants might also help companies to address these challenges by helping them creating a knowledge base supported by technologies and methodologies that can be shared with the entire organisation to bring discipline to internal innovation processes. External consultants can also help companies to create open innovation platforms that can allow them to share ideas with different experts, which can be applied not just for developing new products and services but also for innovating at all levels of the business.

The literature review has acknowledged that in recent years, companies have encountered severe problems due to scarcity of key resources, rapid population growth, climate change and loss of biodiversity, which have affected their business activities. It can be argued that these problems are considered to be global issues, which companies can respond to by innovating towards systemic changes. This is because to address environmental and social problems, companies will need to develop new capabilities that make them think differently about their products, technologies, processes and business models (Nidomulu *et al.*, 2009).

Developing these capabilities can be challenging for companies, as they will have to explore alternatives to current ways of doing business and different ways to meet consumers' needs. These challenges can be addressed by questioning what is behind current business and consumer's practices and behaviours to find solutions following a systematic innovation process throughout all levels of business. Questions can range from solving global problems such as scarce resources (e.g. Can we develop waterless detergents?) to solving operational issues (e.g. Can we better partner with our supply chain?)

8.2.2 Applying design thinking to achieve systemic changes

As stated previously, bringing systemic changes to leverage sustainable consumption means that structural and cultural changes will need to happen simultaneously at all levels of business and society.

Companies ability to develop and implement a systematic innovation process towards bringing systemic changes will depend on their capacity to '*apply lateral and creative thinking*' to bring transformational changes into their organisation to '*build new business models*' that '*take a full account of consumers' aspirations and behaviours*' to '*develop sustainable markets*' (see conclusions in Chapter 4).

The described capacities above can be linked to design thinking, as design thinking is an approach that focuses on people, and through multi-disciplinary collaborative perspectives, can lead to innovative business solutions (Vianna *et al.*, 2012).

Design thinking has been considered throughout this doctoral research as a valuable approach to innovate to achieve systemic changes that can enable more sustainable lifestyles. However, the findings from *Chapter 7* revealed that some companies do not practice this approach, and even have difficulties in understanding its value. Findings from *Chapter 4* brought this to light by discussing that companies do not understand design as a strategic tool, mainly because R&D departments or designers, which have the know-how of implementing design thinking, do not communicate its value throughout the company. It can be argued that this is because design thinking uses a style of reasoning that solutions do not derive directly from the problem (Vianna *et al.*, 2012). Thus, R&D departments or designers can hesitate in sharing this type of thinking, as it could be unconventional for some businesses. This may be due to its ambiguous nature, the need for multi-disciplinary thinking and to place people at the centre of the process, which some companies might not be used to do (Baeck & Gremett, 2011).

Design thinking is mainly linked to design practitioners. However, it is argued that such skills form part of human nature and thus they can be developed (Vianna *et al.*, 2012). As such, to successfully implement design thinking,

businesses must follow common attributes of design thinking such as: being constructive, curious, and empathic, thinking holistically towards bigger contexts, following iterative processes, being non-judgemental, and keeping an open mind-set throughout the whole process (Baeck & Gremett, 2011).

In addition, Brown (2008, p2) refers to design thinking as “*a discipline that uses the designer’s sensibility and methods to match people’s needs with what is technologically feasible and what a viable business strategy can convert into customer value and market opportunity*”. This statement supports the assertion made by this research that structural and cultural changes need to occur simultaneously through innovation, as businesses can only bring about systemic changes towards leveraging sustainable consumption if their innovative solutions have the supporting technology and make business sense.

Thus, it can be argued that companies need to value design thinking as an approach that can contribute to innovate towards leveraging sustainable consumption to enable systemic changes to happen.

8.2.3 Encouraging sustainable lifestyles – lessons to be learnt from entrepreneurial examples

In recent years entrepreneurial new business models, have emerged aided by new communication platforms and mobile technologies, bringing structural and cultural changes simultaneously. These technologies are revolutionizing the way companies do business by helping them to engage more with consumers (WEF, 2011). Thus, it can be argued that companies can use these technologies to bring structural and cultural changes simultaneously. For example, participants from the focus group (see Section 4.2.2) agreed that there is great scope for innovation to leverage sustainable consumption, by using these technologies. They mentioned that these technologies allow two-way feedback between the company and the consumer to enact changes in consumer demand and awareness, normally through marketing campaigns.

However, the use of communication technologies can go beyond gaining consumer insights towards tailored marketing campaigns. Entrepreneurial

business models around the world are already using communication technologies to enhance sustainable living by supporting community-based schemes that help consumers to engage in sustainable practices and behaviours, and to ensure that they maintain it as they feel part of a larger community (Munasinghe *et al*, 2009). In addition, communication technologies have increased entrepreneurial social services that have improved the lives of many (UN, 2012). Examples of these initiatives are discussed below.

In the developed world, the penetration of such technologies is considerably high and, in countries like the UK, these technologies are at the forefront in transforming the economy and society (WEF, 2012b). For instance, many entrepreneurial examples of collaborative consumption (*discussed in Section 2.8.3*) utilise communication technologies and mobile technologies to facilitate new ways of creating business, which make sense in the current recessive business climate, in which people are looking for affordable alternatives that they trust e.g. Zipcar¹⁰, eBay¹¹, Airbnb¹².

In contrast, in developing countries, including Mexico, mobile technologies are considered a case of technology leapfrogging in which affordable communication platforms are brought to rural areas (UN, 2012). As such, the penetration of these technologies is rapidly increasing and have been used to boost entrepreneurial social services such as e-banking (including microfinance and remittance management), agricultural information and advice, and remote access to medical information (UN, 2012).

These entrepreneurial examples are enabling more sustainable lifestyles by creating communities in which people are not considered as purely consumers but instead are considered as the people who form the heart of the business (Preston, 2012). Larger multinational companies are starting to see the benefits of using these technologies, especially to gain consumer insights to tailor marketing campaigns. However, it can be argued that they still need to learn from these entrepreneurial approaches and technological

¹⁰ <http://www.zipcar.com/>

¹¹ <http://www.ebay.co.uk/>

¹² <http://www.airbnb.co.uk>

communication platforms to use them to build new business models that actually enhance sustainable living. In addition, they will have to further explore the penetration of such technologies and account for the cultural differences of each population segment in which they operate to successfully bring systemic changes towards more collaborative sustainable lifestyles.

8.3 Implications for Research

This section will discuss cultural implications regarding different regions and corporations to effectively leverage sustainable consumption. The consequences of these cultural implications and their effect on the implementation of the SCL Model will also be explored.

8.3.1 Support from governments

Up to now the role of businesses in general towards leveraging sustainable consumption has been discussed. However, as outlined in *Chapter 1*, multinational companies have an imperative role to play in this matter. This is because they have a presence all over the world, giving them the possibility to create cumulative effects towards leveraging sustainable consumption.

As previously discussed in *Section 4.2.1*, in order to effectively leverage sustainable consumption, companies would have to meet certain conditions. The findings reported in *Chapter 7* revealed that different cultural contexts differ in meeting these conditions. This was not expected at the beginning of this research, as secondary research was conducted to recruit each company. Thus, it was expected that sustainability and innovation initiatives would follow a corporate strategy. As discussed in *Chapter 1*, multinational companies tend to build global business strategies. However, these differences came to light through conducting the pilot and the main workshops, and although these companies are not representative of these countries, these cultural differences were considered an interesting issue to discuss.

It could be argued that these cultural differences are due to the support of governments in developed and developing countries, and specifically in each country (e.g. Mexico and UK) towards sustainability and innovation. Strong established policies can help to regulate businesses to report and measure

their success towards sustainability, to enable regional and global collaboration, to support investment to innovate and create more sustainable products/services/business models, to target green public procurement, to align global trade policy with sustainability objectives, to create and interlock systems of subsidies and incentives, and to prevent environmental and social regulations from becoming a cover for trade protection (WEF, 2011).

Policy frameworks and regulations in developed regions such as Europe have helped companies to gain a broader understanding of the value of integrating sustainability into their core strategy. Specifically in the UK, policy frameworks have influenced companies to account for environmental and social issues. For example the Climate Change Act published in 2008, made the UK the first country in the world to have a legally binding long-term framework to cut carbon emissions. The Climate Change Act has influenced global companies that operate in the UK to seek advice on this matter (DEFRA, 2012). Other recent innovative initiatives to transform current business models in the UK has been launched by the Technology Strategy Board which is supporting large, medium and small enterprises with a grant to develop new products, components, services or systems following the principles of a circular economy¹³ (Technology Strategy Board, 2012). In addition, in 2010, a programme to measure the nation's well-being was established to inform future policies about key areas to improve people's well-being including health, education, inequalities in income, and the environment (Rogers, 2011).

In developing regions such as Latin America there has been a significant improvement in creating policies that consider the preservation of the environment, cut carbon emissions and improve social welfare (WEF, 2011). Despite this, there are still some countries like Mexico that lack a mature policy framework creating a hesitant or slow uptake of the required measures and instruments to consider sustainability at the core strategy of a business (PERL, 2010). This slow uptake is a possible explanation of why some of the

¹³ See the principles of the circular economy at:
<http://www.ellenmacarthurfoundation.org/circular-economy/circular-economy>

Mexican companies that participated in the pilot workshops had more difficulties in demonstrating a stronger sustainability strategy.

It could be argued that the UK policy framework towards driving sustainability is stronger than the Mexican one, and as such the UK company who took part in this study seemed to better understand what it takes to embed sustainability at the heart of the business. However, in *Chapter 7* it was discussed that the UK company's approach towards sustainability is based on cost-benefits. A possible explanation is that most of the policy frameworks that influence companies in developed countries to integrate sustainability into their operations focus on gaining environmental benefits by reducing costs and increasing profitability (WEF, 2010). However, although most of these improvements offer clear and rapid financial gains, they do not help to boost sustainable consumption initiatives due to their short-term thinking (WEF, 2010; 2012a).

A similar story can be seen with programmes supported by Mexican and UK governments to enhance innovation through design thinking. In the UK, the Design Council, an independent charity supported and funded by the government since 1944, aims "*to bring the transformative power of design to things that matter*" (Design Council, 2012). Their main focus is to enable people to see the value of design to transform communities, businesses, and the environment; to stimulate innovation in business and public services; and to inspire design thinking into organisations. Apart from the Design Council other governmental and non-governmental organisations i.e. The Department of Business Innovations and Skills (BIS), the UK Trade and Investment (UKTI), the British Chamber of Commerce (BCC), The technology strategy board and National Endowment for Science, Technology and the Arts (NESTA), amongst others; have an interest in fostering innovation within businesses.

In contrast, in Mexico, the first dialogue to integrate a public policy to support design and innovation was in 2008. Five areas in which design and innovation could contribute were outlined: business and economics, science and technology, education, culture and national identity and sustainability.

The outcome of this dialogue was the creation of new governmental programmes that support design and innovation for the economic and social development of the country, and at the same time stimulate innovation in industry by providing support and finance (Zarate *et al.*, 2011). Although the positive impact that these dialogues could have is acknowledged, it is worth noting that they are still in their early stages. Thus in general, companies in Mexico still do not consider design practice as an intellectual process that can facilitate design thinking.

Again, it could be argued that the support that the British government gives towards stimulating innovation in industry is stronger than in Mexico and as such the UK company who participated in this research was more familiar with the expertise needed to facilitate design thinking. Despite this, the UK company recognized that they still have to improve the use of their expertise to enhance design thinking to develop further innovations.

8.3.2 Leveraging sustainable consumption needs to be engaged at a corporate culture level

Regardless of the impact of cultural differences in meeting the conditions outlined above, in both contexts the theoretical framework (*Chapter 4*) and the findings from the pilot and the main workshops (*Chapter 7*) brought to light that to meet the conditions towards leveraging sustainable consumption, strategic level engagement is vital.

Section 4.2.3 presented certain drivers that could be considered as the main motivation for companies to leverage sustainable consumption. *Section 7.3.1.1* reinforced the former findings by relating the areas of opportunity found by participants with what could motivate their company to leverage sustainable consumption. As such, three main drivers that can motivate businesses to think about leveraging sustainable consumption are:

- Gain a business benefit,
- Finding relevant issues for the company, and
- Being motivated through the influence of other stakeholders (legislation, other companies, NGOs, consumers, amongst others)

Multinational companies have already demonstrated the benefits of embracing sustainability, by either finding relevant issues for the company, or by being influenced by other stakeholders that can engage them in this matter. For example, most multinational companies had a global corporate sustainability strategy already in place. However, as demonstrated through the pilot workshops, global strategies might not filter down to region-specific operations.

Legislation and voluntary standard codes such as the Greenhouse Gas Protocol, or sector specific standards such as the Forest Stewardship Council can drive companies to integrate sustainability into their operations (Nidomulu *et al.*, 2009). As previously discussed in the last section, legislation can vary by country and region. However, global companies in some developed countries that have more support from their governments seem more likely to establish measures to comply with legislation and such codes. By complying, corporations have realised that it not only saves them money but it can also enhance the company reputation amongst consumers, policy makers, and other companies. It may also help them to become more proactive about environmental issues (Nidomulu *et al.*, 2009), and as such they may influence other regional operations, most likely in developing countries to implement similar measures.

When it comes to implementing sustainable consumption strategies (see *Section 2.7.1 for a further description of these strategies*), the findings of *Chapter 7* revealed that global companies will be more confident to implement strategies that can demonstrate an immediate financial benefit (e.g. develop a compact detergent which needs less packaging which will contribute not only to cutting down on packaging and transportation costs, but also help consumers to use the right amount of detergent when they do their laundry) than strategies which demonstrate soft benefits to the company (e.g. partner with reuse/recycle organisations to develop a collection scheme of old functional products such as clothes and furniture, to reduce the amount of waste going to landfill) (see *Chapter 7, Section 7.3.1.1*). However, sustainable consumption strategies might take longer to disseminate due to region specific cultural differences (i.e. population segment, readiness of the

market, legislation, availability of technologies, amongst others). As such, corporations might have to target their strategies to region specifics, which can be resource consuming and, as such, they might not be willing to spend the time and money on doing it.

However, it could be argued that multinational companies that have a strong sustainability corporate culture will filter down all kinds of global sustainable consumption strategies amongst all regions but will target them to regional specifics, as they will understand that the sustainability of consumption is a key determinant for future growth and profitability.

For example, Unilever was considered in this doctoral research as an exemplar company towards leveraging sustainable consumption. As discussed in *Section 3.6.1.3*, Unilever has demonstrated to be an outstanding leader in sustainability. The document analysis completed as part of this research made it evident that Unilever has clear interest from a corporate level to contribute towards leveraging sustainable consumption worldwide. Thus, what drives Unilever to leverage sustainable consumption is that for them it is imperative to decouple business growth from environmental impacts.

A clear example of Unilever's interest in leveraging sustainable consumption is the launch of their Sustainable Living Plan. As a company, they are joining efforts in all countries in which they operate, including Mexico and the UK, to look at new ways of doing business by considering their value chain and their consumers to enable a major change towards leveraging sustainable consumption to enhance sustainable lifestyles.

Other companies in the retail sector such as Marks and Spencer with their Plan A, Sainsbury's with their 20X20 Sustainability Plan, and IKEA with their People and Planet Positive Sustainability Strategy, have also demonstrated to commit to similar contributions as Unilever. These commitments demonstrate that companies are shifting their mind-set and are recognising that contributing to building a sustainable world is the new way of doing business. This is because these companies in the last decades have seen the real threats of climate change, not just for the environment but also for

society in general. These companies have recognized that being careful with resources, controlling energy use, avoiding pollution, and looking after people is good for business.

8.3.3 Implications for research towards the SCL Model

During *Phase 1* and *2* of this doctoral research, it was assumed that the successful implementation of the SCL Model would depend on companies meeting the conditions found. However, the findings of *Chapter 7* revealed that the SCL Model could be useful to discover the importance of leveraging sustainable consumption and build strategies that can aid global companies in the process. In addition, *Section 8.3.1* discussed certain cultural differences that might affect different companies in different regions to meet these conditions.

Despite the cultural differences, *Section 8.3.2* discussed that leveraging sustainable consumption has to be engaged at a global corporate level. However, as previously discussed, global strategies might not filter down, if headquarters does not push them into regional operations. Thus, it is assumed that the implementation of the SCL Model has an immediate impact within the context where it was used, as multinational companies operate on a regional basis, adapting global strategies that are driven by the company headquarters. In addition, the findings revealed that the SCL Model proved to be useful in identifying what is needed at specific locations to build a sustainable consumption strategy and to evaluate and build upon current strategies, by making participants think about their own consumer segments and operations.

To account for a wider impact at a global corporate level, the SCL Model will have to prove useful for creating ideas to develop successful strategies that can scale up to higher management at a corporate level, to then filter down to other regions.

8.4 The SCL Model: Its benefits and its limitations

This section discusses the importance of accounting for a holistic consumer-focused approach and how this is portrayed in the SCL Model and its toolkit.

It also discusses the importance of facilitating the workshop and the limitations encountered through applying the SCL Model and its toolkit.

8.4.1 Accounting for a holistic consumer-focused approach

The first attempt to account for a holistic approach to leverage sustainable consumption was through the creation of a consumption-production dichotomy. This helped to establish the focus of research (see *Figure 2.2 p.14*) as it was necessary to distinguish the impacts of how consumers choose, use and dispose of products/services amongst the impacts of how products/services are sourced, manufactured and transported. In the conclusions of the literature review (*Section 2.10*), it is discussed that the consumption-production dichotomy can be considered as a system; because consumption and production cannot be set apart and both influence each other.

This means that any decision made during the production stages will influence how consumers purchase, use and dispose of a product or service; and any decision made during the consumption stages will affect how the raw material of a product is sourced, or how the product itself is manufactured and distributed (Munasinghe *et al*, 2009). For example, if a company decides to source all their agricultural raw material from sustainable sources, this means that they will have to create a new marketing campaign that enables consumers to understand what this means in terms of offering the same quality, price and convenience, and help them to make responsible choices. On the other hand, if a company decides to influence consumers to use less energy when washing their clothes, it will probably need to develop a new detergent with a new formula that might change a process in the manufacturing stage of the lifecycle.

Although, in recent years multinational companies have started to focus on the impacts caused by the purchasing, use and disposal of products and services due to results of conducting life-cycle analysis (see *Section 2.1.1 of the literature review*), the focus had predominantly been on environmental and social impacts caused as a result of production. This was because consumers were considered as 'small polluters' whose contribution can be

dismissed compared to the impacts of industrial production activities (Spaargaren and Mol, 2008). However, this attitude has been changing and as previously discussed many organisations and companies have already recognised the benefits of looking after the impacts that happen during the consumption stages.

However, it can be argued that focusing just on the specific impacts during each stage of the lifecycle of a product or service is not enough. Leveraging sustainable consumption will require placing the consumer at the heart of the business and reflect this through their brand, as consumers have an influence on each stage of the lifecycle through their demands, practices and behaviours (Munasinghe *et al*, 2009). Leveraging sustainable consumption will also require taking a holistic account of the whole lifecycle through mapping all actors, problems and possible solutions involved at each stage.

Thus, the data collection carried out to understand the relationship between UCD principles and sustainable consumption in a business context (see *Phase 1 of research*), gave a broader perspective of what needs to be considered to account for a more holistic consumer-focused approach than solely focusing on the impacts of a product or service through examining their lifecycle. This is portrayed in the evaluation criteria, the consumer-focused strategies and the sustainable consumption index (SCI).

8.4.2 Importance of the SCL Model and its toolkit

The novelty of the SCL Model relies on the holistic consumer-focused approach it takes. The SCL Model and its toolkit helps companies to evaluate different areas of their business considered as important through an evaluative tool, to then create ideas that target the consumer through using the consumer-focused strategy cards and the sustainable consumption index (SCI) tool, to develop strategies that attempt leveraging sustainable consumption (see *Chapter 5 and 6*). The next points, discuss in detail the importance of the evaluative tool, the consumer-focused strategy cards and the SCI tool, compared to other tools found through the literature review (*Section 2.9*).

8.4.2.1 Importance of the Evaluative tool

The evaluative tool was designed to assess within a multi-disciplinary team, current business capabilities to innovate and future scope of improvement according to four different areas of the business: Business Model, Consumer, Design, and Sustainability. The use of the evaluative tool during the pilot and the main workshops, led to discussions that helped the participants to foresee internal and external aspects to uncover areas of opportunity to work upon. Such discussions helped to account for a more holistic perspective, as the discussions centred on different topics including the stability and operations of each business model, the different actions taking place towards engaging more with the consumer, the different actions taking place towards sustainability, and different capabilities towards implementing design thinking.

The benefit of such discussions was that participants could understand their strengths and weaknesses not just in their area of intervention, but across other areas. This helped participants to benefit from their overall strengths to transform their weaknesses into opportunities. It also helped participants to understand their position towards what is needed to do in general and from each perspective, to innovate towards leveraging sustainable consumption.

As such, it can be discussed that working in multi-disciplinary teams can help to account for the holistic approach needed to leverage sustainable consumption. This is because multi-disciplinary teams can bring expertise from different areas of influence throughout the whole lifecycle of a product/service, and can portray problems and possible solutions from different angles.

In addition, working in multi-disciplinary teams demonstrated that global companies are more able to break internal barriers towards leveraging sustainable consumption, such as having buy-in from higher management to build a localized sustainability strategy, or account for soft benefits of sustainability, or building upon the capabilities the R&D team has; as participants recognized that have an opportunity to have a broader understanding of different areas of the business that can break these barriers, as they represent costs and time to higher management.

The experience of organising and running the workshops indicated that pulling together a multidisciplinary team is not easy. This is because employees in multinational companies are fully engaged with different activities regarding their own area of influence, and as such finding the time on a voluntary basis to do this type of exercise is difficult. However as previously discussed, if a company is to truly engage in leveraging sustainable consumption, their employees will have to learn to work in multidisciplinary teams, either with people from different areas inside the company or with other external stakeholders, or both.

Different tools to leverage sustainable consumption (Forum for the Future, 2012), Five Levers of Change (Unilever, 2011), and Sustainable Consumption Motivators (Hicks & Hovenden, 2010) were introduced in the Literature Review. These tools focus mainly on influencing practices and behaviours of consumers through new product/service development.

However, this doctoral research made clear that focusing on influencing consumers behaviour would not be enough to leverage sustainable consumption, and that a broader understanding of the business, to drive innovation and change the corporate culture and operations to develop new business models would be needed to leverage sustainable consumption.

When considering all of the tools surveyed, it could be argued that only Consumer Futures considers a more holistic approach. This is because it focuses not just on influencing the consumer, but also on transforming the value chain. However, it could be discussed that it still has a strong focus on considering a consumer perspective regarding the portrayed scenarios, without analysing other issues of their business that are important to leverage sustainable consumption, such as their corporate culture or operations.

8.4.2.2 Importance of the consumer-focused strategy cards and the sustainable consumption index (SCI) tool

Fourteen consumer-focused strategy cards and a sustainable consumption index (SCI) tool were developed to take a holistic consumer-focused approach to innovate towards leveraging sustainable consumption.

The exploration of user-centred design (UCD) principles and sustainable consumption in a business context influenced the development of the consumer-focused strategies, which were then translated into a set of cards. The strategies accounted for a consumer-focused approach (i.e. make sustainable consumption, fun, interesting and rewarding for the consumer; understand real needs of consumers, provide awareness, make consumers feel good, amongst others). However, *Section 5.2.2* demonstrated that strategies could be expanded upon to consider a more holistic approach (i.e. focus on product/service life-cycle, account for environmental and social impacts of products/services/business models, enable collaboration between different stakeholders, amongst others).

Having a holistic consumer-focused approach has already been discussed as imperative for global companies to first understand what is needed as a company to leverage sustainable consumption and to then place the consumer at the heart of the business strategy in order to innovate. However through the findings of the pilot and the main workshop, it was rectified that not all companies are prepared at the same level to leverage sustainable consumption. Thus, the novelty of the SCI tool relies on helping companies to map the levels of sustainable consumption they would like to motivate in relation to the company capabilities and position towards leveraging sustainable consumption, which was previously assessed with the evaluative tool.

In addition, the consumer-focused strategy cards were designed to aid companies in building strategies according to the levels of sustainable consumption they would like to motivate. The consumer-focused strategy cards and the SCI tool proved to help participants to think 'out of the box' to consider different aspects of the business to develop innovative solutions that can scale up different levels of sustainable consumption, based on the fundamental relationship between communication, collaboration and innovation (*discussed in detail in Section 5.2.3*), but by giving the idea that to achieve higher levels of sustainable consumption, innovation will be required at all times.

Comparing the SCI tool and the consumer-focused strategy cards to other tools studied in the literature review (i.e. Consumer Futures and Sustainable Consumption Motivators), it can be discussed that the SCL Model can be used in different cultural contexts and the mentioned tools are limited in this respect. This is because Consumer Futures and Sustainable Consumption Motivators use scenarios and personas as resources to prompt the ideation process. As discussed in *Section 2.1.1, 2.9.1 and 2.9.4* of the literature review, scenarios and personas are valuable UCD techniques in a design and innovation process, but to be more effective they require focusing on more specific user-population segments and must take cultural differences into account.

Consumer Futures focused on building scenarios and personas based on a western European and North American population. Thus, it can be argued that this tool will not work for a Mexican or other Latin-American market. However, as participants of one of the pilot studies suggested (*Section 7.2.4*), the SCL Model could use scenarios focused on wider global issues i.e. the effects of climate change. Participants suggested that setting the business in a particular scenario could help participants to better understand the opportunities identified through the SCL Model. However, building scenarios was something that appeared in later stages of the research, and as such they could not be considered as part of the SCL Model and its toolkit.

In contrast, Sustainable Consumption Motivators use personas built upon research conducted with a large worldwide population. However, it can be argued that the use of this tool would not be as effective in particular markets i.e. Mexican or UK market, as previously discussed, personas work better when are focused on a particular population segment.

Finally, the consumer-focused strategies and the SCI proved to be useful in different cultural contexts, not just by prompting participants from different multinational companies to think about their own population segments in which they operate, but also by allowing them to understand which levels of sustainable consumption they are prepared to motivate.

8.4.3 Importance of facilitation

For companies to understand the complex factors that are required to leverage more sustainable consumption, the provision of guidance and know-how around the topic is extremely important. During the workshops, facilitation was imperative so participants could understand the complexities of their business from different angles.

As already discussed in the conclusions of Chapter 7, to effectively implement the SCL Model it will be necessary to facilitate a workshop to use the SCL Toolkit. To conduct the workshop, a multi-disciplinary team regarding the four areas of the evaluation criteria of the SCL Model should be recruited. However, having a multi-disciplinary team means that each participant had expertise in one area, and was not necessarily familiar with some other aspects of the different areas. The pilot and the main workshops demonstrated that facilitation helped to bridge the gap between each area of the evaluation criteria of the SCL Model to draw out the holistic consumer-focused approach that this research accounts for.

It was also noted in the main workshop (*Section 7.3.1*) that through facilitation it was possible to create a filter to distinguish the areas of opportunity related to internal aspects to those areas of opportunity related to external aspects of the business. To successfully identify fruitful areas of opportunity, the facilitator should have sufficient knowledge of the topic, to trigger participants to start thinking about influencers that could hinder or steer opportunities to leverage sustainable consumption.

8.4.4 Limitations of the SCL Model, its toolkit, and its workshop

Building the theoretical framework (*Chapter 4*) and the findings of the pilot and the main workshops (*Chapter 7*) helped the researcher to understand that not all businesses are prepared to embark on a journey towards leveraging sustainable consumption. The decision to engage in this area depends on the capabilities and level of interest each business has to innovate. As such, the SCL Model was designed to provide a first step towards developing innovative ideas that can break some internal barriers that hinder companies seeking to leverage more sustainable consumption.

However in its current format, the SCL Model does not provide guidance to companies to enable them to create a plan of action to implement the ideas generated through the workshop. *Section 7.3.2.2* discusses that participants from the pilot and the main workshop missed this opportunity and acknowledged that it was important to conclude the workshop with a list of actions to follow. However, although the addition of activities to the workshop to facilitate this was considered, time-constraints were such that this was not possible. The time to conduct the workshop was decided upon based on companies' willingness and availability coupled with consideration of the time needed to effectively complete the activities to apply the SCL Toolkit. However, setting this time was not easy and for the nature of information needed to complete this research, it was decided that this first format of the workshop, would not include activities to create a plan of action.

In addition, although the SCL Model was designed as a strategic tool for product/service/business model development through following a holistic consumer-focused approach, it was interesting to see that participants from the pilot and the main workshops (*Sections 7.2.4, 7.2.5 and 7.3.2.2*) did consider the SCL Model as a strategic tool, but argued that to better benefit from it, higher management would have to be engaged. Thus, having decision makers as part of the workshop was also discussed in *Section 7.2.5* as imperative to better benefit from the SCL Model. However, through the findings from the pilot and main workshop it was seen that engaging people at such a level could be difficult, if sustainability and innovation are not part of their corporate strategy.

9 Conclusions and Future Work

9.1 Introduction

This chapter brings together all the previous chapters, which comprise this doctoral thesis. This is achieved through outlining how the research aims and objectives were met and by summarizing the overall conclusions. The limitations of research are discussed and the chapter concludes by outlining the contribution to knowledge made by this research and some recommendations for future work.

9.2 Meeting the research aims and objectives

The overall research aim was to build a holistic theoretical framework supported by user-centred design principles that can guide companies to leverage sustainable consumption. The research aim was fulfilled through building a **theoretical framework** based on a holistic consumer-focused approach, which was translated into a model and its toolkit that can assist companies to think strategically about the transformations needed to leverage more sustainable consumption.

The aim was achieved through undertaking research activities according to specific objectives described in the introduction chapter (*Section 1.2*). *Table 9-1* presents each research objective and the means by which each objective was completed, indicating the respective thesis chapter for reference.

Table 9-1 Attainment of objectives in respect to each chapter

Objective	Means	Achieved in:
1. To build an understanding of the different interpretations around sustainable consumption, to establish the focus of research.	Drawing on the consumption-production dichotomy attained this objective.	<i>Chapter 2</i>

<p>2. To draw together and expand upon current research exploring the complex factors which influence sustainable consumption from current literature, in order to develop a more holistic understanding of the challenges that global companies face to leverage sustainable consumption.</p>	<p>The issues studied gave a holistic understanding, which formed a strong background for this thesis.</p>	<p><i>Chapter 1 and 2</i></p>
<p>3. To explore and build upon the relationship between user-centred design principles and sustainable consumption theory through qualitative research methods, to draw out opportunities for global companies to leverage sustainable consumption.</p>	<p>A grounded theory research was applied in Phase 1 of the research to attain this objective. Different research methods were used for data collection e.g. semi-structures, focus group and a document analysis to bridge the identified research gap.</p>	<p><i>Chapter 3 and 4</i></p>
<p>4. To develop a model and appropriate tools, to enable global companies to set tangible actions towards leveraging sustainable consumption.</p>	<p>During Phase 2 of research, the SCL Model was built upon the theoretical framework, as a mechanism to aid companies to leverage sustainable consumption. In addition, during Phase 3 a toolkit was created to help companies to apply the SCL Model.</p>	<p><i>Chapter 5 and 6</i></p>
<p>5. To evaluate and elicit reactions to the model and appropriate tools, in order to distinguish further opportunities for improvement.</p>	<p>This objective was achieved during Phase 4 where two types of workshops were developed to assess the SCL Model and its toolkit.</p>	<p><i>Chapter 6 and 7</i></p>
<p>6. To evaluate the potential of the model and tools towards motivating sustainable consumption.</p>	<p>This objective was achieved during Phase 4 by assessing the outcomes produced through the application of the SCL Toolkit.</p>	<p><i>Chapter 7</i></p>

9.3 Overall conclusions

Through this doctoral research, it was identified that businesses play an important role in leveraging sustainable consumption, as they are enablers of innovation. It was recognized that multinational companies are particularly well situated to leverage sustainable consumption as their operations, products, services and systems extend across many continents reaching numerous consumers, which can create a cumulative effect. The overall conclusions for this doctoral thesis are listed below:

- UCD principles were found to be a valuable approach towards leveraging sustainable consumption, because they give a broader account of the complexities around consumption and consumer behaviour that can be communicated to higher management.
- At the same time, UCD principles can build a holistic account of the different issues to be considered when leveraging sustainable consumption, as they can be used to engage with people inside and outside a company in order to change companies' practices and behaviours.
- Three key concepts - communication, collaboration and innovation - were identified as part of the core strategy of applying UCD principles and as such were considered as important to leverage sustainable consumption, and formed the theoretical framework of this research.
- Innovation was considered as key to the transition towards sustainable consumption. In order to innovate, it is necessary to effectively communicate and collaborate with different stakeholders including governments, NGOs, consumers and other businesses.
- A company's ability to innovate to leverage sustainable consumption will depend on meeting certain conditions, which said that sustainability should be at the core of the business' strategy, and research and development (R&D)/design practices should be considered as an intellectual process to facilitate design thinking.

- The SCL Model emerged from grounded theory between UCD principles and to what is needed for companies to leverage sustainable consumption.
- The SCL Model and its toolkit were built as mechanisms to help companies to evaluate different areas of their business considered as important through an evaluative tool, to then create ideas that target the consumer through using the sustainable consumption index (SCI) tool and a mix of communication, collaboration and innovation consumer-focused strategy cards. The components of the SCL Toolkit proved effective to develop ideas, which attempt leveraging sustainable consumption.
- The SCL Model Evaluation Workshops revealed that companies need a multi-disciplinary approach that enables collaboration to understand what needs to be done inside and outside the company to leverage sustainable consumption.
- By applying the SCL Model and its toolkit, it was found that not all companies are ready enough to embark into the journey to leverage sustainable consumption, and that in order to do so it will be necessary to break some of the internal barriers such as cost and time that hinder higher management from thinking about leveraging sustainable consumption. To break these barriers companies could work bottom up to demonstrate the benefits to higher management.
- Finally, it can be concluded that if higher management were engaged at a corporate level, it would be possible to boost innovative business models that not only leverage sustainable consumption but also enhance more sustainable lifestyles.

9.4 Limitations of Research

A number of limitations were encountered throughout the research journey, some of which have been mentioned throughout this doctoral thesis. The limitations encountered related to: time, access and logistics.

9.4.1 Time Limitations

The time allocated (3 years) to complete this doctoral project had an impact on how the research activities were planned and carried out.

Firstly, if the research time had been longer a bigger sample could have been recruited to reinforce the findings of each phase of research. For Phase 1, a larger number of interviewees could have been recruited and more focus groups conducted. However, getting a large number of experts and consultancies to participate in interviews and in focus group sessions in the timeframe allocated for this phase was not easy as not all experts that were identified had the time to participate.

A similar issue arose during the pilot and main workshops. Getting participants from different areas inside the company, especially from higher positions, to participate in the workshops was a big constraint. In addition, the SCL Model Evaluation Workshop was influenced by time limits allocated by each company. In general a range of four to five hours was given by each company to conduct the workshop. Due to this time constraint and to the data needed to accomplish the research, the workshops were designed according to this timeframe. However, this timeframe affected the scope of the SCL Model and as such guidance to capture outcomes and next steps to deploy a plan of action was not included.

Secondly, time also played a key role during the transitions between the research phases (*see Figure 3-2 in p.66*), as some of the time allocated to some of the research activities interfered with progression to other phases of the research. This was because a detailed analysis was conducted to build a robust theoretical framework, which had to be finalized before translating it into the SCL Model. The SCL Model and its toolkit also had to be completed first before contacting companies to conduct the workshops.

9.4.2 Access limitations

The access limitations mainly applied to the recruitment of global companies in Mexico and the UK.

The recruitment process in Mexico was carried out through a network of contacts that the researcher had. However, the researcher did not have the same network of contacts in the UK, and as such it was extremely difficult to contact multinational companies in this country.

The ability to recruit companies influenced the number of companies that the researcher was able to recruit to conduct the pilot and the main workshops. Having a greater access to companies in Mexico, resulted in three pilot workshops being carried out. However, for the main workshop only one company was recruited. As such, these companies were not representative of these countries, and the comparison made between the pilot and the main workshops was to gain insights from industry to further improve the SCL Model, and to understand the interest and capabilities that each company had towards leveraging sustainable consumption not, necessarily with the express aim of making a cultural comparison.

9.4.3 Logistical Limitations

Carrying out the research in two different countries brought interesting experiences and knowledge to this research. However, the geographical distance between both sites played an important role in recruiting the companies in Mexico, and in organising the pilot workshops with the main contact from each company.

To recruit the companies, e-mail was the main resource used. However a phone call with each company was organized with the main contact of each company to pitch the SCL Model. The phone calls had to be organized in advance according to the time differences to find a suitable time for both parties.

In addition, a grant was allocated to cover travel expenses for a one-month trip to Mexico. By knowing the flight dates in advance, it was possible to arrange the dates for the three pilot workshops within that month. Due to this tight schedule, the researcher had to be sure that all the materials and activities of the workshop were well designed and accurately timed, as there was not going to be enough time for further improvements.

9.5 Contribution to knowledge

This research draws on different theories of consumption and sustainable consumption, and sees the contribution of new practices of design such as user-centred design (UCD) as a valuable approach to leverage sustainable consumption. Novelty has been demonstrated by exploring the relationship between UCD principles and sustainable consumption theory in a business context, which led to the development of a robust theoretical framework to build the SCL Model as a mechanism to aid companies to find opportunities to innovate in their business model and value proposition to consumers with the overall aim of leveraging sustainable consumption.

Measures towards leveraging sustainable consumption have gained huge interest amongst international research institutes, academics, and businesses. Thus, this doctoral research acknowledges different theoretical approaches and tools developed for this purpose. However, none of these approaches take a holistic consumer-focused approach. To overcome the limitations of prior approaches, a deeper understanding of the intertwining factors around businesses practices and consumers' behaviour to achieve sustainable consumption, and the opportunities afforded by different global companies operating in developed and developing countries in their attempt to do so, was gained.

9.6 Recommendations for future work

This doctoral thesis is the first attempt to account for a holistic consumer-focused approach towards leveraging sustainable consumption, in which global companies play an important role in order to do so. The theoretical framework accounted for a robust basis (translated into the SCL Model and toolkit) for global companies to start thinking about the benefits afforded through leveraging sustainable consumption. However at this stage, it is impossible to say if the SCL Model actually enabled strategic changes inside the company towards leveraging sustainable consumption. However, the SCL Model did assist companies in starting to think about leveraging sustainable consumption and led interesting discussions to accomplish it. To account for these discussions and others to come, the following future work is recommended:

- Test the SCL Model with a wider range of global companies in other developed and developing countries: to account for more insights about the SCL Model, and to further revise it based on further cultural differences which may arise.
- Explore, design and test further tools as part of the SCL Model and its toolkit: This was identified as important to allow companies to create a robust plan of action upon the developed ideas. Thus it is recommended to explore further tools such as visioning, mapping, decision making, strategy and planning and problem solving tools to develop further tools that can help global companies to create and implement a plan of action based on the ideas generated.
- Undertake case study research with other global companies in specific regions, to apply the SCL Model to generate ideas and develop further those ideas to implementation. Then, measure the impacts of such ideas towards leveraging sustainable consumption, to buy-in from higher management at a corporate level to filter down such ideas to different regions.
- Design and develop the SCL Model web-page: Containing the complete toolkit, processes and case studies, to disseminate the SCL Model as an inspirational tool to be used by other global companies worldwide.
- Commercialize the SCL toolkit by enacting as a consultant for businesses to help them to implement the improved SCL toolkit through a series of workshops.

References

ABRAHAM, C., 2011. Governments, Nudging and Effective Science. In: UNILEVER & FUTERRA ed, *Inspiring Sustainable Living. Expert's insights into consumer behaviour and Unilever Five Levers for Change*. UK: Unilever & Futerra, pp. 36-39.

ABRAS, C., MALONEY-KRICHMAR, D. and PREECE, J., 2004. *User-Centred Design. Encyclopedia of Human-Computer Interaction*. Thousand Oaks: Sage Publications edn.

AJZEN, I., 1991. The theory of planned behaviour. *Organizational behaviour and human decision processes*, **50**(2), pp. 179-211.

AJZEN, I. and FISHBEIN, M., 1980. *Understanding attitudes and predicting social behaviour*. 3rd edn. USA: Prentice-Hall.

BAECK, A. and GREMETT, P., 2011. Design Thinking. In: H. DEGEN and X. YUAN, UX Best Practices – How to Achieve More Impact with User Experience. McGraw-Hill-Osborne Medi.

BAYA, V., PARKER, B. and WASDEN, C., 2012; 2012-last update, Can innovation be disciplined without killing it? [Homepage of PricewaterhouseCoopers], [Online]. Available: <http://www.pwc.com/us/en/technology-forecast/2011/issue2/features/innovation-disciplined.jhtml> [10/2012, 2012].

BECKER, G.S., 1976. *The economic approach to human behaviour*. Chicago; London: University of Chicago Press.

BENNETT, M. and JAMES, P., 1999. *Sustainable measures: evaluation and reporting of environmental and social performance*. Sheffield: Greenleaf.

BERMAN, K., KNIGHT, J. and CASE, J., 2008. Profitability Ratios - The Higher the Better (Mostly): The Five You Need to Know. In: K. BERMAN, J. KNIGHT and J. CASE, eds, *Financial intelligence for IT professionals: what you really need to know about the numbers*. Boston, Mass.; London: Harvard Business School Press; McGraw-Hill distributor, pp. 149-154.

BETTANCOURT, L., LOBO, J., HELBING, D. and KUHNERT, CHRISTIAN, WEST, GEOFFREY, 2007. Growth, innovation, scaling and the pace of life in cities. *Proceedings of the National Academy of Sciences of the United States of America*, **104**(17), pp. 7301-7306.

BHAMRA, T., LILLEY, D. and TANG, T., 2008. Sustainable use: changing consumer behaviour through product design, *Changing the change: design visions, proposals and tools*, 10th-12th July, 2008, Turin, Italy.

BHAMRA, T. and LOFTHOUSE, V., 2007. *Design for sustainability: A practical approach*. Aldershot: Gower.

BOTSMAN, R. and ROGERS, R., 2010. *What's mine is yours: the rise of collaborative consumption*. 1st edn. New York: Harper Business.

BRADY, J., 2005. *Environmental Management in Organizations: The IEMA Handbook*. London: Earthscan.

- BREZET, H., 1997. Dynamics in Eco design Practice. *UNEP IE: Industry and Environment*, 20(1-2), pp. 21-24.
- BRICENO, T. and STAGL, S., 2006. The role of social processes for sustainable consumption. *Journal of Cleaner Production*, 14(17), pp. 1541-1551.
- BROWN, T., 2008. Design Thinking. *Harvard Business Review*, pp. 1-10.
- BURGESS, J., BEDFORD, T., HOBSON, K., DAVIES, G. and HARRISON, C., 2003. (Un)Sustainable Consumption. In: F. BERKHOUT, M. LEACH and I. SCOONES, eds, *Negotiating Environmental Change: New Perspectives from Social Science*. Cheltenham, UK. Northampton: Edward Elgar, pp. 261-286.
- CHARMAZ, K., 2006. *Constructing grounded theory*. London; Thousand Oaks, Calif.: Sage Publications.
- CHARTER, M., 2006. Chapter 22. Sustainable Consumption and Production, Business and Innovation. In: M. ANDERSEN. M and A. TUKKER, eds, *Perspectives on Radical Changes to Sustainable Consumption and Production (SCP)*. Denmark: RISO and TNO, pp. 13-20.
- CHITTURI, R., 2009. Emotions by design: A consumer Perspective. *International Journal of Design*, 3(2), pp. 7-17.
- CHIU, Y., CHEN, B., SHYU, J. and TZENG, G., 2006. An evaluation model of new product launch strategy. *Technovation*, 26(11), pp. 1244-1252.
- CHURET, C. and HAYES, S., 2004. Regional perspectives on "Sustainable Livelihoods and Business". USA, Switzerland: WBCSD.
- CIALDINI, R., RENO, R. and KALLGREN, C., 1990. A Focus Theory of Normative Conduct: Recycling the concept of norms to littering in public places. *Journal of Personality and Social Psychology*, 58, pp. 749-758.
- CORBIN, J.M. and STRAUSS, A.L., 2008. *Basics of Qualitative Research: Techniques and Procedures for Developing Grounded Theory*. 3rd edn. Thousand Oaks, CA: SAGE.
- COOPER, A., REIMANN, R. and CRONIN, D., 2007. *About Face 3: the essentials of interaction design*. Indianapolis: Wiley Publishing Inc.
- CREATIVE AND CULTURAL SKILLS, 2012, 2012-last update, Business Survival Toolkit - PESTLE [Homepage of Creative and Cultural Skills], [Online]. Available: <http://business-survival-toolkit.co.uk/stage-one/evaluating-the-business/pestle> [09/2012, 2012].
- CRESWELL, J.W., 2007. *Qualitative Inquiry and Research Design: Choosing Among Five Approaches*. 2nd edn. London: SAGE.
- DATA PROTECTION ACT, 1998. *Data Protection Act 1998: subordinate legislation: notification regulations: a consultation paper*. London: Home Office.
- DE KLUYVER, C.A., 2010. *Fundamentals of global strategy : a business model approach*. New York: Business Expert Press.
- DENSCOMBE, M., 2007. *The good research guide: for small-scale social research projects*. 3rd edn. Maidenhead: Open University Press.

DEPARTMENT FOR ENVIRONMENTAL FOOD AND RURAL AFFAIRS (DEFRA), 2008. *A framework for pro-environmental behaviours*. UK: Defra.

DEPARTMENT FOR ENVIRONMENT AND RURAL AFFAIRS (DEFRA). 2012, July 2012-last update, What is Government Doing? [Homepage of DEFRA], [Online]. Available: <http://www.defra.gov.uk/environment/climate/government/> [09/2012, 2012].

DESIGN COUNCIL, 2012, 2012-last update, Our History [Homepage of Design Council], [Online]. Available: <http://www.designcouncil.org.uk/about-us/Our-History/> [09/2012, 2012].

DE VAUS, D.A., 2002. *Surveys in social research*. 5th edn. London: Routledge.

DOBSON, A., 2003. *Citizenship and the environment*. Oxford: Oxford University Press.

DOLAN, P., 2002. The Sustainability of "Sustainable Consumption". *Journal of Macro marketing*, 22(2), pp. 170-181.

DOLAN, P., HALLSWORTH, M., HALPERN, D., KING, D. and VLAEV, I., 2010. *MindSpace. Influencing Behaviour through public policy*. UK: Institute for Government.

DRUCKER, P.F., 1973. *Management: tasks, responsibilities, practices*. New York: Harper Collins.

EARLY, C., 2011, 2011-last update, Green Ambitions: PG vs Unilever [Homepage of The Environmentalist], [Online]. Available: <http://www.environmentalisonline.com/article/2011-06-12/green-ambitions-pg-vs-unilever> [07/2011, 2011].

EHRlich, P.R. and HOLDREN, J.P., 1971. Impact of Population Growth. *Science*, 171(3977), pp. 1212-1217.

ELIZONDO, G., 2011. *Design for sustainable behaviour in cross-cultural contexts: a design framework*, Loughborough University.

ELLEMERS, N., KORTEKAS, P. and OUWEKERK, J., 1999. Self-categorisation, commitment to the group and group self-esteem as related but distinct aspects of social identity. *European Journal of Social Psychology*, 29, pp. 371-389.

ELZEN, B. and WIECZOREK, A., 2005. Transitions towards sustainability through system innovation. *Technological Forecasting and Social Change*, 72(6), pp. 651-661.

ESCOBAR-TELLO, C., 2010. *Explorations on the relationship between happiness and sustainable design*, Loughborough University.

ESTY, D.C. and WINSTON, A., 2009. *Green to gold: how smart companies use environmental strategy to innovate, create value, and build a competitive advantage*. Rev. and updated edn. Hoboken, N.J.; Chichester: Wiley; John Wiley distributor.

ETHICAL INVESTMENT, 2011; 2011-last update, Ethical Investment Explained. [Online] Available: http://www.ethicalinvestment.co.uk/Ethical_Investments.htm [02/2011, 2011].

EVANS, S., BURNS, A. and BARRET, R., 2002. *Empathic Design Tutor*. UK: Cranfield University.

FINE, B., 1993. *The world of consumption*. London: New York: Routledge.

FLETCHER, K., DEWBERRY, E. and GOGGIN, P., 2001. Chapter 12: Sustainable consumption by design. In: M.J. COHEN and J. MURPHY, eds, *Exploring sustainable consumption*. Emerald Group Publishing, pp. 213-224.

FLICK, U., 2007. *Managing Quality in Qualitative Research*. London: SAGE.

FORUM FOR THE FUTURE, 2011. *Consumer Futures 2020*. UK: Forum for the Future.

FRASER, H., 2010. Designing Business: New Models for Success. In: T. LOCKWOOD, ed, *Design Thinking. Integrating Innovation, Customer Experience and Brand Value*. New York, USA.: Allworth Press, pp. 35-45.

FUCHS, D.A. and LOREK, S., 2005. Sustainable Consumption Governance: A History of Promises and Failures. *Journal of Consumer Policy*, 28(3), pp. 261-288.

FUKASAKU, Y., 2000. Innovation for Environmental Sustainability. A background. In: OECD, ed, *Innovation and the Environment: Sustainable Development*. Paris: Organisation for Economic Co-operation and Development, pp. 17-32.

FULTON-SURI, J., 2004. Design Expression and Human Experience: Evolving Design Practice. In: D. MCDONAGH, P. HEKKERT, J. VAN ERP and D. GYI, eds, *Design and emotion: the experience of everyday things*. London: Taylor & Francis, pp. 13-17.

FULTON-SURI, J. and MARSH, M., 2000. Scenario building as an ergonomics method in consumer product design. *Applied Ergonomics*, 30(2), pp. 151-157.

GEELS W, F., 2004a. Understanding system innovations: A critical literature review and a conceptual synthesis. In: B. ELZEN, F.W. GEELS and K. GREEN, eds, *System innovation and the transition to sustainability. Theory, evidence and policy*. Twenty, Netherlands edn. Cheltenham: Edward Elgar, pp. 19-46.

GEELS W, F., BOELIE, E. and GREEN, K., 2004. General Introduction: System Innovation and Transitions to Sustainability. In: B. ELZEN, F.W. GEELS and K. GREEN, eds, *System innovation and the transition to sustainability. Theory, evidence and policy*. Twenty, Netherlands edn. Cheltenham: Edward Elgar, pp. 1-16.

GEELS, W.F., 2004b. From sectorial systems of innovation to socio-technical systems: Insights about dynamics and change from sociology and institutional theory. *Research Policy*, 33(6-7), pp. 897-920.

GEELS, W.F., 2002. Technological transitions as evolutionary reconfiguration processes: a multi-level perspective and a case study. *Research Policy*, 31(8-9), pp. 1257-1274.

GIBBS, A., 1997; December 1997-last update, Social Research Update: Focus Groups [Homepage of University of Surrey], [Online]. Available: <http://sru.soc.surrey.ac.uk/SRU19.html> [07/2012, 2012].

GIBBS, G., 2007. *Analysing Qualitative Data*. London: SAGE.

GOULD, J. and LEWIS, C., 1985. Designing for Usability: Key Principles and What Designers Think. *Communications of the ACM*, 28(3), pp. 300-311.

GRANT, J., 2007. *The green marketing manifesto*. Chichester: John Wiley & Sons.

GREEN, K. and VERGRAGT, P., 2002. Towards sustainable households: a methodology for developing sustainable technological and social innovations. *Futures*, 34(5), pp. 381-400.

HAINES, V., MITCHELL, V. and MALLABAND, B., 2010. Using a Practice-Orientated Approach to Inform the Design of Energy Efficiency Measures for Older Homes, R. WEVER, J. QUIST, A. TUKKER, J. WOULDSTRA, F. BOONS and N. BEUTE, eds. In: *Knowledge Collaboration & Learning for Sustainable Innovation*, 25-29 October 2010, Faculty of Industrial Design Engineering, Delft University of Technology, pp. 1-17.

HAMEL, G., 2000. *Leading the Revolution*. Harvard Business School Press.

HEAP, B. and KENT, J., 2000. *Towards sustainable consumption: a European perspective*. 1st edn. London, UK: The Royal Society.

HICKS, C. and HOVENDEN, F., 2010. Making sustainability easy for consumers: The new opportunity for business and societal innovation. USA: Collective Innovation.

HICKS, C. and KUHNDT, M., 2011. visions and Actions for Sustainable Lifestyles. In: UNILEVER & FUTERRA, ed, *Inspiring Sustainable Living. Experts insights into consumer behaviour and Unilever Five Levers for Change*. UK: Unilever & Futerra, pp. 22-27.

HOLDSWORTH, M., 2003. *Green choice: what choice? Summary of NCC research into consumer attitudes*. London: National Consumer Council.

HOFSTETTER, P., MADJAR, M. and OZAWA, T., 2006. Happiness and Sustainable Consumption: Psychological and physical rebound effects at work in a tool for sustainable design. *The International Journal of Lifecycle Assessment*, 11(0), pp. 105-115.

HOFSTETTER, P. and MADJAR, M., 2005. *How to increase happiness and support sustainable consumption? A check list for evaluation and design*. Zurich: BAO & Consultrix GmbH.

HOFSTETTER, P. and MADJAR, M., 2003. *Linking change in happiness, time use, sustainable consumption, and environmental impacts. An attempt to understand time-rebound effects*. Final report to the society for non-traditional technologies Japan. Zurich: BAO & Consultrix.

IDEO, 2002; 2002-last update, Method Cards for Ideo [Homepage of IDEO], [Online]. Available: <http://www.ideo.com/work/method-cards/> [10/2012, 2012].

IDEO, 2009. *Human Centred Design Toolkit*. 2nd edn. IDEO books.

INGRAM, J., SHOVE, E. and WATSON, M., 2007. Products and Practices: Selected Concepts from Science and Technology Studies and from Social Theories of Consumption and Practice1. *Design Issues*, 23(2), pp. 3-16.

JACKSON, T., 2006. Challenges for sustainable consumption policy. In: T. JACKSON, ed, *The Earthscan reader in sustainable consumption*. 1st edn. London: Earthscan, pp. 109-129.

JACKSON, T., 2005a. Living Better by Consuming Less? Is there a "Double Dividend" in Sustainable Consumption? *Journal of Industrial Ecology*, 9(1/2), pp. 19-36.

JACKSON, T., 2005b. *Motivating Sustainable Consumption. A review of evidence on consumer behaviour and behavioural change. A report to the Sustainable Development Research Network*. London: Policy Studies Institute.

JACKSON, T. and MICHAELIS, L., 2003. *Policies for sustainable consumption*. Oxford University & University of Surrey.

JAGER, W., 2003. Breaking Bad Habits: a dynamical perspective on habit formation and change. In: L. HENDRICK, W. JAGER and STEG L, eds, *Human Decision-making and Environmental Perception - Understanding and Assisting Human Decision-Making in Real Life settings*. Libor Amicorum for Charles Vlek edn. Groningen: University of Groningen.

JENKINS, J., 2010. Creating the right environment for Design. In: T. LOCKWOOD, ed, *Design Thinking. Integrating Innovation, Customer Experience and Brand Value*. New York, USA.: Allworth Press, pp. 23-34.

KRANTZ, R., 2010. A New Vision of Sustainable Consumption. *Journal of Industrial Ecology*, 14(1), pp. 7-9.

KEMP, R., LOORBACH, D. and ROTMANS, J., 2006. Chapter 34 Transition management as a model managing processes of co-evolution towards sustainable development. In: M. ANDERSEN. M and A. TUKKER, eds, *Perspectives on Radical Changes to Sustainable Consumption and Production (SCP)*. Denmark.: RISO and TNO, pp. 387-405.

KONG, N., SALZMANN, O., STEGER, U. and IONESCU-SOMERS, A., 2002. Moving Business/Industry Towards Sustainable Consumption: The Role of NGOs. *European Management Journal*, 20(2), pp. 109-127.

KONRAD, K., VOß, J. and TRUFFER, B., 2006. Chapter 33 Transformations in consumption and production patterns from a regime perspective. In: M. ANDERSEN. M and A. TUKKER, eds, *Perspectives on Radical Changes to Sustainable Consumption and Production (SCP)*. Denmark: RISO and TNO, pp. 13-20.

LILLEY, D., LOFTHOUSE, V. and BHAMRA, T., 2005. Towards instinctive sustainable product use, 2nd International Conference: Sustainability Creating the Culture.

LILLEY, D., 2009. Design for sustainable behaviour: strategies and perceptions. *Design Studies*, 30(6), pp. 704-720.

LIPSEY, R.G., 1992. *First Principles of Economics*. 2Rev.ed. edn. Weidenfeld & N.

LITOSSELITI, L., 2003. *Using focus groups in research*. London: Continuum.

LOCKWOOD, T., 2010. *Design Thinking. Integrating Innovation, Customer Experience, and Brand Value*. New York, USA.: Allworth Press.

LOFTHOUSE, V. and LILLEY, D., 2006. What they Really, Really Want: User Centred Research Methods for Design, *International Design Conference - Design*, May 15-18, 2006, pp. 1-8.

LOREK, S., 2010. Strong Sustainable Consumption and de-growth, R. WEVER, J. QUIST, A. TUKKER, J. WOULDSTRA, F. BOONS and N. BEUTE, eds. In: *Knowledge Collaboration & Learning for Sustainable Innovation*, 25-29 October, 2010, Faculty of Industrial Design Engineering, Delft University of Technology, pp. 1-24.

- LURY, C., 1996. *Consumer culture*. Cambridge: Polity.
- MACQUEEN, K. and GUEST, G., 2008. Introduction to team-based qualitative research. In: G. GUEST and K. MACQUEEN, eds, *Handbook for team-based qualitative research*. Lanham: Altamira Press, pp. 3-19.
- MÁLOVICS, G., CSIGÉNYÉ, N.N. and KRAUS, S., 2008. The role of corporate social responsibility in strong sustainability. *Journal of Socio-economics*, 37(3), pp. 907-918.
- MANOOCHEHRI, J., 2002. Post Rio. "Sustainable Consumption": Establishing coherence and a common platform. *Development*, 45(3), pp. 47-53.
- MANZINI, E., COLLINA, L. and EVANS, S., eds, 2004. *Solution Orientated Partnerships: How to Design Industrialised Sustainable Solutions*. Cranfield: Cranfield University.
- MARCHAND, A. and WALKER, S., 2008. Product development and responsible consumption: designing alternatives for sustainable lifestyles. *Journal of Cleaner Production*, 16(11), pp. 1163-1169.
- MASLOW, A.H., 1987. *Motivation and personality*. 3rd edn. New York; London: Harper & Row.
- MATTAR, H., 2011. The transformative power of individuals. In: UNILEVER & FUTERRA, ed, *Inspiring Sustainable Living. Experts insights into consumer behaviour and Unilever Five Levers for Change*. UK: Unilever & Futerra, pp. 18-21.
- MILLENIUM CONSUMPTION GOALS INITIATIVE (MCGI), 2011; November 2011-last update, Millennium Consumption Goals Initiative [Homepage of United Nations], [Online]. Available:<http://www.uncsd2012.org/rio20/index.php?page=view&type=510&nr=312&menu=20> [06/2012, 2012].
- MICHAELIS, L., 2003. The role of business in sustainable consumption. *Journal of Cleaner Production*, 11(8), pp. 915-921.
- MILES, M. and HUBERMAN, M., 1994. *Qualitative data analysis: an expanded sourcebook*. 2nd edn. Thousand Oaks, California; London: Sage.
- MINISTRY OF ENVIRONMENT NORWAY, 1994. Report of the Sustainable Consumption Symposium. Norway: Ministry of the Environment.
- MOGGRIDGE, B., 2007. *Designing interactions*. Cambridge, Mass; London: MIT Press.
- MONT, O., 2002a. Drivers and barriers for shifting towards more service-orientated business: Analysis of the PSS field and contribution from Sweden. *The Journal of Sustainable Product Design*, 2(3), pp. 89-103.
- MONT, O. 2002b. Clarifying the concept of product–service system. *Journal of Cleaner Production*, 10(3), pp. 237-245.
- MONT, O., 2004. Institutionalisation of sustainable consumption patterns based on shared use. *Ecological Economics*, 50(1-2), pp. 135-153.
- MONT, O. and EMTAIRAH, T., 2006. Chapter 36 Systemic Changes for Sustainable Consumption and Production. In: M. ANDERSEN. M and A. TUKKER, eds, *Perspectives on*

Radical Changes to Sustainable Consumption and Production (SCP). Denmark: RISO and TNO, pp. 431-444.

MONT, O. and PLEPYS, A., 2008. Sustainable consumption progress: should we be proud or alarmed? *Journal of Cleaner Production*, **16**(4), pp. 531-537.

MUNASINGHE, M., DASGUPTA, P., SOUTHERTON, D., BOWS, A. and MCMEEKIN, A., 2009. Consumers, business and climate change. UK: Sustainable Consumption Institute, University of Manchester.

MURPHY, J. and COHEN, M.J., 2001. Chapter 1. Consumption, Environment and Public Policy. In: M.J. COHEN and J. MURPHY, eds, *Exploring Sustainable Consumption. Environmental Policy and the Social Sciences*. 1st edn. Oxford, UK.: Elsevier Science Ltd., pp. 3-17.

NASH, H., 2009. The European Commission's sustainable consumption and production and sustainable industrial policy action plan. *Journal of Cleaner Production*, **17**(4), pp. 496-498.

NEEF, M., 1992. Real Life Economics: Understanding Wealth Creation. In: P. EKINS and N. MAX, eds, *Real Life Economics. Understanding Wealth Creation*. London, New York: Routledge, pp. 197-213.

NEUMEIER, M., 2010. The Designful Company. In: T. LOCKWOOD, ed, *Design Thinking. Integrating Innovation, Customer Experience and Brand Value*. New York, USA.: Allworth Press, pp. 3-22.

NIDOMULU, R., PRAHALAD, C.K. and RANGASWAMI, M.R., 2009. Why sustainability is now the key driver of innovation. *Harvard Business Review*, pp. 1-9.

NILSTAD, I. and BOKS, C., 2008. Chapter 6. User-centred Design Strategies for Sustainable Patterns of Consumption, T. GEER KEN, A. TUKKER, C. VEZZOLI and F. CESCHIN, eds. In: *Sustainable Consumption and Production: Framework for Action. 2nd Conference of the Sustainable Consumption Research Exchange (SCORE!) Network*, 10 and 11 of March, 2008, SCORE!, pp. 107-127.

OTTOMAN, J.A., 2011. *The new rules of green marketing: strategies, tools, and inspiration for sustainable branding*. Sheffield; San Francisco, Calif.: Greenleaf Publishing; Berrett-Koehler Publishers.

OSTERWALDER, A. and PIGNEUR, Y., 2010. *Business model generation: a handbook for visionaries, game changers, and challengers*. Hoboken, N.J.: John Wiley & Sons.

OUDSHOORN, N. and PINCH, T., 2003. *How users matter: the co-construction of users and technologies*. Cambridge, Mass; London: MIT.

PAAP, J. and KATZ, R., 2004. Predicting the Unpredictable. Anticipating Disruptive Innovation. *Research Technology Management*, **47**(4), pp. 13-22.

PERL, 2010. 2010-last update. PERL *Latin American Regional Network. Strategy and implementation plan*. PERL. [Online]
Available: <http://www.perlprojects.org/Project-sites/PERL/Regional-Networks/Latin-America> [07/2012. 2012].

PORRITT, J., 2010, November 2010-last update, Unilever trailblazing environmental plan [Homepage of The Guardian], [Online]. Available: <http://www.guardian.co.uk/sustainable-business/blog/unilever-sustainable-agriculture-plan?INTCMP=SRCH> [06/2012, 2012].

PORRITT, J., 2007. *Capitalism: As if the World Matters*. London: Earthscan.

POVERTY ENVIRONMENT PARTNERSHIP (PEP), 2012. Building an inclusive Green Economy for all. Germany: PEP.

PRADEEP, V.B., 2011. Inspiring Sustainable Living: Unilever's Five Levers for Change. In: UNILEVER & FUTERRA, ed, *Inspiring Sustainable Living. Experts' insights into consumer behaviour and Unilever Five Levers for Change*. UK: Unilever & Futerra, pp. 8-15.

PRESTON, E., 2012; 2012-last update, Why we'll never, be sustainable if we keep thinking about consumers [Homepage of Sustainable Brands], [Online]. Available: <http://www.sustainablebrands.com/> [10/2012, 2012]

PRINCEN, T., 1999. Consumption and environment: some conceptual issues. *Ecological Economics*, 31(3), pp. 347-363.

PRINCEN, T., 2001. Consumption and its Externalities: Where Economy Meets Ecology. *Global Environmental Politics*, 1(3), pp. 11-30.

RANGAN, K. and RAJAN, R., 2007. Unilever in India: Hindustan Lever's Project Shakti - Marketing FMCG to the rural consumer. USA: Harvard Business Review.

RHEINGOLD, L., 1998. The Factor X Debate: Setting Targets for Eco-efficiency. *Journal of Industrial Ecology*, 2(1), pp. 13-22.

ROBINS, N., 1999. Making sustainability bite: transforming global consumption patterns. *Journal of Sustainable Product Design*, (10), pp. 7-16.

ROBSON, C., 2002. *Real world research: a resource for social scientists and practitioner-researchers*. 2nd edn. Malden, Mass; Oxford: Blackwell Publishers.

ROBSON, C., 2011. *Real world research : a resource for users of social research methods in applied settings*. 3rd edn. Oxford: Wiley-Blackwell.

ROGERS, S., 2011, 25th July 2011-last update, So how do you measure wellbeing and happiness? [Homepage of The guardian], [Online]. Available: <http://www.guardian.co.uk/news/datablog/2011/jul/25/wellbeing-happiness-office-national-statistics> [09/12, 2012].

RONDINELLI, D.A. and BERRY, M.A., 2000. Environmental citizenship in multinational corporations: social responsibility and sustainable development. *European Management Journal*, 18(1), pp. 70-84.

RØPKE, I., 1999. The dynamics of willingness to consume. *Ecological Economics*, 28(3), pp. 399-420.

ROSLING, H., 2011, March 2011-last update; The magic washing machine. [Homepage of TED Conferences]. Available at: http://www.ted.com/talks/hans_rosling_and_the_magic_washing_machine.html TED Conferences. [10/2012, 2012]

ROYAL SOCIETY, 2012. *People and the planet*. UK: The Royal Society Science Policy Centre.

SAFFER, D., 2006, May 2006-last update, The elements of interaction design [Homepage of UX matters], [Online]. Available: <http://www.uxmatters.com/mt/archives/2006/05/the-elements-of-interaction-design.php> [10/2012, 2011].

SALDAÑA, J., 2009. *The coding manual for qualitative researchers*. London: SAGE.

SANDERS, E. and KWOK, P., 2007. Emerging Trends in Design Research, INTERNATIONAL ASSOCIATION OF SOCIETIES OF DESIGN RESEARCH, ed. In: 12-15 November, 2007, pp. 1-2.

SANNE, C., 2002. Willing consumers or locked-in? Policies for a sustainable consumption. *Ecological Economics*, 42(1-2), pp. 273-287.

SCHAEFER, A., COULSON, A., GREEN, K., NEW, S. and SKEA, J., 2003. Sustainable Business Organizations? In: F. BERKHOUT, M. LEACH and I. SCOONES, eds, *Negotiating environmental change: New Perspectives from Social Science*. Cheltenham, UK. Northampton: Edward Elgar, pp. 209-230.

SCHOR, J.B., 2005. Prices and quantities: Unsustainable consumption and the global economy. *Ecological Economics*, 55(3), pp. 309-320.

SCHWARTZ, S., 1977. Normative Influences on Altruism. *Advances in experimental social psychology*, 10, pp. 222-279.

SEYFANG, G., 2009. *New Economics of Sustainable Consumption; seeds of change*. Basingstoke: Palgrave Macmillan.

SEYFANG, G., 2004. Consuming Values and Contested Cultures: A Critical Analysis of the UK Strategy for Sustainable Consumption and Production. *Review of Social Economy*, 62(3), pp. 323-338.

SHEA, L., 2011, November 2011-last update, The 3Ps or behaviour marketing or how brands will save the world [Homepage of The Guardian], [Online]. Available:<http://www.guardian.co.uk/sustainable-business/behaviour-change-marketing-brands?intcmp=122> [05/2012, 2012].

SHETH, J., SETHIA, N. and SRINIVAS, S., 2011. Mindful consumption: A customer-centric approach to sustainability. *Journal of the Academy of Marketing Science*, 39, pp. 21-39.

SHOVE, E., 2003. *Comfort, cleanliness and convenience: the social organization of normality*. Oxford: Berg.

SHOVE, E., WATSON, M., HAND, M. and INGRAM, J., 2007. *The Design of Everyday Life*. Oxford: Berg.

SHOVE, E. and WALKER, G., 2010. Governing transitions in the sustainability of everyday life. *Research Policy*, 39(4), pp. 471-476.

SIMON, H.A., 1957. *Models of man social and rational: mathematical essays on rational human behaviour in a social setting*. Wiley.

SMITH, A., VOß, J. and GRIN, J., 2010. Innovation studies and sustainability transitions: The allure of the multi-level perspective and its challenges. *Research Policy*, 39(4), pp. 435-448.

SMITH, M., 2009; 2009-last update, Facilitating learning and change in-group. *The encyclopaedia of informal education*. Available: www.infed.org/biblio/b-facil.htm [10/2011, 2011].

SOCIAL INNOVATION EXCHANGE, 2011; 2011-last update. Participatory workshops [Homepage of Social Innovation Exchange], [Online]. Available: <http://socialinnovator.info/process-social-innovation/proposals-and-ideas/facilitating-participation/participatory-workshops> [10/2011, 2011].

SOUTHERTON, D., VANVIELET, B. and CHAPPELLES, H., 2004. Introduction: Consumption, Infrastructures and Environmental Sustainability. In: D. SOUTHERTON, H. CHAPPELLES and B. VANVLIET, eds, *Sustainable consumption: the implications of changing infrastructures of provision*. 1st edn. Cheltenham: Edward Elgar, pp. 1-14.

SPAARGAREN, G. and MOL, A.P.J., 2008. Greening global consumption: Redefining politics and authority. *Global Environmental Change*, 18(3), pp. 350-359.

STEEDMAN, P., 2005. *Desperately seeking sustainability? Summary of NCC research into information and advice on sustainable lifestyles*. London, UK: National Consumer Council.

STERN, P., 2000. Toward a Coherent Theory of Environmentally. Significant Behaviour. *Journal of Social Issues*, 56(3), pp. 407-424.

STERN, P., DIETZ, T., ABEL, T., GUAGNANO, G. and KALOF, L., 1999. A Value-Belief-Norm Theory of Support for Social Movements: The Case of Environmentalism. *Human Ecology Review*, 6(2), pp. 81-97.

STO, E., THRONE-HOLST, H., STRANDBAKKEN, P. and VITTERSO, G., 2006. Chapter 2. A multi-dimensional approach to the study of consumption in modern societies and the potentials for radical sustainable changes. In: M. ANDERSEN. M and A. TUKKER, eds, *Perspectives on Radical Changes to Sustainable Consumption and Production (SCP)*. Denmark.: RISO and TNO, pp. 13-20.

STRAUSS, A.L. and CORBIN, J.M., 1998. *Basics of qualitative research: techniques and procedures for developing grounded theory*. 2nd edn. Thousand Oaks, Calif.: Sage Publications.

SUSTAINABILITY, 2011. *Survey on Sustainability Leadership*. UK: GlobeScan.

TECHNOLOGY STRATEGY BOARD, 2012, 2012-last update, *Resource Efficiency: New design for a circular economy*. Available: <http://www.innovateuk.org/content/competition/resource-efficiency-new-designs-for-a-circular-eco.ashx>[12/20, 2012].

THALER, R.H. and SUNSTEIN, C., 2008. *Nudge : improving decisions about health, wealth, and happiness*. New Haven, Conn. ; London: Yale University Press.

THE OPEN UNIVERSITY, 2010; 2010-last update, *Systems Thinking and Practice* [Homepage of Learning Space], [Online]. Available: <http://openlearn.open.ac.uk/mod/oucontent/view.php?id=399236> [03/2012, 2012].

THRONE-HOLST, H., STØ, E. and STRANDBAKKEN, P., 2006. The role of consumption and consumers in zero emission strategies. *Journal of Cleaner Production*, 15(13-14), pp. 1328-1336.

TISCHNER, U. and CHARTER, M., 2001. Sustainable Product Design. In: M. CHARTER and U. TISCHNER, eds, *Sustainable Solutions: Developing products and services for the future*. UK: Greenleaf Publishing, pp. 118-138.

TISCHNER, U. and VERKUIJL, M., 2006. Chapter 13. Design for (Social) Sustainability and Radical Change. In: M. MUNCH ANDERSEN and A. TUKKER, eds, *Perspectives on Radical Changes to Sustainable Consumption and Production (SCP)*. Denmark: RISO and TNO, pp. 123-139.

TUKKER, A., COHEN, M.J., HERTWICH, E., HOFSTETTER, P., INABA, A., LOREK, S. and ST, E., 2006. The Oslo Declaration on Sustainable Consumption. *Journal of Industrial Ecology*, 10(1/2), pp. 9-14.

TUKKER, A. and TISCHNER, U., 2004. *New Business for Old Europe. Product-Service Development as a Means to Enhance Competitiveness and Eco-Efficiency. Final Report of Suspronet*. 0000. TNO STB.

TUNGUZ, T., 2011; March 2011-last update, The new market places - Peer to peer collaborative consumption [Homepage of MIT Entrepreneurship Review], [Online]. Available: <http://mter.mit.edu/article/new-market-places-peer-peer-collaborative-consumption> [11/2011, 2011].

UNITED NATIONS (UN) DESA, 2008; October 2008-last update, The Marrakech Process: Regions - Latin America and the Caribbean [Homepage of United Nations], [Online]. Available: <http://esa.un.org/marrakechprocess/regionslamericacaribbean.shtml> [09/2012, 2012].

UNITED NATIONS (UN), 1999. United Nations Guidelines for Consumer Protection. New York, USA: United Nations.

UNITED NATIONS (UN), 2011. World Population Prospects. The 2010 Revision. Highlights and advance tables. New York: United Nations.

UNITED NATIONS (UN), 2012. Trends in Sustainable Development. Towards Sustainable Consumption and Production. New York: United Nations.

UNITED NATIONS ENVIRONMENTAL PROGRAMME (UNEP), 2012, 2012-last update, What is the Green Economy [Homepage of UNEP], [Online]. Available: <http://www.unep.org/greeneconomy/AboutGEI/WhatisGEI/tabid/29784/Default.aspx> [August/2012, 2012].

UNITED NATIONS DEVELOPMENT PROGRAMME (UNDP), 2011. Sustainability and Equity: A Better Future for All. Human Development Report 2011. New York: http://www.gm.undp.org/HDR_2011_EN_Complete.pdf.

UNITED NATIONS ENVIRONMENTAL PROGRAMME (UNEP), 2009a. *Design for Sustainability: A step-by-step approach*. DTI/0825/PA. France: United Nations Environmental Programme and Delft University of Technology.

UNITED NATIONS ENVIRONMENTAL PROGRAMME (UNEP), 2009b. *Mainstreaming Sustainable Consumption and Production and Resource Efficiency into Development Planning*. DTI/1235/PA. Milan: UNEP.

UNITED NATIONS ENVIRONMENTAL PROGRAMME, (UNEP) 2009c. *Task force on sustainable lifestyles*. UK: Futerra Sustainability Communications.

UNILEVER, 2011; 2011-last update, Inspiring Sustainable Living [Homepage of The Guardian], [Online]. Available: <http://www.guardian.co.uk/sustainable-business/unilever-five-levers-for-change> [12/2011, 2011].

UNILEVER, 2010; 2010-last update, Unilever Sustainable Living Plan [Homepage of Unilever], [Online]. Available: <http://www.sustainable-living.unilever.com/> [01/2011, 2011].

USABILITY PROFESSIONALS' ASSOCIATION (UPA), 2011; 2011-last updated, what is user-centred design? [Homepage of UPA], [Online]. Available:http://www.upassoc.org/usability_resources/about_usability/what_is_ucd.html [10/2011, 2011].

VAN DEN BOSCH, S., BREZET, H. and VERGRAGT, P., 2005. Rotterdam case study of the transition to a fuel cell transport system. *Fuel Cells Bulletin*, 2005(6), pp. 10-16.

VAN HALEN, C., VEZZOLI, C. and WIMMER, R., 2005. *Methodology for product service system innovation: how to develop clean, clever and competitive strategies in companies*. Assen: Koninklijke Van Gorcum.

VERGANTI, R., 2009. *Design-Driven Innovation*. USA: Harvard Business Press.

VEZZOLI, C., 2006. Design for Sustainability: The New Research Frontiers, *7th Brazilian Conference on Design. Curitiba*, 09-11/08/2006 2006, P&D, pp. 1-21.

VIANNA, M., VIANNA, Y., ADLER, I., LUCENA, B. and RUSSO, B., 2012. *Design Thinking. Business Innovation*. 1st edn. Rio De Janeiro, Brazil: MJV Press.

VLIET, B.V., 2005. *Infrastructures of consumption: environmental innovation in the utility industries*. London: Earthscan.

VREDENBURG, K., UNIVERSITY OF TEXAS AT AUSTIN, SOFTWARE QUALITY INSTITUTE, 2002. *User-centred design: an integrated approach*. Upper Saddle River, N.J; Great Britain: Prentice Hall.

WEBER, M., KUBECZKO, K. and ROHRACHERB, H., 2006. Chapter 35 System Innovations in Innovation Systems. In: M. ANDERSEN. M and A. TUKKER, eds, *Perspectives on Radical Changes to Sustainable Consumption and Production (SCP)*. Denmark.: RISO and TNO, pp. 407-429.

WEEVER, R., VANKUIJK, J. and BOKS, C., 2008. User-centred Design for Sustainable Behaviour. *International Journal of Sustainable Engineering*, 1(1), pp. 9-20.

WEIZSÄCKER, E.U.V., LOVINS, A.B. and LOVINS, L.H., 1997. *Factor Four: Doubling Wealth, Halving Resource Use*. London: Earthscan.

WILK, R., 2002. Consumption, human needs, and global environmental change. *Global Environmental Change*, 12(1), pp. 5-13.

WILLIAMS, A., 2007. Product service systems in the automobile industry: contribution to system innovation? *Journal of Cleaner Production*, 15(11-12), pp. 1093-1103.

WORLD BANK, 2009. Global Monitoring Report. A development emergency. Washington DC, USA: <http://www.worldbank.org/gmr2009>.

WORLD BUSINESS COUNCIL FOR SUSTAINABLE DEVELOPMENT (WBCSD), 2010. Business and development. Challenges and opportunities in a rapid changing world. Switzerland: WBCSD.

WORLD BUSINESS COUNCIL FOR SUSTAINABLE DEVELOPMENT (WBCSD), 2008. *Sustainable Consumption Factors and Trends. From a Business Perspective. The Business Role Focus Area*. Belgium: WBCSD.

WORLD BUSINESS COUNCIL FOR SUSTAINABLE DEVELOPMENT (WBCSD), 2006; January 2006-last update, Eco-efficiency learning module [Homepage of WBCSD], [Online]. Available:<http://www.wbcd.org/Pages/EDocument/EDocumentDetails.aspx?ID=13593&NoSearchContextKey=true> [04/2010, 2010].

WORLD ECONOMIC FORUM (WEF), 2012a. More with Less: Scaling Sustainable Consumption and Resource Efficiency. Switzerland: World Economic Forum.

WORLD ECONOMIC FORUM (WEF), 2012b. The Global Information Technology Report. Genève: WEF.

WORLD ECONOMIC FORUM (WEF), 2011. The Consumption Dilemma. Leverage Points for Accelerating Sustainable Growth. Geneva: WEF.

WORLD ECONOMIC FORUM (WEF), 2010. Redesigning Business Value: A Roadmap for Sustainable Consumption. Geneva: WEF.

WORLD RESOURCE INSTITUTE and ATKEARNEY, 2008. *Rattling Supply Chains. The effects of environmental trends on input costs for the Fast-Moving Consumer Goods industry*. 978-1-5673-702-6. USA: World Resource Institute.

WORLD WILD FOUNDATION (WWF), 2010. Living Planet Report 2010. Biodiversity, biocapacity and development. London: WEF, The Global Foot Print and Zoological Society of London.

WRIGHT, R., 2011. Technology holds the key to the future. In: UNILEVER & FUTERRA, ed, *Inspiring Sustainable Living. Experts insights into consumer behaviour and Unilever Five Levers for Change*. UK: Unilever & Futerra, pp. 28-31.

ZARATE, J.C., AGUILAR, V. and DUPONT, M., 2011; September 2011-last update, El plan de diseño en Mexico, impacta en la innovación [Homepage of Foro Sexto Eje], [Online]. Available: <http://foro-sextoeje.blogspot.co.uk/> [09/2012, 2012].

Appendix A

Semi-structured interview guide sample: Example of the purpose of the interview

Interview Guide	
This questionnaire aims to explore:	
<ul style="list-style-type: none">▪ How companies adopt sustainability into their business strategy.▪ Strategies that not just look into product/service design, but also into system design▪ UCD/consumer-focused strategies to enable sustainable consumption▪ How to encourage companies to adopt UCD/consumer-focused strategies to enable sustainable consumption▪ If UCD can be part of an innovation process to leverage sustainable consumption	
Organisation/Company:	-
Date:	08-10-10
Contact Details:	-
Code:	CoSDaB01

1. Which reasons encourage companies to apply sustainability issues into their strategy?
2. Do you think companies are interested in leveraging sustainable consumption? Why?
3. Do you know what system design/system innovation/systems thinking means? If so, how do companies can implement system thinking into their strategy? * Explain what is it if they do not know what systems thinking means.
4. Do you think that companies can leverage sustainable consumption by applying UCD principles? How? / Have you heard about UCD? If yes mention what do you understand by UCD. If no explain what is UCD/consumer-focused
5. Which consumer-focused/UCD strategies can you think about that can leverage sustainable consumption? * From question 5 to change consumer-focused strategies for UCD depending on answer in question 4.
6. Do you think consumer-focused/UCD strategies can go beyond influencing consumers behaviour to influence sustainable consumption in a much boarder way? How?
7. Do you think consumer-focused/UCD strategies can be considered as part of a business strategy/innovation process? How?
8. Do you know what co-design/participatory design is? Do you consider it important? Why?
9. Do you think companies will be interested on implementing such consumer-focused/UCD strategies to start leveraging more sustainable patterns of consumption? Why?
10. Which factors do you consider important for companies to apply business strategies to enable sustainable consumption?

Appendix B

Focus Group layout: Electronic presentation

Investigating UCD Principles to Enhance Sustainable Consumption

Electronic Ink-Workshop

PhD: Mariale Moreno
Supervisor: Dr. Vicky Lofthouse
Loughborough University

Sustainability

Triple bottom line

PLANET

PROFIT

PEOPLE

ELKINGTON, 1998

Mariale Moreno – Loughborough University

Electronic Ink Workshop

Is it all about environmental and social impacts caused by businesses?

Mariale Moreno – Loughborough University

Electronic Ink Workshop

Life cycle of a product

Production/Supply Side

Consumption/Demand Side

OUTPUT POLLUTION WASTE

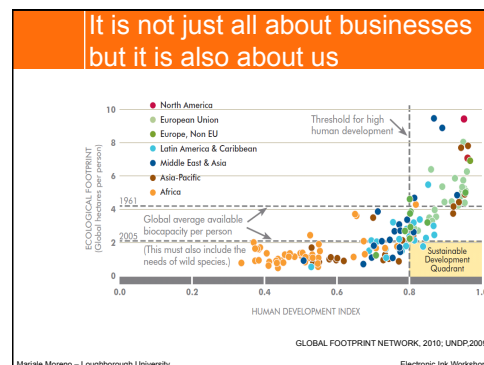
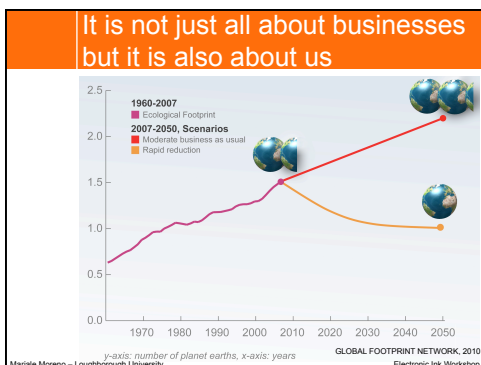
INPUTS RESOURCES ENERGY

Material Extraction Processing Manufacturing Transport Purchasing Use End of Life/ Disposal

Adapted from UNEP, 2000

Mariale Moreno – Loughborough University

Electronic Ink Workshop



Our responsibility

It is argued that developed economies that account for 20% of the world population, are responsible for 80% of the life cycle impacts of consumption

WBCSD, 2008



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Electronic Ink Workshop

Mariale Moreno – Loughborough University

Our responsibility

Consumers account for a large proportion of the environmental and social impacts, thus consumers have a decisive part to play in the process towards sustainable consumption.

DEFRA, 2008



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Electronic Ink Workshop

Mariale Moreno – Loughborough University

What about Design?

80% of all product-related environmental impacts are determined by product design

German Federal Environmental Agency, 2000



Electronic Ink Workshop

Mariale Moreno – Loughborough University

What about user-centred design?

design
UCD
interaction
behaviour
human
interface
sustainable
testing
personas
multi-disciplinary
scenarios
experience
facilitating
user
computer
usability
service
teams
co-design

Mariale Moreno – Loughborough University

Electronic Ink Workshop

Which is the role of business?

“Having an in-depth understanding of consumers’ aspirations and behaviors helps us to design products which better meet consumer’s needs, and can help to achieve sustainable consumption”

UNILEVER, 2010



Electronic Ink Workshop

Mariale Moreno – Loughborough University

Activity

So looking at the whole picture...

Mariale Moreno – Loughborough University

Electronic Ink Workshop

Activity

and linking:
UCD – Sustainable Consumption –
Business Strategy

I will ask you...

Mariale Moreno – Loughborough University Electronic Ink Workshop

Activity

How UCD can influence sustainable
consumption?

Mariale Moreno – Loughborough University Electronic Ink Workshop

Activity

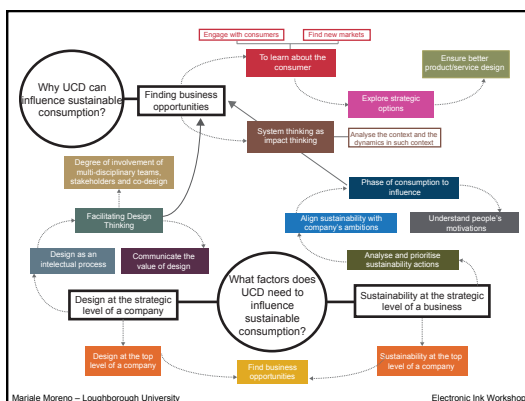
How UCD principles can be used to
influence sustainable consumption?

Mariale Moreno – Loughborough University Electronic Ink Workshop

Activity

My preliminary results...

Mariale Moreno – Loughborough University Electronic Ink Workshop



Next steps:

Explore a series of strategies or steps to build a framework that can guide companies to use UCD principles to enable sustainable consumption.

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Mariale Moreno – Loughborough University Electronic Ink Workshop

Appendix C

Document Analysis: Unilever live web-cast – Can consumption become sustainable?

On November 15th, 2010; Unilever launched Sustainable Living Plan – a ten year plan where they aim to reduce its overall environmental footprint by at the same time continue to grow their business. The plan also addresses to improve social aspects of Unilever activities.

The Unilever live webcast: Can consumption become sustainable? Was part of this event. For this task, Unilever gather a panel of experts including Jonathan Porritt, Founder director of Forum for the Future; John Elkington, Executive Chairman Volans and Co-founder of SustainAbility; Paul Paulman, CEO of Unilever and Gavin Neath, Global Senior Vice President for Sustainability. The aim of this panel was to address the main question of the webcast.

From the on-line event, answers from the general public posted on the 'questions and answer section' of the webcast, were analysed. The questions were divided in different topics according to the already established classification done by Unilever.

To access the webcast it is necessary to subscribe through the following page <http://events.ctn.co.uk/ec/unilever/894/>. In addition, further information can be found at:

<http://www.unilever.com/mediacentre/news/sustainable-consumption.aspx>.

Consumer behaviour change

Q1: Does the issue of branding and brand identity make it impossible to target the poorest with effective behaviour change messaging via commercial product marketing?

A1: No it doesn't. Many of our brands target the poorest people in society with affordable, accessible products and very effective behaviour change messaging. Lifebuoy, our Oral Care brands and Pure-it are good examples. The fact that these are well known and trusted brands are very important in driving effective behaviour change. There is a lot of evidence in Public Health that populations tend to be more responsive when behaviour change campaigns are from brands that they trust and those campaigns present a solution. Our own experience backs this up. On Lifebuoy for example, we were the 6th most trusted brand in a survey by the Economic Times in India in 2010. We ran a randomised clinical study in Mumbai among 2000 families in 2007-8 to assess the effectiveness of our behaviour change program. The study showed that the fact Lifebuoy was running the hygiene promotion programme was very beneficial. The brand helped trigger consumers to remember the key occasions for hand washing when they saw it in their homes. We have a lot of experience in reaching low-income consumers with both effective products and communication. Our behaviour change programs use different communication channels to get the message across and have been developed with both internal and external behaviour change experts to maximise their effectiveness against the target audience — typically low income consumers. TV ads are a good way to raise awareness very quickly, while our schools/mums/doctor's programs are very effective in getting people to commit to adopting a behaviour and in reinforcing the need to maintain it over time e.g. through public pledges, diaries and other techniques. We also use voice SMS and text SMS to remind consumers to keep up the habit. Giving strong recognition and reward for sticking with a new behaviour is also very important and we do this in many ways e.g. through certificates for school children who complete one of our programs or through celebrating the role of parents in passing on a good habit to their children through our Oral Care and Lifebuoy campaigns. Evaluation has shown our behaviour change campaigns are very successful. The randomised clinical study we ran on Lifebuoy in Mumbai showed a reduction in incidence of diarrhoea of 25%, respiratory infections decreased by 19% and school absenteeism by more than 40%. In Oral Care our Brush Day & Night hygiene education program has been shown to increase brushing frequency by on average 25% which is important as Clinical studies have shown that brushing teeth twice a day instead of once can reduce tooth decay by up to 50% among

children. Designing affordable, accessible and easy-to-use products that meet low income consumers needs is also very important as this gives people the fundamental tools they need to change their behaviour. Pure-it is a good example. It has been specifically designed to do this. It meets international germ kill requirements at prices which low income consumers can afford. It has been designed to work without the need for electricity or pressurised tap water so does not rely on having access to energy or water infrastructure. Importantly, the on going price per litre is very low at around €0.005, which is significantly less than the most common alternatives — boiled or bottled water.

Q2: Does knowing more about the consumer aspirations and behaviours can help to achieve sustainable consumption? If yes, how companies like Unilever do it?

A2: Yes. Having an in-depth understanding of consumers' aspirations and behaviours helps us to design products, which better meet consumer's needs. Market research by Unilever and other companies has shown that, all other things being equal (product performance, price/value, convenience etc.), a growing % of consumers actively prefer and will choose a more sustainable product which has less environmental impact, is ethically sourced or is better for you (e.g. lower salt). We have found that new innovations can be most successful both financially and in terms of their impact on encouraging more sustainable consumption when they hit what we refer to as the 'consumer sweet spot'. This is where the sustainability benefit and the main reason why the consumer uses the product coincide. One example of this is Lipton's Rainforest Alliance™ certified tea. Consumers buy tea because it is a refreshing, healthy, great tasting beverage. When we launched our Rainforest Alliance certified teas, sales grew by 5-10%. From a consumer point of view, Rainforest Alliance certification signalled that we had taken more care over how the tea in our tea bags was grown and so consumer's expected our tea to be better quality, taste better and be better for you than other teas. Consumer's are also interested in the social and environmental benefits of Rainforest Alliance certification and enjoy 'doing their bit' to help improve the lives of tea workers and their environment by choosing an ethically sourced tea. Comfort One Rinse (a fabric conditioner which reduces foam allowing you to rinse your clothes with one bucket of water instead of three when washing by hand) is another good example. Collecting water for hand washing clothes is a lot of work, so offering a product which uses less water saves women a lot of work and is much more convenient. From a sustainability perspective, reducing the amount of water used to wash clothes helps to conserve water in water scarce countries.

Q3: To what degree can we wait for the change in demand from consumers - is there enough time to wait for this cultural change? Or should we force change to happen more quickly by phasing out unsustainable products?

A3: Behaviour Change is hard, and it does take time, which is why we are also focussing on innovative technologies that can reduce impacts over the lifecycle of our products. We think that will be more effective than simply phasing products out, as consumers often just go elsewhere if you don't provide the product they're looking for.

Q4: Is changing and reducing people's consumption behaviour part of the Sustainable Living Plan, or is it just focused on the impact of products?

A4: Changing consumer behaviour is part of our plan since a large part of our environmental footprint is made when consumers use our products. We will need to find ways to make it easy for consumers to wash at lower temperatures, to use shorter wash cycles, to boil just the right amount of water they need to make one cup of tea and to do many more simple everyday actions in a more sustainable way to help deliver on our targets. Innovation will also play a big role by making it easy or even automatic to do these things.

Role of businesses

Q1: What role do you think organisations should play in changing consumers' behaviour with regards to consumption?

A1: Organisations like Unilever can play a big role in changing consumers' behaviour. Innovation can make it easy for consumers to adopt more sustainable consumption patterns by offering the same performance, price, and convenience consumers are used to in products which have a lower GHG, waste and water footprint. We can use our experience from our hygiene education programs to encourage behaviours, which are better for the individual and the planet. Our Laundry Cleaner Planet Program is already doing this by giving advice and encouragement to wash at lower temperatures, with shorter cycle times and less water. Through our brand communication we can bring the impact of things happening thousands of miles away closer to home. Lipton Rainforest Alliance™ certified tea is a good example of this. By showing people through our brand communication how schemes such as the Rainforest Alliance™ make life better for tea workers and contribute to protecting the environment and preserving biodiversity we can help people to understand what 'sustainable sourcing' means and how they can 'do their bit' and feel good about the tea (and other products) they chose to buy.

Stakeholder involvement

Q1: Surely we are in the ultimate 'tragedy of the commons', can humans co-operate without a cohesive public narrative such as that adopted during the Second World War?

A1: We absolutely do need a strong public narrative that brings people along if these efforts are to have any effect. To build that narrative we need lots more action by all players, whether governments, companies, NGOs (and not just the environmental ones) and individual leaders. We need not just for people to act, but to be clear about why they are doing what they are doing, raising awareness of the scale of the challenge but also optimism that this is a challenge that can and must be overcome. In our own small way, that's part of what we are seeking to do with the Unilever Sustainable Living Plan.

Q2: "The panel have made it clear, to make it happen industry, civic society & government need to work together. It seems the leaders of civic society and industry are on a good path with you there today, why are governments not? Was anyone from the UK government asked to join this debate?"

A2: We did invite members of the UK government to join our debate but unfortunately they were not able to come. We did have a UK MP in our audience and government advisors. We will continue to engage with governments through one to one meetings, through industry associations and through participating in joint initiatives to help deliver our plan into action. Indeed on Thursday this week, Paul Polman our CEO will host a lunch debate with members of the European Parliament and other key opinion formers on the Unilever Sustainable Living Plan and on how Unilever and the EU can work together to deliver common objectives such as reducing GHG emissions.

Q3: Unilever is one private sector organisation that cannot achieve the sustainability ambitions by themselves - so is Unilever working in partnership with other private sector organisations to achieve the required 'system' changes as noted by John Elkington?

A3: Yes, working in partnership is critical in developing and delivering some of our major sustainability commitments. We are founding members of the Roundtable on Sustainable Palm Oil along with other food producers, growers, NGOs and retailers. We are also represented on the Board of the Consumer Goods Forum, which aims to tackle sustainability issues at an industry level. The group recently published a paper on developing a common approach to packaging. On the issue of health and hygiene, we are members of the Global Public-Private Partnership for Hand washing and the Global Alliance for Improved Nutrition. For a full list of our partnerships visit our website www.unilever.com/sustainability.

Q4: How can we set up a structure whereby companies can better collaborate to solve sustainability issues?

A4: There are already many organisations that have this aim such as the World Business Council for Sustainable Development, CSR Europe, BSR and Business in the Community.

We are members of all these groups. Working in partnership is critical in developing and delivering some of our major sustainability commitments. We are members of groups that act on specific issues such as the Roundtable on Sustainable Palm Oil along with other food producers, growers, NGOs and retailers. We are also represented on the Board of the Consumer Goods Forum, which aims to tackle sustainability issues at an industry level. Unilever and Tesco lead the Consumer goods Forum's Sustainability Working Group. The group recently published a paper on developing a common approach to packaging. On the issue of health and hygiene, we are members of the Global Public-Private Partnership for Hand washing and the Global Alliance for Improved Nutrition. Successful collaboration depends on getting the right people around the table, those who share your views and those who do not. It also helps to have a common high-level vision, even though there may be differing opinions on the means and ways in which it is achieved.

Q5: Pepsi has to work with Coke. And Unilever with Nestle?

A5: We operate in a very competitive industry, but the reality is that many of these challenges cannot be addressed in isolation. Competing companies aren't always great at working together, but through organisations like the Consumer Goods Forum, which has a focussed work stream of activity on sustainability, chaired by Unilever and Tesco, there is now more collaborative action on this agenda than there has ever been before.

Business Strategy

Q1: Should businesses consider being smaller again in order to be more flexible and locally responsive?

A1: It is our size that often helps us make a meaningful impact on sustainability issues. As the world's largest purchaser of tea and palm oil we have played a key role in moving the industry towards sustainable sourcing. Our scale also means that improvements we make to the environmental impacts of our products have a potentially big impact. By halving the total carbon, water and waste impact of our products, primarily through innovation in the way we source, make and package them, we can help people make a small difference every time they use them. As our products are **used** 2 billion times a day in nearly every country in the world, our consumers' small actions add up to make a big difference.

Q2: How will Unilever develop new business models? Which criteria will be prioritized?

A2: We will look at new business models against traditional criteria of return on investment and margins but also the way in which they deliver to the targets set out in the Unilever Sustainable Living Plan. E.g. to what extent do they lead to better livelihoods; to what extent do they help us decouple growth from environmental impact?

Q3: Is the implementation of a sustainability program at odds with Unilever's business model? If this is the case in which way?

A3: No it is not at odds with our business model, indeed the Unilever Sustainable Living Plan puts in place the key parameters and targets we need to achieve in order to have a sustainable business model. We cannot choose between sustainability and growth. Business growth is crucial to economic development and social progress. It is business, which has over the past decade lifted nearly a billion people in China and India out of poverty. Even developed countries, like the UK need business growth to provide employment and support our social systems. But we need to grow differently. According to the WWF we are already consuming natural resources at a faster rate than the planet's capacity to replenish them. WWF calculates that if we were all to consume at the rate of the UK we would need three planets but we only have one. Morally, we cannot steal resources that rightfully belong to the next generation. As a business, we need a continuous supply of raw materials to survive and grow. This is why we have set our new vision for Unilever. We will develop new ways of doing business with the aim of doubling the size of our company while reducing our environmental impact. Our ambition is to decouple growth from environmental impact while at the same time increasing the positive social impacts of our brands. We don't see a conflict between business growth and sustainability. In fact we believe the business case for growing

our company sustainably is very strong. Why? A growing number of consumers are asking for it; retailers increasingly demand it; it fuels our product innovation; it helps grow our markets around the world and in many cases it saves us money.

Q4: How will you embed this across your workforce?

The plan is at the heart of our business strategy and company vision. Our vision requires us to 'develop new ways of doing business that will allow us to double the size of our company whilst reducing our environmental impact', to 'inspire people to take small, everyday actions that can add up to a big difference for the world' and to 'help people look good, feel good and get more out of life with brands and services that are good for them and good for others'. All employees know the vision and are part of delivering it into action through their individual work plans. The delivery of the USLP targets overall form part of our CEO, Paul Polman, Chief Marketing Officer, Keith Weed, and Chief Procurement Officer, Mark Engel's personal objectives and their delivery is directly linked to their pay and bonus awards. The specific targets in the Unilever Sustainable Living Plan have been developed together with key functions throughout the business: marketing, research and development, supply management and supply chain. Each product category team has specific targets across their product portfolio for water, waste and greenhouse gases, and in addition our foods categories have targets for the four priority nutrients which we measure when tracking progress towards doubling the % of our portfolio which meets strict international dietary guidelines. We have an on going program of communication and education on sustainability for our employees - so far we have provided in-depth sustainability training to more than 2000 employees working in marketing, supply chain, procurement and R&D roles to help them develop solutions for more sustainable consumption. We have also developed tools within our innovation gatekeeping process to help innovators easily understand the sustainability implications of different choices they may make (e.g. packaging format or material choice) so that they can develop more sustainable products.

Q5: How long Will it take for 'full sustainability' to be embedded in corporation's DNA?

A5: The launch of the Unilever Sustainable Living Plan is the next chapter in Unilever's sustainability journey however it has been part of our company DNA from the very beginning when our founders launched Lifebuoy as the first hygiene soap to make cleanliness commonplace in Victorian England and help reduce the incidence of infectious diseases and margarine to offer consumers an affordable and healthy alternative to butter. Through our company vision, category targets, country plans and on going communication and training, sustainability is embedded into the way we do business. The three headline targets and 50+ specific targets of the Unilever Sustainable Living Plan will help us to step up our efforts to meet the pressing challenges facing the world and turbo charge our existing programs.

Consumer Role

Q1: We understand the importance of driving sustainability by the supply chain, and we applaud that Unilever is taking significant steps in this area. However the consumer is being left out of the mix. Consumers do not always trust what companies say about them and they are also confused about the information they see. So what can Unilever and other responsible companies do to communicate better to the consumer about these issues?

A1: You're right, by far the biggest impact of our product lifecycle is in the consumer use phase. We believe if we're going to have any hope of hitting our ambitious targets, we are going to need to involve consumers by combining sustainability messages with real product benefits, integrating the messaging across all brand communication channels and partnering with credible NGOs. For example on our OMO brand in Turkey our Cleaner Planet Plan helped consumers change their laundry habits with energy and water saving tips with the launch of concentrated liquids that reassured consumers that 'being greener' wouldn't reduce the effectiveness of their loads, in fact they could get improved performance. The plan was communicated through advertising, advertorials, PR and on-pack and was supported by a partnership with WWF.

Consumer communication

Q1: If the weakest link in the sustainable consumption cycle is the consumer, how should accepted brands educate their consumers' understanding without alienating them?

A1: Trusted brands can play an important role in encouraging more sustainable consumption. They can do this by making it easy for consumers by offering innovation which is more sustainable (less GHG, water, waste impact) but which offers the same performance, price and convenience the consumer is used to -our 'Small & Mighty' laundry products are a good example of this. In terms of educating consumers about sustainability without alienating them, there are several things we can do. Firstly we can link environmental benefits to benefits which are closer to consumer's everyday concerns to make them more tangible e.g. with our laundry products we can encourage consumers to wash at lower temperatures by pointing out the energy & cost savings this can bring. We can also use our communication to bring the impact of things happening thousands of miles away closer to home. Lipton Rainforest Alliance™ certified tea is a good example of this. By showing people through our brand communication how schemes such as the Rainforest Alliance™ make life better for tea workers and contribute to protecting the environment and preserving biodiversity we can help people to understand what 'sustainable sourcing' means and how they can 'do their bit' and feel good about it when they chose which tea they buy. To avoid alienating consumers, we have found that it's important to motivate consumers in a positive way to change their behaviours rather than using a 'doom and gloom' approach, which focuses on the perils/issues of their current patterns of consumption. Many consumers want to do their bit but they find it difficult to know what they can do and wonder whether their small action will make much of a difference. By helping to make small actions easy and by showing consumers how lots of small actions done by many people together can add up to a big difference we can help consumers to feel more empowered and enthusiastic about changing their behaviour.

Q2: What role does consumer communication and consumer engagement play in your communication strategy and why should consumers believe what you say.

A2: You're right, by far the biggest impact of our product lifecycle is in the consumer use phase. We believe if we're going to have any hope of hitting our ambitious targets, we are going to need to involve consumers by combining sustainability messages with real product benefits, integrating the messaging across all brand communication channels and partnering with credible NGOs. For example on our OMO brand in Turkey our Cleaner Planet Plan helped consumers change their laundry habits with energy and water saving tips with the launch of concentrated liquids that reassured consumers that 'being greener' wouldn't reduce the effectiveness of their loads, in fact they could get improved performance. The plan was communicated through advertising, advertorials, PR and on-pack and was supported by a partnership with WWF.

Q3: Sustainability examples of Unilever are always related to a few brands and categories (lifebuoy, tea, concentrated detergent). What are the biggest challenges to expanding sustainability ways to work to all portfolio (deodorants, shampoos, soups, savoury dry, etc.)?

A3: Historically sustainability examples have centred on our existing pioneering social and environmental brands such as Lifebuoy, Lipton and OMO/Persil. What we are announcing today with this plan is that Unilever is committed to reduce its impact and all of our brands and products will be involved. The biggest challenge will be how our brands find a way to integrate what's happening in the supply chain into their consumer facing communication and how they manage to effectively inspire consumer behaviour change as a result. This will come more easily to some brands than others for example In some cases, such as Knorr, our biggest food brand and maker of savoury soups, has just announced their own brand level commitment to source 100% of their top ten vegetables and herbs from sustainable sources, representing 80% of their volume. In addition they have committed to launch a supplier fund which will make available over one million Euros for sustainable farming projects amongst their suppliers and growers. While our shampoo brands Suave and DoveMen in the USA will be promoting water-saving tips in the shower through on-pack

messaging. It takes time to develop innovations with relevant benefits, which are more sustainable. With time more and more of our brands will be joining in.

Understand Peoples motivations

Q1: There are signs in the UK that consumers are increasingly sceptical about climate change in particular. Marketing many of the products mentioned in the presentation could be on the basis of their cost-saving or lifestyle benefits. Is there a moral or business prerogative for Unilever to also push the sustainability benefits of those products when selling them to the public?

A1: What we are also finding is the environment will never be the primary reason why consumers purchase a product. Improved environmental profiles will need to combine with improved performance or additional product benefits for people to find them relevant. For example on our OMO brand in Turkey our Cleaner Planet Plan helped consumers change their laundry habits with energy and water saving tips with the launch of concentrated liquids that delivered great cleaning performance at lower temperatures as the primary benefit. The plan was communicated through advertising, advertorials, PR and on-pack and was supported by a partnership with WWF.

Q2: Mr Polman made a reference to consumers currently not being prepared to pay more for sustainable goods. Does the panel believe that this will change going forward? If not naturally change; is there anything that can be done to encourage consumers to pay a slight premium?

We've done a lot of research, talking to consumers all over the world to understand this. Consumers tell us they are interested in these issues, they want to see corporations take responsibility for social and environmental problems but they are not prepared to pay a premium for them. So while these issues are increasingly important to consumers they will never be the primary reason why they purchase a product. Premiums will need to be combined with improved performance or additional product benefits.

Q3: As well as responding to consumer and retail demand for more sustainable products, what role do you think Unilever has to play in educating consumers on the issues and actually driving the demand for these types of products through your product innovation and marketing campaigns?

A3: We've done a lot of research, talking to consumers all over the world. They tell us they are interested in sustainability, they want to see corporations take responsibility for social and environmental problems but they are not prepared to trade off on price, quality or convenience. As we see relatively limited consumer demand right now, we believe we do have a role to play in driving demand through the product innovation and marketing campaigns we create.

Government legislation/lobbying

Q1: England has just recently missed its recycling targets. Yes, it was only by a slight margin but all the same, it was missed. But nothing happened. There was no one to blame, punishments to be handed out or real consequences to be felt for failing to meet this goal. Why do we even bother? Don't you think the general public and businesses would benefit from having some kind of penalty applied if future targets are not met?

A1: Businesses like Unilever do indeed face penalties if they don't meet their own targets for packaging recovery and recycling targets imposed throughout the producer responsibility system for packaging. Talking more broadly about behaviour change, penalties can work, but we need both carrot and stick, and we need to make it easy and attractive for people to do the right thing before getting unnecessarily tough, which can sometimes backfire and make people resent what you're trying to do.

Innovation

Q1: How is sustainability driving the innovation agenda within Unilever?

A1: It is driving innovation in a number of ways. For example, new consumer needs are emerging as people look for solutions to help them cope with issues such as water scarcity. There is a growing demand for more water efficient products in water scarce countries such as Comfort One Rinse, which enables people to rinse their clothes with 1 bucket of water instead of 3. The demand for products, which offer great taste with low levels of calories, salt, sugar and fat also continues to grow as consumer concern about obesity and diet related illness builds. In response we are developing new technologies to deliver a great tasting, healthy products. Customer initiatives are also driving innovation, particularly in packaging where we are working hard to reduce packaging weight, develop new refill/re-usable packs and increase recycling.

Q2: Have you defined a sustainable target in your Research & Development project portfolio?

A2: Through our environmental baseline study we have identified clearly where our priority impacts lie and what is driving them. We have then used this to set clear targets by product category to reach our overall objective of halving the environmental footprint of our products. Several work streams have been accelerated and new ones started up in research and development to help deliver on the category-by-category targets. We have also started up projects to help explore and develop new capabilities which will be important across categories for example within packaging we are pursuing new technology solutions which can radically reduce packaging waste and/or improve recycling and recovery rates. Our plan applies to all our products and brands in all our countries so we have not set a specific target for % of our innovation or R&D investment, which will be 'sustainable'. We need to work across all of our products and brands to achieve our big overall goals of halving our environmental footprint and helping 1 billion people take action to improve their health and wellbeing.

Q3: Which is the role of design/innovation to achieve sustainable consumption?

Design and innovation will play a pivotal role in enabling more sustainable patterns of consumption. Unilever's research and development and behaviour change expertise will allow us to offer consumers more sustainable products which continue to meet their primary needs (performance, price/value, convenience). For example, breakthrough technology can enable Unilever to leapfrog 'old technology' to offer products in D&E to first time consumers that have low environmental impact and/or are less dependent on infrastructure. Pureit in-home water purifier is a good example. By providing access to safe, clean, drinking water without the need for electricity or a pressured water supply it can bring millions of people access to clean drinking water more quickly and efficiently as it does not require time & cash intensive investment in building piped water infrastructure. This type of innovation may lead to transformational systemic changes. In the shorter term, improvements in the environmental footprint of our products across the lifecycle will also deliver significant benefits. For example, concentrated laundry products such as Small & Mighty reduce greenhouse gases by 10-50% per dose. If all our consumers used concentrated laundry products we would save 4 million tonnes of CO2 per year, the equivalent of taking 1 million cars off the road.

Q4: Over the years your advertising has been focused on creating needs where none previously existed and indeed destroy the things they are meant to protect e.g. fabric conditioner. What plans have you got to remove these from the market in favour of creating a greater desire for sustainable use of household products, including cessation where appropriate? I suppose is this just another marketing gimmick or will I see real change in my local supermarket.

A4: The product innovation process is what drives all manufacturing businesses like Unilever. Sometimes that innovation brings transformational innovation such as the Pureit

water purification technology, sometimes it's a more modest innovation - a fragrance that lasts longer, bleach that kills more germs or a new flavour of soup. Businesses choose edit themselves - far more innovation is begun than is ever brought to market. Many retailers now have ambitious sustainability goals and are already sending strong signals to us as their suppliers that more sustainable products will be favoured in the long term. This will have a powerful 'choice editing' effect in the long term.

Product Focus / Service Focus

Q1: Panel didn't answer the question about moving away from products to selling services - or consumer behaviour change. Unilever could be looking at selling a clean house, rather than just products that help do that. That fulfils profit objective with reduced consumption.

A1: We agree with you. Our new vision states that we help people feel good, look good and get more out of life with brands and services, and that we will develop new ways of doing business with the aim of doubling the size of our company while reducing our environmental impact. Our R&D teams are looking at a whole host of ideas, for proprietary reasons we can't divulge any of these at present, but stay tuned.

Q2: Wouldn't be easy to make consumption sustainable by selling more services and less products? You go to an airport and the customer need is being entertained for 2 hours. What's the response? Shops that sell products! What is Unilever take on selling more services (i.e. directly meeting customer needs)? Let me explain. I have a need: sorting out my anxiety. So I buy another Unilever ice-cream (my wife buys another pair of shoes). How could my need be met by a service?

A2: The shift from products to services is part of the transition to a more sustainable world, but the reality is that there are some products - food, soap etc that we will likely to need for the sustainable future. That's why for the next ten years we're focussing on halving the environmental impacts of our product.

Role of Technology

Q1: *How do you intend to make the most of new technologies, like nanotechnology, biotechnology in terms of achieving your goals?*

A1: Unilever has built a strong reputation on the use of novel science and technologies to deliver new products and improve the performance of established ones in a responsible way. The decision to apply any new technology in our products will always be taken on the basis of comprehensive safety and environmental evaluations, substantiation of benefits, regulatory compliance and consideration of consumer and societal acceptance. Unilever believes that there is considerable potential for new benefits through the application of specific nanotechnologies and biotechnology, for healthier Food and better HPC products.

Focus on environmental footprint VS Social goals

Q1: *Where does the reduction of the environmental footprint meet with the social goals? For example, Lifebuoy is the soap sustainable? The water cleaning what about the waste?*

A1: Our goals are to halve the environmental footprint of our products, source 100% of our agricultural raw materials sustainably and help improve the health and well-being of one billion people by 2020. These goals are complementary. However, guided by our environmental footprinting work, we are focusing our resources on where the biggest impacts lie across the Unilever product portfolio. In the case of Lifebuoy soap, the greenhouse gas, water and waste footprints are relatively low as Lifebuoy consumers tend not to heat the water they use for the soap and the packaging is already quite minimal. We will look at ways that we can reduce these, especially the amount of water required, as Lifebuoy is often used in regions, which are water scarce. Given this, our most important priority is our social goal: to change the behaviour of 1 billion consumers by promoting the benefits of hand washing with soap at key times. A randomised clinical trial of 2000 families

in Mumbai has shown that using Lifebuoy at key hygiene occasions can reduce diarrhoeal disease by 25%, acute respiratory infection by 19% and eye infections by 46%.

Sustainable Consumption

Q1: What are the (top) three key things that have to change in order to achieve sustainable consumption?

A1: From Unilever's perspective we have focused on three key environmental impact areas (GHG, water and waste), as well as sustainable sourcing of agricultural raw material. But we also want to improve the positive social impacts our products can make and make a contribution to better livelihoods. We believe sustainable consumption will be achieved by a mix of innovation, consumer behaviour change and legislation.

Q2: Can sustainability catch up with consumption?

A2: To be honest we don't know for sure, but we sincerely hope so and we're going to do our best to find out.

Q3: Is there a limit for consumer growth? Can energy consumption become sustainable?

A3: We know that an increasing number of consumers in the developing world will want to consume everyday products such as tea, soap and laundry detergents. Population growth is one of the primary engines of growth, and all the forecasts are that global population will stabilise around 9 billion people. So we believe that the real question to answer is not whether growth can continue forever, but can it grow to a point where we meet the needs of these 9 billion people - 2 billion more than we have today. In respect of energy consumption, then yes we believe it can, but the challenges of the huge amount of investment necessary to transition to a low carbon economy are well documented. We have committed to ensuring that 40% of the energy we use in our operations comes from renewable sources by 2020, as our own contribution to this.

Consumption and Economic Growth

Q1: You seem to begin with the assumption that it is somehow possible for economic growth to be sustainable, if only it is done in the right way 'What must be done by companies like Unilever if economic growth is to become sustainable?' However, The work of the New Economics Foundation, amongst others has provided a significant body of evidence to the effect that: 1) Continued economic growth sets us on an inevitable collision course with a range of real environmental limits. 2) Contrary to the presumption that growth can be 'decoupled' from environmental impact through more efficient use of resources and the 'dematerialisation' of economies, there is no evidence to support this. 3) In the developed world, additional economic growth isn't adding significantly to well-being 4) Global economic growth is also an inefficient and ineffectual means of addressing poverty in the majority world. How do you respond to these points?

A1: Yes we do begin with that challenging assumption, because we know that whether we like it or not, there will be significant growth in the developing world regardless of whether it is Unilever or other companies which meet those needs with products and services. Ensuring that when those needs are met, they are done as sustainably as possible is our responsibility. In respect of your four points: 1) We would agree that continued economic growth in a business as usual model does indeed set us on an inevitable collision course with a range of real environmental limits. That is why we have developed the Unilever Sustainable Living Plan, and why we are so active in business leadership groups that are putting pressure on governments to accelerate the transition to a low carbon economy. 2) It may be the case that there is no evidence to support the possibility of decoupling growth from impact because nobody has ever tried it before. We're committed to doing everything we can to attempt this within our sphere of operation and influence. 3) We would argue that economic growth in our current system remains necessary to provide employment and revenues to invest in other aspects of the transition to a sustainable economy, for example investment in renewable energy sources and in the innovation to support our decoupling

ambition. But you are right that there is interesting evidence on the relationship between economic growth and wellbeing. The answer may lie in an analysis of what kinds of economic growth best promote wellbeing, and what policy instruments can best promote those kinds of economic growth, but that is a matter for governments to address. 4) On this point we would have to disagree. Over the last century it is exactly economic growth, which has lifted so many millions of people out of poverty within the developing world. There are of course challenges about ensuring that beyond a certain point the benefits of the system continue to flow to the very poorest, and we received some helpful feedback at our plan's launch event about making sure our innovations such as our Pureit water purification technology can reach those that really need it most. This may require other new business models and even partnerships with NGOs who work in that space.

Q2: We need to address the world economic crisis - how can we prioritise sustainability when we need more consumption to support jobs and income levels?

A2: We have an ambition to grow our business and we believe this growth will create jobs. However our work to decouple growth from environmental impact is the way in which we want to break this link between growth and environmental degradation. If we were to take no action to reduce our environmental impact, as our business grows, our environmental impact would simply grow by the same proportion. This is not viable. This is why we commit to halve the environmental impact of our products per consumer use by 2020. In this way, as more consumers use our products on more occasions, our environmental impact does not simply grow by the same proportion. Our experience in sustainable agriculture shows that farmers who progress with sustainable sourcing generally reduce their input costs and improve yields over time.

Q3: What companies like Unilever must do if economic growth is to become sustainable?

A3: We have an ambition to grow our business, however our work to decouple growth from environmental impact is the way in which we want to break this link between growth and environmental degradation. If we were to take no action to reduce our environmental impact, as our business grows, our environmental impact would simply grow by the same proportion. This is not viable. This is why we commit to halve the environmental impact of our products per consumer use by 2020. In this way, as more consumers use our products on more occasions, our environmental impact does not simply grow by the same proportion. Our ambition to source 100% of our agricultural raw materials sustainably also relates to jobs and income levels. Our experience in sustainable agriculture shows that farmers who progress with sustainable sourcing generally reduce their input costs and improve yields over time.

Q4: Is Unilever's future success dependent of continued increase in consumption per capita, or can this model change and Unilever will still achieve growth?

A4: As a business we do not have the luxury of choice. We cannot choose between growth and sustainability. We have to have both. We need to grow if we are to have the money, people and technology to invest in alternative energies, in sustainable agriculture, in new materials for packaging and in product innovation. But we need to find a way to grow within the limited resources of one planet. A large proportion of Unilever's future growth will come from developing markets where a whole segment of the population is emerging from the bottom of the economic pyramid to become first-time buyers of products such as soap, toothpaste and shampoo. Our portfolio of products meets basic everyday needs for nutrition, hygiene and personal care. This gives us confidence that we are not encouraging irresponsible and unnecessary consumption, but rather helping to improve people's quality of life. However we do need to do our utmost to encourage more sustainable patterns of consumption in developing markets and our innovation efforts are now increasingly geared towards this challenge.

Q5: To what extent does the current financial system provide or hinder opportunities for more sustainable choices?

A5: As our CEO, Paul Polman, explained during the launch debate, we think it is a false choice between financial returns and sustainable consumption. He said he believes that forward-looking investors will gain from the long-term approach set out in the USLP and welcomed more investors looking for a sustainable return on their capital. He commented that those in the financial system focused only on short-term results are not his priority.

System Level Change

Q1: This is a great topic but if all we talk about is economic sustainability people and the environment will always be taken advantage of in the pursuit of economic growth and this does not build a sustainable system. In a society focused on consumption and waste (at the expense of natural resources) how would you balance the human and environmental side of the economic growth equation?

A1: Your question seems to be more of a system level question than one about our plan specifically. Our view is that ultimately we need to get to a place where the system ensures that environmental externalities are priced into the market system or, in the worst cases, are addressed through regulation. Carbon pricing through vehicles like carbon markets could be effective there if they are constructed properly. These kind of system changes need to be led by governments who are responsible for the policy frameworks that define the economy, but they absolutely need the support of the more progressive businesses to show that there is support for a sensible conversation about how best to do this. When it comes to our own Sustainable Living Plan, our targets aim to address how we can increase the positive social impacts of our business and reduce the environmental aspects while continuing to grow. So with Lifebuoy soap and Pureit in-home water purifier we have a target to reach one billion people with our hygiene education and half a billion with safe water, while at the same time seeking ways for these products to reduce their impact on the environment. We see this as consistent with our plans to continue to grow our business.

Q2: The future of sustainable consumption must occur top-down and bottom up. What is Unilever doing to ensure a future of sustainable consumption and what is it doing to change the attitudes of consumers i.e., what makes a plastic bottle of Lipton Ice Tea different to any other plastic bottle off the shelf.

A2: We are committed to developing innovation, which is more sustainable and can deliver our aim of halving the environmental footprint of our products. We are also committed to sourcing 100% of our agricultural raw materials sustainably - ensuring that we don't steal resources, which rightfully belong to future generations. Through a combination of innovation and communication we will encourage more sustainable consumption patterns which use less resources and have a lower environmental impact e.g. concentrated laundry products + campaigns to encourage washing at lower temperatures/with reduced cycle times. We will use our scale to bring about systemic change e.g. working with our partners in the Roundtable on Sustainable Palm Oil to dramatically increase the supply of sustainable palm. We will participate in business coalitions to stress the need for urgent action on issues such as climate change.

Phase of consumption to influence

Q1: It seems inevitable that sustainable consumption must ultimately mean less consumption in developed economies. Can a major public company ever come to terms with the concept of selling less?

A1: We certainly need to reduce the resource impacts across the product lifecycle, but this does not necessarily mean that we have to sell less products and services. Through a combination of higher value innovative products and products which help people reduce their individual impact on the environment (through washing at lower temperatures, for example) we can see a future for business growth even in the developed markets that reduces people's overall environmental footprint at the same time.

Q2: It seems like FMCG companies are giving consumers alternate options such as organic/Fair-trade etc., and in the end 'sustaining' consumption patterns and quantities. Is it not more important to reduce consumers need to consume in the first place, rather than substitute one thing for another?

A2: Businesses like ours are here to design develop and supply products and services that meet people's needs. On the whole, most people want to buy and use these products and services, otherwise they wouldn't do it, so from our perspective the fastest route to sustainable consumption is through improving the footprint of what they are buying, not trying to persuade them not to buy it. In addition, the challenge of our economic system is that it needs continuous consumption of goods and services to ensure economic stability. In an economic downturn, aside from the serious social consequences, governments and businesses also find it much harder to prioritise environmental action. So maintaining economic stability while transitioning to a sustainable economy has to be the priority.

Appendix D

Interview: Transcription and initial codes

Interview – CoSDaB01

00.10 Design discipline within business strategy

CODE	TRANSCRIPTION
CONSIDERING DESIGN AS A TOOL	I found your research area, for me is very interesting because part of the work that I do is obviously trying to use design more strategically.
N/A	I see you are interested in getting them to use design more strategically in order to improve sustainable consumption,
TAKING SUSTAINABILITY IS NOT EASY FOR A COMPANY	and for businesses to be more sustainable and that obviously adds an other level of complexity
LACK OF UNDERSTANDING DESIGN AS A STRATEGIC TOOL	because a lot of businesses we speak to, and I work now with small businesses, they don't necessarily understand a great deal about design strategy,
LIMITED PERSPECTIVE OF WHAT IS DESIGN	so they know that they use design, they understand that they design their products and that means that they got a web-site and maybe they have a logo.
LACK OF UNDERSTANDING ABOUT DESIGN AS A STRATEGIC TOOL	But with small businesses it is unusual if they understand design as a strategic part of their business.
USING DESIGN STRATEGICALLY TO BE MORE SUSTAINABLE: DIFFICULT TO UNDERSTAND	But to then try to talk to them about using design strategy as a way to make their business more sustainable is almost as an other separate conversation,
HAVING AN INTEREST IN SUSTAINABILITY	because first of all you have to speak to businesses to hope they want to be more sustainable
'EMBEDDING SUSTAINABILITY' IN THE CORE STRATEGY OF THE BUSINESS	and also that they understand sustainability as something that can be embedded as part of their strategy and not for something that is about using less energy in their process or their factory or just reducing waste, or things like that,
EMBEDDING SUSTAINABILITY' IN THE CORE STRATEGY OF THE BUSINESS	but then embedded into the core business, into their products and services.
N/A	So the area that you are looking to is not easy, particularly with small businesses.

04.04 Factors to implement sustainability into the business strategy

UNDERSTANDING COMPANIES 'AMBITIONS'	Again, it's I will say that when I work with businesses the crucial factor is that you need to understand what the companies ambitions are.
'DRIVING INNOVATION': SUSTAINABILITY	So for me sustainability can be something that drives innovation,
DEVELOPING THE MARKET	or it can be something that can attack new business
MARKET DRIVEN	because you might have a consumer market, where lots of consumers are more interested in your product being more sustainable.
COMMUNICATING WITH CONSUMERS 'THROUGH COMPANY'S BRAND'	But if you want to look at the consumer market, and maybe improve your sustainability communications through your brand, because that will be good for your strategy, and that will achieve you more sales.
FINDING 'APPROPRIATE MARKET SEGMENTS'	You have to be a company that selling to consumers in appropriate market segments,
N/A	so that can be a great way to hook businesses in but that will not be good if the business was a B2B sales company, because then they will just say we don't sale direct, we are talking to other companies.
FOCUSING ON BUSINESS TO CONSUMERS	And obviously if you, one of the other routs that we talk to businesses about, is if they are in the sales then they are probably interested in just being a supplier with a bigger company,
DEMANDING BY THE SUPPLIER CHAIN: INFLUENCING BUSINESSES	and obviously then a good way to talk to them about having sustainability in their core strategy is because now the bigger companies expect their suppliers to meet high sustainability standards,
N/A	it is an opportunity to win business. In an ideal world, I like the idea about
SUSTAINABILITY DRIVES INNOVATION	I think considering sustainability issues, should be good for the development of your products and services and a great way to innovate, encourage new products and services and find new markets.
N/A	But you can't have that conversation with every company,
BEING 'INTERESTED IN INNOVATING'	you need to find a company that it is interested in innovating and I know that not all business are used to innovating or maybe want to be innovative,
N/A	so again there are different strategies. For me the hard bit,
ALIGNING SUSTAINABILITY TARGETS WITH 'COMPANIES' AMBITIONS'	you have to understand the ambitions of the business, and what is doing and then align sustainability at the level of which they understand this.
N/A	I think that kind of works.

Appendix E

Focus Group: Transcription and initial codes

42.53: How UCD can influence Sustainable Consumption?

SPEAKER	CODE	TRANSCRIPTION
Co5UCD	TESTING THE PERCEPTION OF CONSUMERS	We can test the perception of consumers of everyday product before we launch those products so then we can reduce waste
Co3UCD	DEVELOPING OPTIMAL PRODUCTS	I have optimal products, reduce waste
Co6UCD	N/A	But that's says -
Co2UCD	N/A	That's process
Co6UCD	N/A	That's like the main idea, yeah?
Co3UCD	N/A	Is just know what you want and then introduces that's what I will solve -
Co5UCD	PROMOTING EXPERIENCES THAT RAISE AWARENESS	We can promote experience that raise awareness
Co1UCD	ENGAGING WITH CONSUMERS TO RAISE AWARENESS	Oh yeah, I put awareness and engage
Co3UCD	N/A	Yeah, that's good
Co2UCD	ACCOUNTING AND VISUALIZING IMPACTS	I put accountability and visualize impact. Because I think that people - but I will say, I always say that I always think about this - that people they really don't know about the impacts of others when they consume because once they throw something on the bin
Co2UCD	N/A	It's a way!! And they don't think where is accumulating and things like that -
Co6UCD	CREATING 'AFFORDANCES THAT STREAMLINES SUSTAINABLE BEHAVIOUR'	I got one - I got one that is very related, I got create affordances that streamlines sustainable behaviour - So if you create products, you know make it very clear that you can use this technologies to recycle plastic and that - you can have a clear indicator about recycling

Co5UCD	UNDERSTANDING 'THE LIFECYCLE' OF A PRODUCT/SERVICE TO DESIGN	We can understand the lifecycle of using a product beyond the initial consumption. So you can design what people will do next
Co6UCD	ENGAGING WITH CONSUMERS	Is exactly like the way you engage, that one because is kind of the knowledge you have
Co1UCD	'TELLING A STORY'	Yes, because is like telling a story, is like this thing has a story - it was born somewhere and is going to
Co5UCD	MAKING 'PEOPLE FEEL GOOD'	You can champion the design experiences, which makes people feel good.
Co1UCD	MAKING PEOPLE 'FEEL GOOD'	Yeah!!! Feel good!!
Co3UCD	MAKING PEOPLE 'FEEL GOOD'	It makes you fill that I want to feel good
Co5UCD	PROVIDING AND GETTING FEEDBACK	You can provide and getting feedback with people experience related to consumption
Co2UCD	SHOWING 'VALUE' TO CONSUMERS	like show value, like the same case - this is like what you want to want
Co4UCD	GIVIING 'REWARDS'	They can reward, things that you want
Co1UCD	'GIVING POSITIVE EMOTIONS TO THE CONSUMER'	Yeah, giving positive emotions to consumers

Appendix F

Document Analysis: Initial codes

Topic: Stakeholder involvement	
Q1: Surely we are in the ultimate 'tragedy of the commons', can humans co-operate without a cohesive public narrative such as that adopted during the Second World War?	
COMMUNICATING	We absolutely do need a strong public narrative that brings people along if these efforts are to have any effect.
COLLABORATING	To build that narrative we need lots more action by all players, whether governments, companies, NGOs (and not just the environmental ones) and individual leaders.
COMMUNICATING AWARENESS	We need not just for people to act, but to be clear about why they are doing what they are doing, raising awareness of the scale of the challenge
COMMUNICATING 'OPTIMISM'	but also optimism that this is a challenge that can and must be overcome.
N/A	In our own small way, that's part of what we are seeking to do with the Unilever Sustainable Living Plan.
Q2: "The panel have made it clear, to make it happen industry, civic society & government need to work together. It seems the leaders of civic society and industry are on a good path with you there today, why are governments not? Was anyone from the UK government asked to join this debate?"	
N/A	We did invite members of the UK government to join our debate but unfortunately they were not able to come. We did have a UK MP in our audience and government advisors.
COLLABORATING WITH GOVERNMENTS	We will continue to engage with governments through one to one meetings, through industry associations and through participating in joint initiatives to help deliver our plan into action.
DELIVERING COMMON OBJECTIVES	Indeed on Thursday this week, Paul Polman our CEO will host a lunch debate with members of the European Parliament and other key opinion formers on the Unilever Sustainable Living Plan and on how Unilever and the EU can work together to deliver common objectives such as reducing GHG emissions.

Appendix G

Interview Memo

INTERVIEW CoSDaB01

Memo CoSDaB01-5.1

FOCUSED CODES

&

CODE DEFINITION

DATE: 29.06.2011

FOCUS CODE: USING DESIGN STRATEGICALLY TO LEVERAGE SUSTAINABLE CONSUMPTION

USING DESIGN STRATEGICALLY TO LEVERAGE SUSTAINABLE CONSUMPTION it was recognized by the interviewee as a viable option. To this to happen, companies will need to UNDERSTAND DESIGN AS A STRATEGIC TOOL, thus this seems to be a **REQUIREMENT** that companies will need to have. To UNDERSTAND DESIGN AS A STRATEGIC TOOL, companies will need to UNDERSTAND THE VALUE OF DESIGN. To form the following categories, I cluster the codes that I thought they belong to the idea of USING DESIGN STRATEGICALLY TO LEVERAGE SC in **LIGHT ORANGE**.

CODE *qua* CATEGORY: USING DESIGN STRATEGICALLY TO LEVERAGE SUSTAINABLE CONSUMPTION

CONSIDERING DESIGN AS A STRATEGIC TOOL	for me is very interesting because part of the work that I do is obviously trying to use design more strategically.
USING DESIGN STRATEGICALLY TO BE MORE SUSTAINABLE: DIFFICULT TO UNDERSTAND	But to then try to talk to them about using design strategy as a way to make their business more sustainable is almost as an other separate conversation,
NO THINKING ABOUT DESIGN AS A TOOL TO INFLUENCE SC	Again you can. I think is something that lots of businesses haven't thought about and particularly in terms of the behaviour change.

CODE *qua* CATEGORY: UNDERSTANDING DESIGN AS A STRATEGIC TOOL

SUB CODES: LIMITED PERSPECTIVE OF WHAT IS DESIGN

BARRIERS: NEEDING TIME TO THINK STRATEGICALLY

LACK OF UNDERSTANDING ABOUT DESIGN AS A STRATEGIC TOOL	because a lot of businesses we speak to, and I work now with small businesses, they don't necessarily understand a great deal about design strategy,
LIMITED PERSPECTIVE OF WHAT IS DESIGN	so they know that they use design, they understand that they design their products and that means that they got a web-site and maybe they have a logo.
LACK OF UNDERSTANDING ABOUT DESIGN AS A STRATEGIC TOOL	But with small businesses it is unusual if they understand design as a strategic part of their business.
NOT HAVING TIME TO THINK ABOUT DESIGN AS A STRATEGIC TOOL	because small business, people often started the company, very much closer to the day to day working of the business that's one of the barriers, to giving them to think about design strategically or sustainability strategically,
NEEDING TIME TO THINK STRATEGICALLY	So that's a very important thing for any business to actually have an strategic view, you need to give people permission to think strategically, rather than just tactically.

CODE *qua* CATEGORY: UNDERSTANDING THE VALUE OF DESIGN

NOT REALIZING THE VALUE OF DESIGN	I think people see that but they getting them to sort of do those things because of more sustainable consumption is harder.
UNDERSTANDING THE VALUE OF DESIGN	And again it depends how people within a business understand design, and what design is.

LACK OF UNDERSTANDING THE VALUE OF DESIGN	I think many more business people do think about design as a great piece of packaging or a nice looking product, and they maybe understand that ergonomics is something that interacts with people,
UNDERSTANDING OF THE VALUE OF DESIGN	Do you understand that design can change consumer behaviour?

CODE DEFINITION

Focus Code: USING DESIGN STRATEGICALLY TO LEVERAGE SUSTAINABLE CONSUMPTION		
Code qua Category	Sub-code	Code Definition
UNDERSTANDING DESIGN AS A STRATEGIC TOOL	LIMITED PERSPECTIVE OF WHAT IS DESIGN	This code is about the LIMITED PERSPECTIVE of companies about WHAT DESIGN IS, thus they cannot UNDERSTAND DESIGN AS A STRATEGIC TOOL. To think as DESIGN AS A STRATEGIC TOOL, TIME and other resources are needed from the company.
	BARRIERS: NEEDING TIME TO THINK STRATEGICALLY	
UNDERSTANDING THE VALUE OF DESIGN		This code refers to how a company can START THINKING ABOUT DESIGN AS A STRATEGIC TOOL if they UNDERSTAND THE VALUE OF DESIGN.

Appendix H

Focus Group Memo

Focus Group

Memo FgCoUCD01-1

FOCUSED CODES

&

CODE DEFINITION

DATE: 17.07.2011

FOCUSED CODE: ATTRIBUTING THE VALUE OF DESIGN

ATTRIBUTING THE VALUE OF DESIGN emerged at the focus group as participants started to discuss about which is the role of design to enhance sustainable consumption. This discussion was prompt by a previous question to explore the role of design. The participants acknowledge that companies have to ATTRIBUTE THE VALUE OF DESIGN, as they perceived that the DESIGN is caught in the middle between the CONSUMER and the BUSINESS.

To form the following categories, the codes behind the idea of ATTRIBUTING THE VALUE OF DESIGN were coloured clustered in **LIGHT ORANGE**.

CODE *qua* CATEGORY: ATTRIBUTING THE VALUE OF DESIGN

ATTRIBUTING DESIGN	yeah, actually design can do loads of things.
ATTRIBUTING THE VALUE OF DESIGN	yes, yes, actually I think there is the problem that designers think they are caught in the middle and actually they are more powerful that they believe

CODE *qua* CATEGORY: FINDING A CORRELATION BETWEEN THE CONSUMER AND BUSINESS

<p>BEING 'CAUGHT IN THE MIDDLE BETWEEN THE CONSUMER AND THE BUSINESS': DESIGN</p>	<p>My first impression of this is that design is caught in the middle between the consumer and business, so it is not like you have to follow something, one thing or the other and is not that easy to make a decision from the design perspective, maybe you can influence and you can tweak things in order to make the consumer aware or to make some kind of strategy when you design that makes the business aware, or makes more profit, or I mean you can do something but you are very restricted some of the times.</p>
<p>FINDING A 'CORRELATION BETWEEN THE CONSUMER AND BUSINESS'</p>	<p>I am not saying that I cannot do anything, but I am saying that is just... is just about finding a good correlation between the consumer and business to show there is something</p>

CODE DEFINITION

<p>Focused Code: ATTRIBUTING THE VALUE OF DESIGN</p>		
<p>Code <i>qua</i> Category</p>	<p>Sub-code</p>	<p>Code Definition</p>
<p>FINDING A CORRELATION BETWEEN THE CONSUMER AND THE BUSINESS</p>		<p>This code is about how DESIGN is under-valued because it is 'trapped' between the COMPANY's goals or what they want to achieve, and what CONSUMER want that sometimes is NOT THE SAME THING as what the COMPANY wants. Thus it is important to find a CORRELATION BETWEEN THE CONSUMER AND THE BUSINESS, and that will help to ATTRIBUTE THE VALUE OF DESIGN. In relation with UCD, UCD does exactly that – find that CORRELATION.</p>

Appendix I

Document Analysis Memo

BUSINESS CASE ANALYSIS: UNILEVER WEBCAST MEMO: UNDERSTANDING CONSUMER'S MOTIVATION - 1

FOCUSED CODES & CODE DEFINITION

DATE: 13.07.2011

FOCUSED CODE: NOT BEING A PRIORITY FOR THE CONSUMER

The answers from Unilever related to the topic UNDERSTANDING CONSUMER'S MOTIVATION, referred to how sustainability issues specially the environment are not a PRIORITY FOR THE CONSUMER. Thus, it was proposed different ways to ALIGN SC MEASURES WITH CONSUMER NEEDS.

The codes were not coloured cluster as all of them refer to the same **focused code**.

CODE *qua* CATEGORY: NOT BEING A PRIORITY FOR THE CONSUMER

ENVIRONMENT: NOT BEING A PRIORITY FOR THE CONSUMER	What we are also finding is the environment will never be the primary reason why consumers purchase a product.
NOT BEING A PRIORITY FOR THE CONSUMER	So while these issues are increasingly important to consumers they will never be the primary reason why they purchase a product.

CODE *qua* CATEGORY: ALIGNING SC MEASURES WITH CONSUMER's NEEDS

**Sub-code: FINDING ADITIONAL PRODUCT ATTRIBUTES
NOT PAYING A PREMIUM**

ALIGNING SUSTAINABILITY BENEFITS WITH CONSUMER's NEEDS	Improved environmental profiles will need to combine with improved performance or additional product benefits for people to find them relevant.
ALIGNING SUSTAINABILITY WITH CONSUMER's NEEDS	They tell us they are interested in sustainability, they want to see corporations take responsibility for social and environmental problems but they are not prepared to trade off on price, quality or convenience.
NOT PREPEARD TO PAY A 'PREMIUM'	Consumers tell us they are interested in these issues, they want to see corporations take responsibility for social and environmental problems but they are not prepared to pay a premium for them.
FINDING ADITIONAL PRODUCT ATTRIBUTES	Premiums will need to be combined with improved performance or additional product benefits.

CODE *qua* CATEGORY: DEVELOPING THE MARKET

**Sub-codes: INNOVATION
COMMUNICATION
COLLABORATING**

COMMUNICATING	The plan was communicated through advertising, advertorials, PR and on-pack
COLLABORATING	and was supported by a partnership with WWF.
DEVELOPING THE MARKET: INNOVATION AND COMMUNICATING	As we see relatively limited consumer demand right now, we believe we do have a role to play in driving demand through the product innovation and marketing campaigns we create.

CODE DEFINITION:

Focused Code: NOT BEING A PRIORITY TO THE CONSUMER			
Code qua Category	Sub-code		Code Definition
ALIGN SUSTAINABILITY BENEFITS WITH CONSUMER NEEDS	FINDING ADITIONAL PRODUCT ATTRIBUTES	NOT PAYING A PREMIUM	This code refers to ways to ALIGN SUSTAINABILITY BENEFITS WITH CONSUMER's NEEDS as SUSTAINABILITY ISSUES are not a PRIORITY to the consumer. What Unilever proposes is to FIND ADITIONAL PRODUCT ATTRIBUTES, but without jeopardizing PERFORMANCE, PRICE/VALUE or CONVENIENCE.
DEVELOPING THE MARKET	INNOVATION		In order that for sustainability could be more a priority for the consumer, UNILEVER acknowledge the importance of DEVELOPING THE MARKET through INNOVATION, COMMUNICATION and COLLABORATION.
	COMMUNICATION		
	COLLABORATION		

Appendix J

Evaluation of the Model Questionnaire

1st Evaluation: Immediate Feedback (at the session with 1 to 5 cards)

According to the process undertaken and the aim of the SCL Model, would you say the activities of the workshop were?

1- Irrelevant

2

3

4

5 -Very relevant

2) Was the content of the toolkit:

1- unclear

2

3

4

5 – very clear

3) Would you say the delivery of the content of the SCL workshop was?

1- Inefficiently delivered

2

3

4

5 – Very efficiently delivered

4) Do you see a benefit for your company of using the SCL Model?

1- I do not see a benefit at all

2

3

4

5 – I see a great benefit

5) Would you say the SCL Model could be?

1- Useless to create future strategies for my company

2

3

4

5 – Very useful to create future strategies for my company

3rd Evaluation: Follow Up Feedback Questionnaire (Answered after three months of conducting the SCL Model Evaluation Workshop)

Company name: _____

Name of respondent: _____

It is encouraged that consultation be taken with other workshop participants to answer this questionnaire. Please answer each question with as much detail as you can. Please return your answers to M.A.Moreno-Beguerisse@lboro.ac.uk by _____.

1. Did you, or any other workshop participant, read the document on areas for improvement and ideas developed during the course of the day after the workshop? The document was sent to you approximately one month ago. Please answer 'Yes or No' and provide as much detail as possible below.

If yes, what are the reactions towards this document?

If no, what are the reasons the document was not read?

2. Did any of the workshop participants discuss the session afterwards? Please answer 'Yes or No' and provide as much detail as possible below.

If yes, please describe some of the outcomes made during this meeting.

If no, what are the reasons a follow up did not take place after the workshop?

3. Did any workshop participant, including you, follow up on any of the ideas developed during the workshop? Please answer 'Yes or No' and provide as much detail as possible below.

If yes, has a plan of action been implemented?

If no, what are the reasons the ideas were not followed up?

4. Was the document about the workshop, or any of the ideas developed within the workshop, presented to internal and/or external company stakeholders? Please answer 'Yes or No' and provide as much detail as possible below.

If yes, what were the reactions towards this document or towards the ideas?

If no, what are the reasons these ideas or this document have not been shared?

5. Has anyone in the company, including yourself or any other workshop participant, used the SCL Toolkit again? Please answer 'Yes or No' and provide as much detail as possible below.

If yes, in what capacity was it used for?

If no, what are the reasons it has not been used?

Appendix K

Partial Workshop Transcription

Areas of Opportunity

Sustainability Team

60.09 **SusC401** On sustainability, on environmental performance we say that currently we were 3, I think that is because on an environmental performance we don't do a lot of intervention on some areas – we often do increasing stuff in products and in energy for example, but there are other parts that in our environmental performance we are not doing very much – so we put ourselves in the middle, that means therefore that the scope of improvement is 5 which is high, so definitely there are some areas of opportunities that are rating us more in that area.

70.54 About our **strengths** in our environmental performance, we are very good at complying with all the regulations around and external things that we stand out, that sort of thing. One of the good things we got is, because of the integration with supply chain and manufacturing, developing happening in our own belts, that is quite good that is very unique selling point, that we are able to look at the whole life cycle of products within in our company, without having to persuade suppliers to engage, so there are examples in the past that we used recycling plastics and so on, we have bottle blowing over here – we actually did the research and development here that proves that it works and when we went to suppliers they told us they can't because is 30% more expensive, so we actually told them we have done this, it does work so the suppliers suddenly change it so that's an example of being able to develop things internally and then put them out into the market place and turn it up. Things like energy management I think we are doing quite well in that area as well – we got the carbon trust standard so that is strength.

72.16 **Weaknesses:** I mention things like stock for re-sale; stock for re-cycle we don't do much in that area, partnerships with suppliers – again we did a project with Carbon True cost and ... supply chain to look at their suppliers carbon foot-print and what we discover is all the stuff that suppliers are doing we didn't know about – and we should know about because there are lots of opportunities of working together – starting the LIN programme we only do it in certain areas and we don't do it across the board so there are lots of opportunities there to use in the supply chain, because we are used to be very limited in the things we can do. ISO Standards like ISO 14001 we don't have, and put an external campaign, this is all about

73.19 **SusC403** We don't do customer communication around environmental responsibility, we don't talk about the good stuff we do anyway –

73.31 **SusC401** And the other thing is that our company sells lots of small quantities of lots of small things, so not like coca cola that can actually go and develop a coke bottle made up bio-plastics overnight, we don't have the buying part to do that sort of thing, even in the stores area we got huge of state of different sizes of stores most withdrawn by external landlords, so is not that we got huge supermarkets that we could make those more energy efficient, we have to deal with this sort of patchy portfolio that we got – and we don't normally build our own stores, we rent so retrofitting is actually more expensive than if you do it from scratch.

74.33 In social, we thought we are doing a bit better in social big down fall currently, but we think there is a big opportunity so we put 5 for the future improvement. So we said that we have things like charity partnerships, we have McMillan, we are quite good in employment practice, and communities are a big part of our CSR strategy, so that's what we are quite strong on that area.

75.13 Our **weaknesses** are, is how do we quantify the commercial benefits of doing some of this stuff, if we go to finance how do we justify that we want to do something in this area – is actually difficult to come and say this is actually worth X£ to the business, we don't have a way of quantifying

that, so actually it does not high light other of the commercial considerations when we are looking for budget to do things like this – not being able to put a hard number on it. The other thing in social I think that we always campaign ourselves like – I think...have a huge opportunity to encourage more sustainable living through our costumers, like giving advice to costumers, so we almost don't do – We are one retail in the high street that people trust in how we advise as ..., so I think there is a huge opportunity go there and saying have a more sustainable lifestyle we don't do anything in that area. I am always campaigning about it.

76.43 We used to have a brand strategy called wellbeing.

76.47 **CoC401** Our straight line right now is feel good and for some people feel good is about sustainability with their next generation I will say

77.02 **SusC401** If we look at things as M&S and plan A – Plan A is very corporate is all about what everybody is doing internally, but they do very little about with costumers, but they are trying now to launch something called My plan A –

77.35 **SusC403** But they do have a target to encourage their costumers to live more sustainably, and that is part of it, so actually technically they can take clothes to Oxfam and be rewarded by diverting from landfill – I have seen there activity in that area.

77.55 **SusC401** In the economic, we score ourselves actually quite low, we put a **2** and that is because on these sheet a lot of the indicators were about ethical investment, ethical funds, CRI, because we are private company we don't do things like this, and we don't do ethical screening if the company wants to invest on something.

78.39 Potential I think, we are in 3.

78.55 Strengths we have employment creation with our graduate scheme, lots of good things about educating employees. We see it as a good company to work with

79.25 Weaknesses we don't fund ourselves ethically as a businesses, I don't see much evidence of it.

79.48 **SusC403** And we talk about creating new business models that serve the social or environmental need so like being able to take your own packaging and being rewarded for it, we don't do things like that.

80.03 **SusC401**An other huge potential of ... is that we got a lot of small pharmacies all over the place so instead of people going to the health care, they can just go to the pharmacy – and because of that brand trust we kind of are a heart of the community– so there is much more we could do within the stores as the centre of the community about community work in the sustainability side.

Design

81.32 **DesC401** We were covering the product development, research/innovation, systems thinking, multi-disciplinary working – working with designers and other areas, user-centred approaches that is using costumers to understand what they really need in terms of product – not just what they tell us in the market research – but really how do they use the products – and then the user-centre approach where consumers help us to develop products – the co-creation situation. We were caught out between our strengths and weaknesses because our strengths and weaknesses went across everything rather than speaking out this particular areas – overall we got the skills, we got the people to do much of this, we know where to go for input when we need it, but what we don't do is do it in a way of corporate level, our **weakness** is that we operate in rational ground level in term of products, so a brand has to justify if we rather want to do something, and if it cannot justify it would not happen– so following the analogy of Coke, Coca Cola said we want plant based plastics, we will do that and we will put them into this brands, where as will say – a brand will say - we want plant based plastics but we cannot justify it because we are not big enough, and that's the end of our story – because it is a corporate thing. **APPLYIF**: So there is something there in the **weakness** that we are procreating the pro level, and there is also what we thought that there is something about – we

are risk evaders, we are fast follow, so the culture is against the innovation and research and I haven't seen or account for any system in ... that actually will work out the benefits for ... and the return of the investment of soft things just like sustainability – like inclusive design because if it is not account in pounds and pence justification, it does not happened.

84.30 We have a tendency to fast follow not necessarily understanding why we are doing it– We know sustainability is a good area but we actually haven't done that – we seen competitors doing things that we say oh no! We are not going on that one, because we know is not a realistic proposition, so for example Ribena said we are going to 100% recyclable PET for our bottles, we would not make that confirmation because our supply chain could not supported, a few months later Ribena turns to us and tell us we actually could not do that one, so they drop back. So in sustainability it can be very strong the understanding of the overall trends, but in other areas we can do things, until the rest of the market moves on it, and then I am not sure if we really understand why.

85.24 **CoC401** In terms of the packaging or the innovation in its entirety?

85.27 **DesC401** I believe it is in the bigger picture of the packaging area

So for example the aging population, we are looking at the ageing population in terms of what it takes in brand...for my understanding ... will say what's the matter of change for aging, what does that means for our stores, what does that mean for our products, doing it and tight all this together in an overall strategy – how we are going to address aging population?

86.06 **CoC402** There is an opportunity to add criteria to our brand strategy. That is what we are looking in doing it – as a sustainability team level to add it to the new product development process, the brand leader at the moment looks it from the financial and the brand appropriateness and how to bring sustainability the sustainability element to it.

87.04 **Moderator** So an opportunity is looking to the whole design process to pitch new ideas.

87.06 **DesC401** We tend to work like that, so we will start bottom up – sustainability will point rather than static sustainability and battle for years and years to get it into the company agenda and finally it got there. We don't work like that very often, apart from financial targets – because there is the finance thing as well, if it can't be manifested as a financial target, again it is from the bottom to the top, they say they got sustainability that is great but if it is band across the top, the focus on finance and if they can't interpret sustainability as a financial target, is not really in their agenda.

87.53 **DesC401** The **opportunities** that we got it is to be more innovative of our accounting system, so be softer about this issues, and realize which are the benefits to the business.

Look at the Macro trends and do research to the macro trends to really understand what does that mean for the business in the future and feed that into the business.

Understanding consumers better from the inclusive observational point of view, how do they shop – not just as a general sub-plan but also how and what they shop, how do they arrive to the shelf, how they do this, how they do that, that sort of level – how do they use their products at their home, how they use that bottle of shampoo.

89.22 Coming back to the fast forward, and looking to the competitors, we do say we have done that, but we really do not understand why we have done it – so we do some thinking of follow them up.

Consumer

90.10 **CoC401** So we think a lot of the strengths were quite consistent, so is all around our relationship with our costumers, we got really good trust with them, and it is about understanding the quality we are serving, about value, and values about what we know we can improve on, but only until a certain point, so there is a bit of selling forward that we are not able to compete with the grocers, so we will never sharp about it of what they do because we will essentially enter a price war

that we cannot win basically. So that kind of led us to the **opportunities** being more around service, that is what we are good that and that is where we can enhance our value perception by saying yes probably you are paying slightly more but that is everything else that we get and that's why we are in the edge about competitors.

CoC402

90.48 So opportunities were, is about building that customer relationship that we have and specifically looking into the brand so for example, giving more permission and say the customer relationship if this brand as we know sustainability, do we have more permission there to be innovative, to look at different things that will require an investment, or because I believe in that brand, investment will be seen to be good as it has a return. And we did some specific ideas around sustainability as having re-fillable bottles...or different things like that. It is about working on that customer relationship.

92.03 **CoC401** We had explore different ideas around this, because it tend to be the natural thing but it seems is not that fast moving at the brands, and we haven't get the chain of all, so lets say actually where it maximise the potential is probably in areas like – No 7, but then if it damages the credibility of the brand so then if you will do it in a less risky area such as essentials facials in care or nutrition –

92.31 **CoC402** Or fast selling pops lines selling in ..., and therefore minimizes our investment by selling – we really like you to do this, or we give you this if you do it –

SusC401 Essentials is and interesting one because there A) is mass market it does not aim the green consumer, but the other thing is that when we did the analysis on the essentials it came out as very sustainable because I think we did straight back, so it already got value proposition.

DesC401 If its for our customer they are not ready to pay for that extra bit for packaging for example if we charge them 8p less, we get a benefit but also the customer, and as long as we become more fast moving.

DesC402 And another opportunity we saw is how can we assist the government or local councils in recycling education, and that is playing on the trust the customer is playing as in...so, everyone that has a recycle bin at the home...gets that recycling schedule – at ... we can be looking at, have a little guide on that – or a direct mail that we can sell out something from the government in-out our direct mail, that has a commercial value to us. So it is about maximising in our trust, and one of our other strengths is something that is coming up from our business that is building partnerships as well.

94.53 **CoC401** It is so complicated sometimes, I actually don't understand what I can combine in my recycle bin, but when you look at the food industry there is a common traffic light system that diverts fibbers, solids, etc. And there isn't something equally as easy to understand what can go into your e-bin.

95.44 **SusC401** Everything goes again into how councils are funded from the government, we do lobby about this but it depends of how the councils are fund and told to do something different.

96.00 **CoC401** I think we could have something as the bar code in your product that could tell you if it can go in your recycle bin or not.

SusC401 Is interestingly because we are often seen as a little bit worst compared to a supermarket, and obviously a supermarket has a car park, they all have stores and room for recycling facilities – so it is difficult to say no to be involved to recycling. That is not our fault, is all about the critical presence of where our stores are situated, we cannot do it. We have to do something else.

DesC401 We were part of a British retail consultant initiative to set up a shopper license and try to tell consumers if they recycle or not – it was adopted corporately by lots of retailers but branded by...

Business Model

97.13 CoC401

Our strengths were very similar, although we pull out interestingly innovation as a **strength rather than a weakness** hence to my question around looking it as a weakness because I think we are quite innovative and we are leading quite a lot of the market, so No 7 is a really good example where we massively innovate in that area, and we do sun care, health care, a lot so, that is of course a strength for us. We also got a quite good source of people around us, we got a quite good range of expertise and knowledge around formulation and packaging. We own our own infrastructure about trading to our doors, manufacturing, and partnerships we see it as a great strength, partner with McMillan we partner with WebMD, so there are so many avenues to use to communicate with costumers. About **weaknesses**, one that tights in with the innovation is our lack of adaptability but tights it with our strength of trust in costumers, but of course it hinder us moving and be adaptable.

98.40 **CoC402** So about our **opportunities** we saw that around our partnerships, one of the great things in terms of our business model is with who we partner and almost allows us to have more adaptability, that powers up ourselves so if we do partner with an other brand or an other company we can do something there, and ... does not allow us to do something necessarily. And then if further developing our infrastructure, one of our strengths is our distribution channels and we have a lot of production facilities as well, the more of that we develop give us greater opportunity in one way or another...it allows us great opportunities to innovate, and on adaptability and how fast we move.

Appendix L

Thematic Coding Analysis: List of Codes

GENERAL CODING WORKSHOPS

Evaluation Codes:

Coding Tag	Meaning
REC	Recommendation
BAD	Bad Understood by participants
WELL	Well Understood by participants
+	Positive comment
-	Negative comment

Master Codes for participants' perceptions

CLUSTER:	Coding Tag
General perceptions about the SCL Model	SCL
General perceptions about the SCL Toolkit	TOOLKIT
General perceptions about the Workshop (Activities)	WORKSHOP
General perceptions about the Criteria of the Model	CRITERIA
General perceptions about the Self-evaluation tool	SELFEV
General perceptions about the consumer-focused strategy cards	CFSC
General perceptions about the SCI	SCI

Cluster: Drivers

Macro Code: DRI

Second Level Code:

SupCh: The supply chain is driving the tendency

ConsAsk: Consumers are asking for more sustainable business models

Leg: Driven by legislation

Findissue: Finding relevant issues for the company that make them think about sustainable consumption

GainBusBen: Gaining business benefits

Cluster: Conditions

Macro Code: COND

Second Level Code:

ActSust: Actions taken in place in the business towards sustainability

ImpDesignThink: Implementing Design Thinking

InnovStr: Innovation Strategy

Cluster: Using the self-evaluation tool

Macro Code: USESELFEV

Second level Code:

LinkCriteria: A relationship between criteria was found whilst answering the self-evaluation questionnaire

Idea: Develop ideas while evaluating
EmbedSus: Embed sustainability into the criteria
Clarify: Clarifying the meaning of the concept to evaluate

Cluster: Finding areas of opportunity

Macro Code: AREOP

Second level Code:

Int: Area of opportunity related to an internal issue
Ext: Area of opportunity related to an external issue
Cons: Area of opportunity is related to influence the consumer
Idea: Develop ideas while discussing

Third level Code:

Com: related to communicating with the consumer
Infl: An aspect that is influential to the business and can account for an area of opportunity
SustLife: Sustainable Lifestyles
ShopExp: Shopping Experience
PackExp: Packaging Experience
BusCase: Build a Business Case
Part: partnerships
MacroTrend: Understanding MacroTrends

Fourth level Code:

AcBen: Account for Benefits
StrongPart: Having strong partnerships
Brand: Innovation happens in a brand level
Supply: Related to the supply Chain
Infra: Strong Infrastructure
People: Having the skills and the people to implement different aspects of design thinking
Follow: The company is considered to be a fast-follower
Value: Strong value proposition to consumers
Trust: Consumers' trust in the brand
Store: Differences between stores
ConsIns: Getting Consumer insights

Cluster: Using the consumer-focused strategy cards

Macro Code: USECFSC

Second level Code:

LinkStrategies: A relationship between the strategies was found whilst applying the consumer-focused strategies
Order: Select strategies to order them in a particular way
Phases: Create phases within the ideas
AdaptStrategy: Adapting the strategy to fit with the area of opportunity to tackle
AdoptStrategy: Adopting the strategies according to the ideas already created
Goal: Find a common goal to use different strategies that can help to achieve that goal
ReferenceFT: Make a reference to the theoretical framework by using the strategies
One: Focus on one main strategy to develop ideas
Mislink: there is a lost link between the area of opportunity and applying the strategy
ReAreop: Refer back to the areas of opportunity previously identified.
Evaluate: Use of the strategies to evaluate the ideas generated
Comun: Communication
Colla: Collaboration

Innov: Innovation

Third level Code:

Chrono: Order the strategies in chronological phases

Mix: Linkages between strategies were made without considering their relationship to the three key concepts of the theoretical framework.

Input: Evaluate and at the same time have an input to the idea

Cluster: Using the sustainable consumption index

Macro Code: USESCI

Cluster: Use model/tool kit in the future

Macro Code: USEIF

Y: Yes to use the toolkit in the future

No: No to use the toolkit in the future

Second level Code:

IntIssue: Cause to an internal issue

Improvement: The toolkit needs to be improved

Good: Good tool to develop strategies

Reality: Relates to reality

Competition: The toolkit could have internal competition from internal models

Easy: Easy to use

Specific: It will be easier to use by focusing in a specific goal

Cluster: Facilitation

Macro Code: Fac

Y: It needs someone external to facilitate the process

N: It does not need someone external to facilitate the process

Cluster: Apply ideas in the future

Macro Code: APPLYIF

Y: Yes to apply ideas in the future

No: No to apply ideas in the future

Second level Code:

Need: Perceive as necessary for the company

BuyfromHM: It has to be bought from higher management

Bottomup: Some ideas can be implemented from bottom up until it gets to higher management.

IncludeMT: Because it includes a multidisciplinary team which can make easier to transfer ideas to be implemented

Deliver: The workshop didn't conclude with a step of actions that could be followed to implement the ideas.

RightPart: The workshop had/didn't have the right level of participants to take the ideas forward

Appendix M

Interview: Participants' Information Sheet



A Consumer Orientated Design Approach for Business to enable Sustainable Consumption Participant Information Sheet

Main Researcher: Maria Alejandra Moreno - PhD Research Student – Loughborough University.

Matthew Arnold Building K0112 - Loughborough University - Loughborough. LE11 3TU. UK.

M.A.Moreno-Beguerisse@lboro.ac.uk

Telephone number: 07531259418

Supervisor: Vicky Lofthouse – Senior Lecturer in Sustainable Design - Loughborough University.

Matthew Arnold Building K0112 - Loughborough University - Loughborough. LE11 3TU. UK.

V.A.Lofthouse@lboro.ac.uk

What is the purpose of the study?

The research intentions is to contribute to existing knowledge by looking at current forces of business that influence consumers and society in general to deliver an approach towards sustainable consumption. This approach recognizes consumers as a complex character that interacts on different contexts. As such, the research will focus at user centred design principles to create a holistic framework that could guide multinational companies to leverage sustainable consumption. Such framework aims to deliver new opportunities for companies, in their business models and, opportunities to enhance sustainable consumption, transposed into a better society.

Who is doing this research and why?

This study is apart of a doctorate research project funded by Loughborough University. Mariale Moreno is conducting this research. The aim of this interview is to gather primary data to inform the first phase of her research.

Procedure of the interview:

The interview is a semi-structure interview comprised of ten questions. It might happen that probably not all the questions pointed in the interview guide (which is attached as a separate document) will be asked, as it might happen that during the conversation the interviewee will be already answering the questions. Also other questions might come up during the conversation, depending on how the topics to be explored are developed.

The interview will last approximately between 40-60minutes.

A time and a date will be agreed to conduct the interview. If the interviewee prefers, the interview could be conducted through video conferencing or telephone.

The interviewee can withdraw at any time, before, during or after the session, for any reason and he/she will not be asked to explain the reasons for withdrawing. If you wish to withdraw please just contact the main investigator.

Interviews will be recorded using a digital voice recording for the purpose of collecting data. The data will be stored for three years. All participants personal information and data will be kept confidential as part of this study.

The results of the study will be analysed and each participant will be updated as the research progresses.

If you have further questions about the research please do not hesitate to contact my supervisor or me.

If you are not happy of how this research was conducted please contact the University Research committee through

[http://www.lboro.ac.uk/admin/committees/ethical/Whistleblowing\(2\).htm](http://www.lboro.ac.uk/admin/committees/ethical/Whistleblowing(2).htm)

Appendix N

Focus Group: Participants' Information Sheet



Investigating UCD as a business strategy to influence SC Focus Group Participant Information Sheet

Main Researcher: Maria Alejandra Moreno - PhD Research Student – Loughborough University.

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M.A.Moreno-Beguerisse@lboro.ac.uk

Telephone number: 07531259418

Supervisor: Vicky Lofthouse – Senior Lecturer in Sustainable Design - Loughborough University.

Matthew Arnold Building K0112 - Loughborough University - Loughborough. LE11 3TU. UK.

V.A.Lofthouse@lboro.ac.uk

What is the purpose of the study?

The research intentions is to contribute to existing knowledge by looking at current forces of business that influence consumers and society in general to deliver an approach towards sustainable consumption. This approach recognizes consumers as a complex character that interacts on different contexts. As such, the research will focus at user centred design principles to create a holistic framework that could guide multinational companies to leverage sustainable consumption. Such framework aims to deliver new opportunities for companies, in their business models and, opportunities to enhance sustainable consumption, transposed into a better society.

Who is doing this research and why?

This study is apart of a doctorate research project funded by Loughborough University. Mariale Moreno is conducting this research. The aim of this focus group is to gather primary data to inform the first phase of her research.

Procedure of the focus group:

The session will be conducted as following: First a presentation of the issues and challenges around consumption and sustainability will be given so the participants can understand the research context. Then three questions will be asked to trigger a discussion between participants about how design and UCD principles could prove valuable in leverage sustainable consumption.

The focus group will last approximately 2hrs.

The focus group will be conducted on Friday 26th November 2010, from 15.30 to 17.30.

The participants can withdraw at any time, before, during or after the session, for any reason and they will not be asked to explain the reasons for withdrawing. If any of the participants wish to withdraw please just contact the main investigator.

The focus group will be recorded using a digital voice recording for the purpose of collecting data. The data will be stored for three years. All participants personal information and data will kept confidential as part of this study.

The results of the study will be analysed and the participant will be updated as the research progress.

If you have further questions about the research please do not hesitate to contact my supervisor or me.

If you are not happy of how this research was conducted please contact the University Research committee through [http://www.lboro.ac.uk/admin/committees/ethical/Whistleblowing\(2\).htm](http://www.lboro.ac.uk/admin/committees/ethical/Whistleblowing(2).htm).

Appendix O

SCL Model Evaluation Workshops: Company's Information Sheet and Consent Form

SCL Model Evaluation Workshop Participant Information Sheet

Main Researcher: Maria Alejandra Moreno - PhD Research Student – Loughborough University.

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Mexico Telephone number: +52 (442) 219 42 58

Supervisor: Dr. Debra Lilley – Lecturer in Design – Loughborough University.

Loughborough Design School. Loughborough University. Loughborough, LE11 3TU, UK.
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UK Telephone number +44 1509 222660

What is the purpose of the study?

The aim of this workshop is to test the viability of the SCL Model in a consumer goods' industry context and to gain feedback to inform further development and improvements to the model. Thus, the focus of the data collection is on gathering corporate reactions to the model that could lead to improvements, not the results that could be obtained by using it.

How will your participation benefit your company?

The aim of the SCL Model is to increase the opportunity for companies to leverage more sustainable consumption through a self-assessment of their business strategy, in respect to four areas: Business Model, Consumer, Design and Sustainability

The assessment will assist participating companies in identifying their strengths and weaknesses and selecting appropriate consumer-focused strategies, which could help them to start thinking about ways to influence more sustainable consumption.

The copyright of the SCL Model and its toolkit belongs to Loughborough University. However the results and implementation belongs to the company. As part of this study _____ will receive a SCL toolkit to use internally.

Who is doing this research and why?

This study is part of a doctoral research project funded by Loughborough University and carried out by Mariale Moreno. Mariale is an Industrial Designer with an MSc in Innovation and Design for Sustainability. Before her MSc Mariale worked for a non-profit organization, which guides SMEs to deliver more sustainable products/services and commercialize them in real markets.

Procedure of the workshop:

The workshop is comprised of four parts:

Part One –Self-evaluation questionnaire: The self-evaluation questionnaire will be completed by answering 8 questions regarding 18 different criteria for each factor. The self-evaluation questionnaire aims to assess your company's current and future performance regarding the four areas of the evaluation criteria of the SCL Model: Business Model,

Consumer, Design and Sustainability. Each participant will contribute to this assessment by evaluating the factor most closely related to his or her area of expertise or responsibility.

Part Two - Identify Strengths and Weaknesses: Part two will involve reviewing the evaluation of each participant in order to identify strengths and weaknesses in each area of the model.

Part Three – Consumer-focused strategies: The team will choose and apply appropriate consumer-focused strategies and develop a plan of action, which addresses the weaknesses and builds on the strengths identified in Part Two.

Part Four – Feedback: The participants will be asked to give some feedback on their experience of using the self-assessment tool and their perceptions of the strategies. This will help to identify the strengths and weaknesses of the SCL Model.

A follow up questionnaire exploring the impacts of using the tool will be sent to the main contact of the company three months after conducting the workshop.

Participants' characteristics:

Results:

The main objective of this study is to identify corporate reactions of the model that can lead to improvements, and not the results that could be obtained by using it. The results of the workshop will be analysed and each participating company will be sent a short report summarising the findings of the study.

Place, date and time of the workshop:

The place, date and time of the workshop has to be confirmed by the company. Tentatively has been planned to be on the week from _____.

Withdrawing the study:

Any participant or the whole company can withdraw at any time, before, during or after the session, for any reason and he/she will not be asked to explain the reasons for withdrawing.

Finally:

If you have any further questions about the research please do not hesitate to contact Mariale Moreno or Dr Debra Lilley.

If you are not happy of how this research was conducted please contact the University Research committee through

[http://www.lboro.ac.uk/admin/committees/ethical/Whistleblowing\(2\).htm](http://www.lboro.ac.uk/admin/committees/ethical/Whistleblowing(2).htm)

SCL Model Evaluation Workshop Consent Form

(To be completed after Participant Information Sheet has been read)

The purpose and details of this study have been explained to us. We understand that this study is designed to further scientific knowledge and that Loughborough University's Ethical Advisory Committee has approved all procedures.

We have read and understood the information sheet and this consent form.

We have had an opportunity to ask questions about our participation.

We understand that we are under no obligation to take part in the study.

We understand that we have the right to withdraw from this study at any stage for any reason, and that we will not be required to explain our reasons for withdrawing.

We understand that all the information we provide will be treated in strict confidence and will be kept anonymous and confidential to the researchers.

The workshop activities will be recorded using a digital Dictaphone for the purpose of collecting primary data. The data will be stored for three years. All participants personal information and data will kept confidential as part of this study.

We hereby give consent for the session to be recorded using a digital Dictaphone.

YES

NO

The workshop participants will be photographed for the purpose of collecting visual data. The photographs will be stored for three years. All participants personal information and data will kept confidential as part of this study, however some photographs will be used in future publications of the study.

We hereby give consent for the session to be photographed.

YES

NO

We hereby give consent for the photographs to be used in future publications.

YES

NO

We would be beneficial to the research to be able to attribute the company in future publications.

YES

NO

We hereby give consent for the researcher to attribute the company by using its name in publications¹.

YES

NO²

*We agree to participate in this study.

Your name

Your signature

Signature of investigator

Date

*Please return a copy of this form signed via e-mail: M.A.Moreno-Beguerisse@lboro.ac.uk

The original copy will be picked up the day of the workshop.

¹ The information published will concern corporate reactions of the model itself that could lead to improvements, not the results that were obtained by using it.

² If the company decides not to allow the researcher to publish material using its name, the company will be kept anonymous at all times.

Appendix P

SCL Model Evaluation Workshops: Personal Consent Form

SCL Model Evaluation Workshop Participant Consent Form

(As part of the Personal Data Protection Policy each participant should sign an individual consent form)

The purpose and details of this study have been explained to us. We understand that this study is designed to further scientific knowledge and that Loughborough University's Ethical Advisory Committee has approved all procedures.

We have had an opportunity to ask questions about our participation.

We understand that we are under no obligation to take part in the study.

We understand that we have the right to withdraw from this study at any stage for any reason, and that we will not be required to explain our reasons for withdrawing.

We understand that all the information we provide including our personal information will be treated in strict confidence and will be kept anonymous and confidential to the researchers.

The workshop activities will be recorded using a digital Dictaphone for the purpose of collecting primary data. The data will be stored for three years. All participants personal information and data will kept confidential as part of this study.

We hereby give consent for the session to be recorded using a digital Dictaphone.

YES

NO

The workshop participants will be photographed for the purpose of collecting visual data. The photographs will be stored for three years. All participants personal information and data will kept confidential as part of this study, however some photographs will be used in future publications of the study.

We hereby give consent for the session to be photographed.

YES

NO

We hereby give consent for the photographs to be used in future publications.

YES

NO

*We agree to participate in this study.

Your name

Your signature

Signature of investigator

Date
