

Hopping on the Service Bandwagon Towards a Circular Economy

Consumer Acceptance of Product-Service Systems for Home
Furniture

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"The world as we have created it is a process of our thinking. It cannot be changed without changing our thinking."

-Albert Einstein

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“Little did I know how much I would learn, laugh and grow in the EMP chateau”

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Abstract

Product Service Systems offer companies the possibility to reduce environmental impacts by diminishing resource consumption, raw material extraction and waste generation. The concept focuses on a system of products, services and supporting networks with the aim of transitioning from selling the benefits of a product rather than the actual product. Naturally, incentives are created for companies to design for longevity, repair, recycling and remanufacturing, all of which could entail reduced material throughput and improved overall environmental performance. Product service systems are further celebrated for their potential to facilitate a transformative change towards a greater uptake of circular business models among companies. While claims emphasising the sustainability potentials of circular business models are ubiquitous in the literature, research on consumer acceptance of Product Service Systems is scarce and the potentials have not been contested in scientific studies. This thesis takes an explorative approach and on the one hand explores circular business proposals for the furniture retail industry and on the other, assesses consumer acceptance of home furniture PSS particularly targeting the B2C market. The analytical framework utilised for the discussion of consumer acceptance was devised from a synthesis of factors found to affect consumer acceptance of service offers in the literature of consumer behaviour as well as previous PSS literature. Primary data was collected via in-depth interviews with industry professionals and academics as well as through two consumer surveys. The research presents two business proposals applicable to the furniture retail industry as well as identifies factors that are important for the conditioning of consumer acceptance for each type of the proposed business offerings.

Keywords: Product Service Systems, Consumer Behaviour, Sustainable Consumption

Executive Summary

Many urgent issues will need to be tackled for a more sustainable future. Energy systems, food supply systems, production systems and consumption patterns will all have to undergo significant changes in order for us to avoid serious social and environmental crises. Promoting sustainable and responsible consumption, greener lifestyles and resource preserving behaviours among consumers is one of the most significant contributors to sustainable development. The message is clear, appropriate stimulation targeting consumers demand for environmentally sustainable products and services needs to be developed in order to raise consumer awareness and promote sustainable consumption. A changing policy landscape and evolving awareness will also have an impact on industry and the business as usual scenario.

Progressive and future oriented organisations have started to explore solutions and business models that are better adapted for upcoming challenges. In contrast to the linear “take-make-use-dispose” mentality where fast replacement of goods and profit maximization through volume sales is the norm, business models that promote sustainable consumption, circularity and longer and more efficient use of products as well as materials through reuse and access-based consumption have started to emerge. Often mentioned in relation to circular business models is the concept of product service systems (PSS) defined as “a system of products, services, supporting networks and infrastructure that is designed to be: competitive, satisfy customer needs and have a lower environmental impact than traditional business models” (Mont, 2004, p.18).

The concept has grown along with increased interest in leasing, renting and sharing, often motivated by the fact that a transition from selling the benefits of a product rather than the actual product has the potential of creating incentives for companies to design for longevity, repair, recycling and remanufacturing, all of which could entail reduced material throughput and improved overall environmental performance (Preston, 2012). When products used as part of a service business model need repair, remanufacturing or refurbishment, they can be withdrawn from the customer, treated and then reused within the scheme until they have reached their end-of-life (Catulli et al., 2013). Hence, PSS offers the possibility to reduce environmental impacts by diminishing resource consumption, raw material extraction and waste generation and has the potential of fundamentally contribute to challenges related to waste prevention and increase resource efficiency (Fischer et al., 2015). It also provides companies with possibilities to develop new and prolonged relationships with consumers, better adapt to their demands and thereby create a competitive edge. Product service systems are further celebrated for their potential to facilitate a transformative change towards a greater uptake of circular business models among companies. While claims emphasising the sustainability potentials of circular business models are ubiquitous in the literature, research on consumer acceptance of Product Service Systems is scarce and the potentials have not been contested in scientific studies.

Previous research suggests that in order to promote the uptake, development and implementation of service-based business models, further research focusing on attitudes among individuals towards specific product groups is needed. In a recent report on the topic of challenges associated with the implementation of service based, circular economy initiatives, De Jong, Engelaer and Mendoza (2015) further highlighted the importance of obtaining customer insight and understanding early in the development of successful service-based business models.

The focus of this thesis is put on consumer acceptance of offers based on PSS typology of the particular product group of household furniture. The purpose of the research is to assess consumer acceptance of home furnishing PSS particularly targeting the B2C market upon which a mixed-methods approach was deemed fruitful. In the primary stages of the research qualitative components consisting of expert interviews with professionals and academics combined with an in-depth review of PSS typology literature were conducted in order to develop realistic business scenarios. Second, a quantitative study was conducted where factors conditioning acceptance of PSS offers were tested on consumers ($n = 87$) through an online questionnaire combined with an in-store, semi-structured questionnaire. Factors found to affect consumer acceptance of service offers were synthesised from literature relating to PSS as well as consumer behaviour. By maintaining a customer-centric approach, this thesis therefore examined how consumers, retailers and researchers perceive two innovative business approaches including customer-related difficulties in implementing the concepts.

Two business scenarios adapted to the product group of household furniture were proposed, namely; a take-back service as well as a furniture renting/leasing service. The former concept is motivated by its potential to enable businesses to recover products and materials and thereby enable appropriate end-of-life treatment of these products and materials (e.g. redistribution, refurbishment, remanufacturing, recycling) which in the long-term could lead to reduced use of raw-materials. Customer related benefits with take-back services includes the potential of creating additional value. Furniture is often of relatively “bulky” nature and therefore often difficult to transport and discard. By facilitating the process of discarding products and enabling customers to partake in the process of selecting most appropriate end-of-life treatment, a company could enhance brand image while at the same time facilitate and enable consumers to discard of products in the most environmentally efficient way. Furthermore, take-backs has the potential of reducing responsibilities and costs for the customer in the product end-of-use/disposal phase. However, offering a take-back service without supporting renting/leasing schemes should from an environmental perspective not be seen as a definite long-term solution as it does not necessarily reduce consumption nor does it guarantee that products are actually returned at their end-of-life but should rather be perceived as a step in the right direction.

In terms of consumer acceptance of furniture take-back services, it should be noted that since the consumer has the intention of rejecting the product, a take-back offer only adds an additional disposal option and does not affect consumption patterns for the individual consumer. Offers that alter with the way consumers traditionally consume products supposedly have a lower acceptance rate than offers that do not alter the way in which we consume or have access to the product. The evaluation of survey results showed that stated acceptance of returning products at end-of-life was relatively high among the sampled consumers and convenience was found to be the most important factor conditioning acceptance of furniture take-back. Convenience in relation to furniture take-back here relates to some type of pick-up service.

The second proposed business scenario involved both short-term renting and long-term leasing of household furniture. In comparison to the previously presented scenario, a leasing scenario offers higher environmental sustainability potential. The scenario naturally creates motivation for the service-provider to design and produce durable product with high quality that are easy to disassemble, recycle or refurbish and thereby prolong material and product life-times. Due to the possibility of distributing the product to more than one consumer further has the potential of prolonging product-life-times. Naturally, the service-provider maintains ownership of products and the value inherent in those products. Due to this ownership, the service-provider can choose when to remove the product from the leasing

scheme and on to further processing. Since ownership of products is maintained by the service provider, incentives to design for durability so as to prolong product life-cycles are naturally created. Leasing and renting has the ability to deliver functionality and customisation better suited to customer needs, restructuring of cost, release from liabilities and risks of asset ownership (Baines et al., 2007). A shift towards business models focusing on services could further entail higher flexibility for consumers, allow for less ownership of products and can enable the use of expensive products without high initial expenses (Baumeister & Wangenheim, 2014).

First, there was a considerable difference in terms of stated acceptance towards long-term and temporary leasing. When furniture needs are only temporary such as while studying, displacing for a temporary work contract, stated consumer acceptance was considerably higher. Regarding period of lease, the stated behaviour intention corresponds with the stated attitude in the sense that acceptance of leasing is suggested to be higher when consumer needs of furniture are temporary. A conclusion that can be drawn from the current study is that ownership of goods is still important to many consumers and hinders the acceptance of PSS. It should also be noted that scepticism about adding additional payments monthly was frequently mentioned and perceived level of convenience of the leasing offer was low.

The present study can be of interest to academics and practitioners interested in innovative approaches towards sustainable production and consumption. Academics and research communities that are seeking to advance their knowledge concerning the implementation and diffusion of innovative business models and PSS targeting the B2C market, might further find value in this research. Companies that are investigating the feasibility of product take-backs or transitioning to a business model with leasing and renting at its core are recommended to ensure that the offer provides a relative advantage compared to alternatives. In relation to leasing, as a starting point, this business concept was deemed particularly interesting for furniture that is only needed for customer segments that have temporary furniture needs such as students, expats, temporary contract workers etc. Seasonal furniture is also an interesting arena to explore and finally, examples of successful real life business concepts within baby/children products (pram, clothes) suggests that furniture designed for babies/children could carry great potential for PSS business models.

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Abbreviations

| | |
|-----------------|--|
| CE | Circular Economy |
| CO ₂ | Carbon Dioxide, a greenhouse gas |
| B2B | Business to Business |
| B2C | Business to Consumer |
| CBM | Circular Business Model |
| EMF | Ellen Macarthur Foundation |
| EOL | End-of-life |
| EPR | Extended Producer Responsibility |
| EU | European Union |
| IIIIEE | International Institute for Industrial Environmental Economics |
| IPCC | Intergovernmental Panel on Climate Change |
| OECD | Organisation for Economic Co-operation and Development |
| PBC | Performance Based Contracting |
| PSS | Product-Service System |
| SLA | Service Level Agreement |
| TCO | Total Cost of Ownership |
| UNEP | United Nations Environment Program |
| WWF | World Wildlife Fund |

Glossary of Terms

| | |
|--------------------------------------|---|
| Attitude: | An attitude is a learned predisposition to behave in a consistently favourable or unfavourable way with respect to a given object (Fishbein & Ajzen, 1975, p.6). |
| Attitude-Behaviour Gap: | A discrepancy between stated attitude and actual behaviour |
| Business Model: | A business model describes the rationale of how an organization creates, delivers, and captures value (Osterwalder & Pigneur, 2010, p.14). |
| Circular Economy (CE): | An industrial system that is restorative or regenerative by intention and design. It replaces the end-of-life concept with restoration, shifts towards the use of renewable energy, eliminates the use of toxic chemicals, which impair reuse and return to the biosphere, and aims for the elimination of waste through the superior design of materials, products, systems and business models (EMF, 2013, p.22). |
| Consumption: | Individuals or groups acquiring, using and disposing of products, services, ideas or experiences (Arnould et al, 2002, p.5) |
| Leasing: | Provider maintains ownership of products and used only by a single user (Tukker 2015). |
| Perception: | The process, by which an individual selects, organises and interprets stimuli into a meaningful and coherent picture of the world (Schiffman, Kanuk & Hansen, 2012, p. 159). |
| Product Service System (PSS): | A system of products, services, supporting networks and infrastructure that is designed to be: competitive, satisfy customer needs and have a lower environmental impact than traditional business models (Mont, 2004). |
| Renting: | Provider maintains ownership of products but is sequentially used by other customers (Tukker 2015). |
| Service: | A service is an activity or series of activities of a more or less intangible nature that normally, but not necessarily, take place in interaction between the customer and service employees and/or physical resources or goods and/or systems of the service provider, which are provided as solutions to customer problems (Grönroos, 2007). |
| Service Envy: | Making people desire services more than products (Botsman & Rogers, 2011, p.111). |
| Sustainable Consumption: | The use of goods and services that respond to basic needs and bring a better quality to life, while minimizing the use of natural resources, toxic materials and emissions of waste and pollutants over the life-cycle, so as not to jeopardize the needs of future generations”(Oslo Roundtable, 1994). |

1 Introduction

This Chapter introduces the research topic and significance of this thesis with focus on the need for the development of innovative circular business models within the furniture industry followed by a justification of topic choice; aim of thesis and defined research questions. Last but not least, this introduction includes a description of the scope and limitations as well as the proposed target audience of this paper.

1.1 The Sustainability Challenge

Current trends of increasing global demands for goods and services in combination with ever more wasteful consumption and production systems is leading to resource depletion, pollution, waste generation and put enormous pressure on the support systems that earth provides humans on earth.¹ Noticeably, current systems are not developed for sustainable development. We now have to face the dangers of the irreversibility of harmful effects and realise that the environmental limits that we once thought were non-existent are not extensible to eternity. A recent reminder spread mid-August (2015) when world overshoot day had been reached and nature's budget for carrying capacity has been overdrawn by humanity (WWF, 2015).

The Organisation for Economic Co-operation and Development (OECD) (2012) has clearly stated that a transition towards greener growth is needed in order to avoid serious negative impacts on socio-economic and environmental development (OECD, 2012). The world population is projected to reach 9 billion people by 2050. This in combination with demographic shifts, where an increased amount of people are expected to acquire higher material living standards with evolving consumption patterns as a result will have significant consequences on the environment and the services it provides (UNEP, 2012). Concurrently, the global warming target of staying below 2°C above pre-industrial levels requires nations and industry globally to reduce greenhouse gas emissions (GHG) by a total of 40-70 percent by 2050 (relative to 2010 levels) (IPCC, 2014, p. 82). Commonly agreed upon solutions to these challenges are, what seems to be, imaginary. However, several nations and governmental bodies around the world have in response to predicted challenges, communicated the need for more stringent legislation, policy measures and industry initiatives that promote sustainable consumption and production patterns as well as a transition to a low-carbon and climate resilient economy.²

Many urgent issues will need to be tackled for a more sustainable future. Energy systems, food supply systems, production systems and consumption patterns will all have to undergo significant changes in order for us to avoid serious social and environmental crises (UNEP, 2012). Promoting sustainable and responsible consumption, greener lifestyles and resource preserving behaviours among consumers is one of the most significant contributors to sustainable development. This can be achieved through education, demonstration of good practices as well as developing more sustainable offerings and business models on the market. Focusing on the consumer sector, which has been identified as an important pathway for advancing sustainable development, the message is clear, appropriate stimulation targeting consumers demand for environmentally sustainable products and services needs to be

¹ Decision No 1386/2013/EU of the European Parliament and of the Council of 20 November 2013 on a General Union Environment Action Programme to 2020 'Living well, within the limits of our planet.'

² For example: Global 10-year Framework of Programmes on sustainable consumption and production; EU Sustainable Consumption and Production and Sustainable Industrial Policy Action Plan {SEC(2008) 2110} {SEC(2008) 2111}. The EU 20-20-20 Energy and Climate Package, The UK Low Carbon Transition Plan (LCTP). Environmental Action Programme (7th EAP).

developed in order to raise consumer awareness and promote sustainable consumption (OECD, 2012). A changing policy landscape and evolving awareness will also have an impact on industry and the business as usual scenario.

In the 7th Environmental Action Programme (7th EAP) of the European Union (EU) which entered into force in January 2014, a long-term vision of “living well, within the limits of our planet” is promoted.³ In this ambitious piece of legislation, highlight is put on the promotion of resource efficiency and the circular economy. The report also identifies that many companies sit on an underutilised efficiency improvement potential (7th EAP). Concepts and approaches such as cleaner technologies and production, recycling, waste minimization and design for sustainability have previously been developed to address this unused potential, decrease costs, tackle unsustainable consumption and decrease environmental impacts of operations. Nonetheless, as the 7th EAP maintains, the case of inherent unused potential for resource efficiency within the business community prevails. This abeyant source, increased societal concern for the environment and increased competition has more recently given rise to, circular and so called regenerative systems of doing business.

1.2 The Circular Business Approach to Sustainability

The common “linear” business practice will be increasingly costly and unsustainable as resource scarcity, price volatility and greater environmental awareness among consumers intensifies. As a result, progressive and future oriented organisations have started to explore solutions and business models that are better adapted for upcoming challenges. In contrast to the linear “take-make-use-dispose” mentality where fast replacement of goods and profit maximization through volume sales is the norm, business models that promote sustainable consumption, circularity and longer and more efficient use of products as well as materials through reuse and access-based consumption have started to emerge.

The previous mentioned circular economy is a concept advocated as an alternative for tackling unsustainable consumption and production patterns by policy makers, business and research organisations.⁴ Potentially the largest influencer towards a circular economy within the business community; The Ellen McArthur foundation, has defined the circular economy as “an industrial system that is restorative or regenerative by intention and design” (EMF, 2013, p. 22). It is a concept that pertains to the idea of adopting cleaner technologies, minimizing waste and its impact on the environment as well as minimizing the use of virgin materials for economic activity (Schulte, 2013).

From a firm perspective, the key issue in a circular business model is to maximize life cycle efficiency by keeping the added value in product for as long as possible, eliminate or turn waste into resources and close material loops (Tukker, 2013). In a circular system, cycles for disassembly and reuse are enabled through optimized product design (Schulte, 2013) so that consumed materials can be considered as nutrients in interlinked usage cycles (EMF, 2013). Repair, maintenance and refurbishment services, re-use, sharing platforms, and product service systems are examples of activities that fit well within the business framework of the circular economy and identified as fundamental building blocks towards regenerative forms of consumption (Planing, 2015; EMF, 2013; Schulte, 2013). These business models may support

³ This entails (1) biodiversity protection, (2) low-carbon growth decoupled from resource use, (3) sustainable resource protection and waste elimination through innovation and a circular economy (Decision No 1386/2013/EU of the European Parliament and of the Council of 20 November 2013 on a General Union Environment Action Programme to 2020 ‘Living well, within the limits of our planet’).

⁴ The Ellen McArthur Foundation, European Commission, China – The Circular Economy Promotion Law.

businesses to find new venues of competitiveness while resource related risks and future costs related to increased legislative stringency potentially can be reduced.

| | Characteristics of a linear economy | Characteristics of a circular economy |
|--------------------------------|---|---|
| Attitude towards nature | Forcing nature to produce more | Doing more with what nature can produce |
| Attitude towards production | Take, make and waste | Reduce, reuse and recycle |
| Closing loops | One lifetime use products, components, materials and energy | Materials and energy flow infinitely in cycles through the economy |
| Product life extension | Products become obsolete while they are still useable | Product life is extended in new applications or products serve as valuable inputs for other products |
| Performance economy | Consumers buy goods | Accessibility and performance instead of ownership are leading in many consumption markets. Consumers increasingly share products |
| Earnings model | Producers determine sales price of products | Producers charge price for the use of the product |
| Multiple values and principles | Money is the value in business models | Business models are based on multiple values (financial alongside environmental and social values) |
| Supply chain | Companies improve efficiencies in isolation of each other | Companies work together to increase value along the supply chain. Risk and benefits are shared upstream and downstream |

Figure 1-1. Circular Economy Approach

Source: Adapted from ING (2015).

Often mentioned in relation to circular business models is the concept of product service systems (PSS) defined as “a system of products, services, supporting networks and infrastructure that is designed to be: competitive, satisfy customer needs and have a lower environmental impact than traditional business models” (Mont, 2004, p.18). The concept has grown along with increased interest in leasing, renting and sharing, often motivated by the fact that a transition from selling the benefits of a product rather than the actual product has the potential of creating incentives for companies to design for longevity, repair, recycling and remanufacturing, all of which could entail reduced material throughput and improved overall environmental performance (Preston, 2012). When products used as part of a service business model need repair, remanufacturing or refurbishment, they can be withdrawn from the customer, treated and then reused within the scheme until they have reached their end-of-life (Catulli et al., 2013). Hence, PSS offers the possibility to reduce environmental impacts by diminishing resource consumption, raw material extraction and waste generation and has the potential of fundamentally contribute to challenges related to waste prevention and increase resource efficiency (Fischer et al., 2015). It also provides companies with possibilities to develop new and prolonged relationships with consumers, better adapt to their demands and thereby create a competitive edge.

Trends of service-oriented economies are expected to further evolve and lead to a structural shift in the business and consumer community in many parts of the world by 2050 (OECD, 2012). Large-scale diffusion of product service systems and models of access-based consumption have further been advocated by UNEP (Manzini & Vezzoli, 2005) because of their potential to reduce negative environmental impacts of economic activities (Catulli, 2012; Mont, 2001).

1.3 The Home-Furnishing Industry

This thesis chooses to explore circular business approaches in the furniture sector. Different opportunities for improving resource efficiency, creating new ways to prolong relationships with customers and reduce material costs within the consumer goods sector have been proposed by authors both within the product services and circular economy literature.⁵ One of these is the furniture industry due to a number of factors. First, the furniture industry is marked by labour and resource-intensity and high competitiveness prevails within the EU (EC, 2014).⁶ Changes in availability of raw-materials, higher energy costs, rising prices due to competing demands (e.g. the bio-energy sector) (Renda et al., 2014) has further increased challenges for furniture producers and retailers to maintain volume sales and stay competitive. The increasing availability of cheap and low quality furniture further facilitates high volumes of consumption and waste generation due to shortening lifetimes of furniture products, which in turn increases negative environmental effects. The efficient reprocessing of materials through closing of material loops could eradicate risk associated with resource price volatility and availability, eliminate costs associated with waste which have increased significantly in recent years due depletion of incineration and landfill capacities in many regions (Thierry et al., 1995). Furthermore, furniture (including mattresses) is made from a variety of materials including: wood 64%; metals 11%; textiles 4%; latex foam 1%; polyurethane foam 4%; other 15%, many of which can be recycled (Upstream, 2015). The reprocessing of materials and products could further increase planning possibilities and most importantly, improve overall environmental performance (EMF, 2013). The latter of which, has been found to be high on the agenda among European furniture producers and retailers (Renda et al., 2014).

Second, the characteristics of furniture include shortening life spans due to decreasing production cost where environmental impacts generally are minimal during the use phase but high during the production and disposal phases (EC, 2014). Hence, furniture retailers and producers could significantly decrease their environmental footprints by prolonging product lifespans as well as improve the efficiency of consumption through sharing/leasing and renting schemes, particularly so since the replacement of furniture currently often happen before the technical end-of-life has been reached (WRAP, 2011). Prolonging the lifespan of furniture rarely implies inefficiencies due to technological progress as in most cases, the user phase of furniture is not associated with, for instance, energy consumption. The competitive state of the furniture market as well as the safeguarding of sufficient and cost-efficient volumes of raw materials require retailers and producers to maintain high levels of service and convenience. In relation, consumer concern about the environment has a tremendous potential to affect the wood products industry in general (Ozanne & Smith, 2007).

Third, in terms of consumption and disposal, estimated figures of furniture disposal has showed that in the UK alone, 10 million items of furniture are discarded every year (Curran, 2008) which entails that there is considerable amount of potential for more sustainable consumption and production practices. A transition to a service oriented business model could facilitate satisfactory management of all of the above issues while at the same time decrease the negative environmental impacts of production and disposal.

On a final note, it should also be mentioned that with the ambitious goals that the EU has set for a more resource efficient and circular economy within the Union there is reason to expect

⁵ See Tukker & Tischner (2006), EMF (2013) for further elaboration.

⁶ Decreasing average living space in the EU is further believed to lower demand for furniture and thereby increase competition (RAM, 2014).

more stringent extended producer responsibility (EPR) policies within the union. EPR makes manufacturers increasingly responsible for the reclamation and disposing of end-of-life products (EOL) (Atasu & Van Wassenhove, 2010). EPR schemes regulated on a European level already exist in a number of product categories such as electrical and electronic equipment, packaging and end-of-life-vehicles (Monier et al., 2014). Countries such as France have further implemented schemes not mandatory on EU level in a number of product groups including but not limited to office equipment, household hazardous waste, healthcare waste and more interestingly, furniture (Upstream, 2015). Currently a study of the potentials and need for redesign of the current extended producer responsibility (EPR) policy framework within the EU is undertaken. In the newly released executive summary, arguments for the expansion to include furniture in more countries are included. If more countries adopt EPR schemes for more products including furniture, additional carrots for implementing product service schemes (including product take-backs) arises for furniture producers and manufacturers as costs related to waste will increase.

1.4 Problem Definition

Previous research suggests that in order to promote the uptake, development and implementation of service-based business models, further research focusing on attitudes among individuals towards specific product groups is needed (Lee et al., 2015; Baumeister & Wangenheim, 2014; Rexfelt & Hiort af Ornäs, 2009). In a recent report on the topic of challenges associated with the implementation of service based, circular economy initiatives, De Jong, Engelaer and Mendoza (2015) further highlighted the importance of obtaining customer insight and understanding early in the development of successful service-based business models. Many authors argue that despite the large number of articles within the field of PSS, consumer behaviour in the context of PSS is “underresearched” (Schenkl, Rösch, & Mörtl, 2014; Rexfelt & Hiort af Ornäs, 2009; Mont, 2004 to name a few).

In this paper, product service systems are perceived as one of the cornerstones for companies to adopt circular business models and in the shift towards a wider adoption of circular business models among producers and retailers, consumer behaviour will play an important part (Planing, 2015). While the author recognises the large body of literature conducted on the potential of product service systems on the B2C market, the author found, as supported by Mont and Plepys (2003) and Baines et al., (2007) that few empirical studies with focus on the consumer perspective have been conducted. Particularly so with regards to the product group of furniture, where to the author’s best knowledge, only one study has been conducted; that of Katrin Besch (2005) who in her study focused on applicability of office furniture within the B2B market. No studies focusing on the feasibility of PSS and household furniture or consumer attitudes towards furniture PSS was found among peer-reviewed journal articles scanned for the purpose of this study. Hence, a research gap exists that supports the need to develop a better understanding of the applicability of PSS considering consumer attitudes for the energy and resource intensive product group of household furniture.

With this context in mind, this thesis explores consumer acceptance of home furnishing PSS with the aim of contributing to valuable knowledge for those seeking to develop innovative business models that enhance circularity and resource efficiency while at the same time increase customer value. Evaluating consumer attitudes towards furniture PSS may provide the industry with knowledge important for circular business model development that promotes the extension of furniture lifetimes, decreases superfluous consumption and provides environmental improvement for all. A better understanding of consumer attitudes also contributes with knowledge important for customer value creation and new possibilities for revenue creation that promote sustainable consumption.

1.5 Objective and Research Question

The purpose of this research is to assess consumer acceptance of home furnishing PSS particularly targeting the B2C market. By maintaining a customer-centric approach, this thesis examines how consumers, retailers and researchers perceive this innovative business approach and what customer-related difficulties in implementing the concept they foresee. The following research questions have been formulated with the objective to fulfil the aim stated above:

- I. What is the general acceptance of consumers towards take-back and leasing oriented business offerings of household furniture?
- II. What factors are important for the conditioning of consumer acceptance of proposed business offerings?
- III. How could the proposed business offerings add more value to consumers compared to traditional product systems?

1.6 Key Assumptions, Limitations and Scope

In this thesis an attempt to answer the above questions by examining consumer attitudes in the UK and Sweden is made. As hypothetical examples, two different household-furniture PSS schemes were modelled with data collected through interviews with business professionals and researchers in Europe who have knowledge about PSS and circular business models.

Several limitations that may have affected the outcomes need to be taken into consideration when discussing the reliability and applicability of the results. First, this thesis maintained a consumer-centric approach towards product-service systems underlining that although a PSS can be applied in both B2B and B2C settings, this thesis only focuses on the latter. It has been acknowledged that a need for considerations and modifications towards product design, operational strategy, internal processes and supplier relationships in order for PSS business models to be optimised and successful.⁷ However due to the scope of this thesis, these details were disregarded in the empiric tests.

The research also departs from, and assumes that product service systems have a tendency for a lower environmental impact in comparison to traditional product sales models under the condition that internal processes, product design, recycling facilities, refurbishing methods and extended life cycles are at optimal levels. Hence, assuming that by implementing business models that build on products as services organisations have the possibility to move towards a financially prosperous future while at the same time contribute to decreased risk related to projected environmental complications.

The investigation was limited to a randomly selected sample of consumers in Sweden and the UK which possibly limits the generalisability of the findings. Particularly to individuals not residing in the EU countries. The study was conducted during a very limited time frame and during the general holiday season from June 2015 until September 2015, which may further have affected the randomness of the sample of the consumer surveys.

Due to time and resource constraints, this thesis examined stated preferences. An investigation between stated and revealed preferences towards the hypothetical business

⁷ For further information and comprehensive literature reviews of respective PSS research focus areas, please see Boehm and Thomas (2013), Reim, Parida and Örtqvist (2015) and Tukker (2015).

models would most likely have led to more comprehensive results and higher validity. However, in order to overcome some of these limitations, the surveys were developed with methods for increasing validity of attitudes as a predictor of behaviour in mind.

Collection data through interviews may also have some limitations. Regardless of affiliation, interviewees have different organisational and personal interests that affect their responses in a way that entails a one-sided view of the respective respondents' opinions. This potential bias was acknowledged by the author and was the underlying reason for interviewing different types of "experts". The availability of industry professionals and academics due to the timing of the thesis (summer holidays) was also affected and limited the number of interviews conducted for the purpose of this thesis. Ideally, a more substantive effort of interviewing academics and business professionals as well as a larger sample for collecting consumer attitude related data could boost the robustness of the conclusions.

Finally, due to the interest of PSS in this thesis being its potential to decrease environmental impact, close material loops, prolong product life time and promote the transition to a circular economy, mainly articles with the same assumption and mind-set were investigated. The author is, however, mindful of the large body of literature more widely associated with PSS and servicizing, although falling outside the focus of this review, may be translated into a useful contribution to the current research activity.

1.7 Audience

The present study is intended for academics and practitioners interested in innovative approaches towards sustainable production and consumption. Academics and research communities that are seeking to advance their knowledge concerning the implementation and diffusion of innovative business models and PSS targeting the B2C market, might find value in this research. The research presented in this thesis might also be of interest to companies that consider shifting from traditional sales to product service systems and functional sales. The research identified drivers, barriers and opportunities that might contribute to better insight and understanding of consumer behaviour in relation to PSS. In sum, the findings in this thesis cover a research gap in the academic sphere and can function as a key tool in informed decision-making.

1.8 Ethical Considerations

This study was commissioned by the IKEA Group Sustainability, Retail and Expansion based in Helsingborg, Sweden. The team had requests concerning the topic of the thesis (PSS) and suggested the scope of the study in terms of what consumer markets to investigate. Some advice related to the survey design was also provided by the company. However, the remaining parts of the research including: problem definition, research questions, additional scoping, research methodology, and analysis, were developed and conducted independently by the author. Regarding the data collection, IKEA provided the opportunity to do an in-store questionnaire which was conducted by the author herself. Hence, the author of this thesis collected all primary data autonomously.

In-Store Survey

The consent to use data collected through the in-store questionnaire was obtained from the participants, who were informed about the prospective use of the information and goal of study and thereafter had to explicitly express their willingness to partake in the survey and were free to say no. Although the participants were informed about the study and what was asked for in the survey, the underlying behavioural factors were not explained to the participants in order to avoid biased answers. The participants were selected randomly as they

were leaving the store or waiting for customer service. Exceptions were made for individuals that appeared younger than 18 as well as individuals that the author deemed as “vulnerable” were not approached.⁸ The data obtained through interaction with the participants was made anonymously in order to protect the participants’ right to privacy. Moreover, both surveys excluded questions that could bear private information.

Web-based Questionnaire

As with the in-store questionnaire, individuals responded to the questionnaire out of free will. The introduction text in the survey included an explanation of the purpose of the survey as well as procedures to be followed while completing the questionnaire and their purposes along with information about confidentiality. Respondents completed the questionnaire anonymously for personal integrity. Hence, sensitive information could not be assigned to any particular individual.

Interviews with Industry Professionals and Academics

Many of the interviewees expressed a desire that their names and names of specific projects and company details should not be explicitly stated. Hence, in order to maintain confidentiality and anonymity of the respondents, the findings from these interviews were summarised in a generalised form. Furthermore, the author made every effort possible to only obtain data and aspects that were necessary for the answering of the research questions. All interview data was collected by the author.

1.9 Disposition

The first Chapter presents the introduction and significance of this thesis. It focuses on the need for more sustainable and regenerative means of production and consumption with special attention towards the household furniture industry. This is followed by a justification for the chosen topic and a specification of the research aim, problem definition and research questions. The last part of the chapter includes a description of the scope and limitations followed by recommended target audiences of this thesis.

Following a description of the research methodology in Chapter 2, the main body of the thesis is divided into three parts.

Chapter 3 presents the main body of reviewed literature. First, it provides a background and explanation of the concept of Product Service Systems based on mainstreamed, well-cited and contemporary academic literature. It further provides a general overview of the benefits, potentials, prerequisites and challenges with PSS. This is followed presentation of the main empirical findings from furniture and furniture consumption related literature. Finally, a review of previous literature on consumer acceptance of PSS, inter alia, consumer attitudes and behaviour is presented.

Chapter 4 presents the findings obtained from semi-structured interviews conducted with industry professionals and academics. The latter part of Chapter 4 presents the scenarios for furniture PSS derived from the findings presented in the same section.

Chapter 5 presents the main consumer related findings obtained through the two surveys.

In the first part of Chapter 6, the findings from the surveys were analysed based on the factors identified in relation to each scenario. Secondly, the barriers and drivers related to attitudes

⁸ People of very high age or with disabilities such as dementia or mental health problems.

and perceptions towards the two scenarios are analysed. To sum up, the two original PSS scenarios presented in Chapter 4 are analysed in their own right and adjusted according to the previously presented consumer findings. This is followed by a general discussion of the findings and reflections about the research.

Finally, in Chapter 8, concluding remarks and suggestions for future research are presented.

2 Research Methodology

In this chapter, the methodology used to guide the research is presented. A description of the overall research structure and an explanation of the data collection methods, selection of PSS schemes, as well as data analysis are further elaborated upon.

2.1 Research Approach and Overall Structure

This thesis relied on both qualitative and quantitative approaches of data collection. The qualitative aspects aimed at investigating suitability of ideas and issues for empirical investigation (PSS scenarios), examined through the chosen methods for data collection (Flick, 2006) which in the case of this thesis include interviews with industry professionals and researchers within the field of PSS and circular economy. The quantitative dimension of the thesis, aimed at identifying attitudes among consumers towards the PSS scenarios derived from the qualitative methods of data assemblage. The mixed-method approach allowed for the author to confirm and discover issues relevant for the topic and enhanced insights necessary for a comprehensive understanding of consumer perceptions of PSS constructs. The adopted research design is based on five main steps (see Figure 2-1):

Part 1 – The first part of the thesis included a desk-top study of (1) previous research within the field of PSS (see Chapter 3) in order to describe the conceptual background of PSS as well as to advance the author's understanding of PSS. (2) Literature relating to furniture consumption was also reviewed in order to identify product specific aspects necessary to take into consideration when formulating household furniture PSS scenarios (presented in Chapter 4). (3) PSS literature relating to consumer acceptance of PSS in order to reveal factors that condition consumer acceptance of PSS and to develop a construct on which the consumer surveys could be based upon (Chapter 4). Due to the rather limited focus on consumer attitude and acceptance within the PSS literature, the author in addition, briefly visited marketing and psychology literature of the complex phenomenon of consumer behaviour.

Part 2 – In parallel to the desk-top study, two provisional scenarios for PSS (product- and use oriented) of household furniture were developed by integrating general PSS characteristics from the literature and information on product specific circumstances and attributes of furniture (see Chapter 4) collected through discussion with academics and industry professionals. The interviews were conducted with the purpose of refining the provisional PSS scenarios with high practical relevance for the household furniture industry. The scenarios served as a basis for discussion but were also tested from a business feasibility and market acceptability perspective. This was deemed important prior to testing consumer perceptions. The scenarios had an important function for the succeeding empirical part (part 3) of the research.

Part 3 – The collection of quantifiable empirical data from consumers was necessary in order to identify consumer perceptions and attitudes. The scenarios guided the question development of the surveys and were used as an approach to contextualise the respondents' attitudes and elicit contextual feedback from consumers.

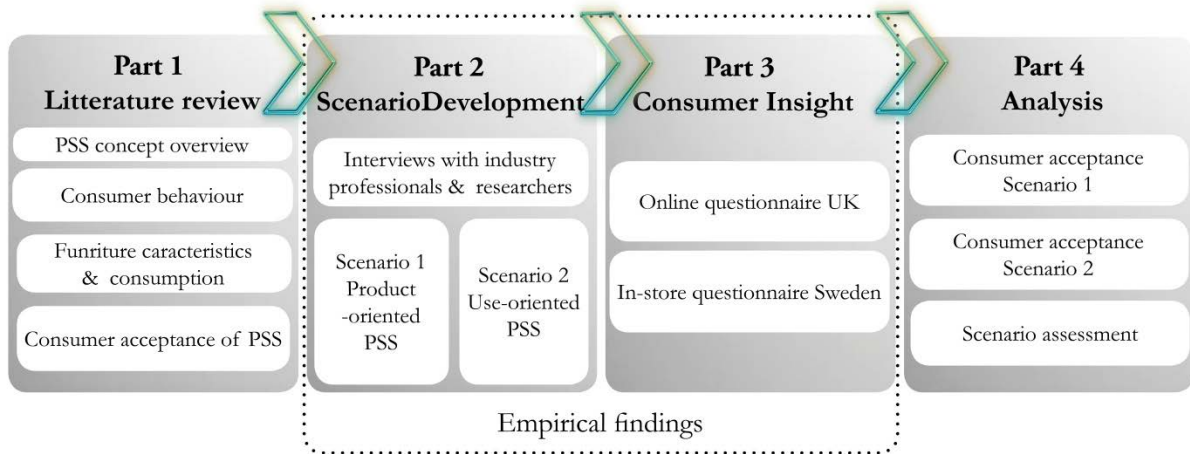


Figure 2-1. Research Structure

Source: Authors own creation

Part 4 – In the last step of the research, the collected information from the literature review, interviews with researchers and industry professionals as well as the consumer surveys were analysed. Barriers and drivers related to consumer perceptions were identified and examined and opportunities for the implementation of household furniture PSS were evaluated (see Chapter 5). The primary PSS scenarios were then adjusted according to the results from the surveys.

2.2 Methods for Data Collection

In order to give an answer to the research questions outlined in this paper, four types of data collection methods were performed. Literature review, interviews with industry professionals and academics as well as two consumer surveys are explained in the subsequent sections.

2.2.1 Literature Review

A brief overview of marketing and sustainability oriented academia in the initial stages of the research, revealed that a myriad of concepts related to services has been proposed as means of approaching sustainable consumption, including, but are not limited to, eco efficient (producer) services (Bartolomeo et al., 2003), access-based consumption (Bardhi & Eckhardt 2012), functional sales (Stahel, 1997) product service systems, or PSS (Tukker 2004; Mont 2002).⁹ The latter was found to offer the best articulated taxonomy for the purpose of this paper.

An extensive amount of literature was reviewed (during two different stages of the research process) to obtain a systemic view of the complex phenomenon under study. First, in order to advance the understanding of and to construct a valid foundation for the scenarios of PSS, empirical literature of earlier research in the field of was reviewed. Simultaneously, literature relating to furniture consumption was also collected in order to account of product-specific consumer behaviour. The second part of literature review focused on consumer acceptance of PSS, system innovation and consumer behaviour, which helped to better understand the issues shaping consumer preferences.

⁹ Please see Reim, Parida and Örtqvist (2013) for an extensive list of terms.

The search strategy was developed by first identifying relevant peer-reviewed data sources within the English-language domain and related keywords.¹⁰ Expected quality and accuracy of the data, contemporary value as well as the limited time available for data collection determined the final synthesis of existing studies and lead to the development of insights that were of high value in the research process, development of PSS scenarios for home furnishing as well as for the development of the consumer surveys.

2.2.2 Interviews with Industry Professionals and Academics

One important aspect of this research included the disposition towards generating findings that would deliver utility to industry and minimize discrepancies between theory and practice. Hence, the qualitative data component in this research included semi-structured interviews with academics and professionals with insight and knowledge of various PSS concepts. In total, eight interviews were conducted during the period from June 8th to August 18th 2015. The interviews with industry professionals were designed as to gain a better understanding of how the businesses operated, the market for their activities, their core customers as well as challenges and opportunities for the businesses to grow and become more accepted among consumers. The interviews with academics on the other hand, focused on the theoretical applicability of PSS to the home furnishing market. Due to scope and relevance issues, the geographical spread of the interviewees was limited to Europe. The questionnaire guide is presented in Appendix 5. The bibliography includes a list with all interview partners as well as an interview guide in English. The Swedish speaking interviewees received the same questions in Swedish. Consideration for interviewees being under considerable pressure for time was taken into account when planning the interview guide and the process of designing questions that were focused and of high relevance was a highly iterative process.

The insights collected through the interviews generated ideas for the scenario development and design but also to validate, adjust and refine two potential PSS offers adapted to the product group of household furniture. The interpretation of data was facilitated through qualitative content clustering. Answers were interpreted, analysed, coded (product attributes, consumer attributes, financial attributes, environmental attributes) and categorised within the two generic typologies of PSS - product-oriented and use-oriented PSS. In order to retain the anonymity of the interviewed companies and persons, the resulting findings did not include specific names and companies but rather presented as a general overview.

Scenario Development

When consumers' experiences with real industry examples are limited, the construction of scenarios facilitates the communication, imagination of a certain situation and ability to respond accordingly among research participants (Lindgren & Bandhold, 2003). Hypothetical scenarios have previously been used to elicit contextual feedback from research participants within the PSS research field (Rexfelt and Ornäs, 2009; Lawson, 2011; Armstrong et al, 2015).

In this study, two hypothetical furniture PSS scenarios (Chapter 4) were developed based on literature. First, tactics affecting the amount of value created in PSS business models developed by Reim, Parida and Örtqvist (2015) were influential to develop scenarios with practical relevance. Second, the author drew upon current industry examples that embodied aspects of PSS theory, as this would likely help participants better envision the researchers' intent with each scenario. Finally, inspiration was also taken from Osterwalder and Yves (2010) and their handbook of business model generation.

¹⁰ PSS, consumer acceptance, attitudes, perceptions, furniture consumption.

The interviews with experienced academics and industry professionals further facilitated the scope of the scenarios and supplemented with issues not precised in literature. Based on recommendations from the interviews, two scenarios for household furniture PSS were developed. Although several PSS offerings could be created for furniture consumer market, focussing on just two scenarios was deemed most appropriate for two reasons; in order to keep the surveys at a reasonable length and make the research manageable due to time and scope limitations. Arriving at the first draft of scenarios was an iterative rather than linear process meaning that the scenarios were continously develeoped, adjusted and refined. Again, in the later stages of the research the primary PSS scenarios were adjusted and refined according to the results obtained from the consumer surveys.

2.2.3 Consumer Surveys

In this thesis, emphasis is put on the acceptance of a market offer through an examination of the interpretation of that offer by consumers (Bryman, 2012). Similar studies have mostly used either focus groups or surveys as main data collection methods (Armstrong et al., 2015; Baumeister & Wangneheim, 2014; Lamberton & Rose, 2012 to name a few). A focus group is hallmarked by the use of the group interaction to yield insight and data that would be less accessible without the interaction found in a group and require major efforts recording, transcribing and interpretation. According to Flick (2006) their use only makes sense when research questions focus particularly on the social dynamics of generating opinions in a group. Hence in this study, the technique of collecting data through surveys was rather found most appropriate in the quest of obtaining descriptions of values, attitudes and habits among respondents (Fink & Kosecoff, 1998). Although the use of individual surveys potentially carries inherent limitations considering depth of answers, the attitude-behaviour gap is expected to be lower than if data was collected through focus groups as influence by other participants could be avoided. Furthermore, the author increased the depth of answers by combining a private, anonymous on-line questionnaire (UK) with anonymous structured in-store interviews (Sweden). The methods were complementary to each other and allowed for exploration of additional factors similar to what could be expected to obtain in focus group settings with the subtraction of potentially biased answers that group settings may carry. Besides, a survey method was deemed the most time efficient approach to obtain sufficient data relating to characteristics and beliefs of the population (May, 2001). Finally, focus groups were not deemed necessary as the literature on PSS and consumer acceptance of service offers provides a large amount of parameters found to affect acceptance and attitudes towards PSS. Hence, in order to identify main focus areas for the survey factors found to affect acceptance were derived from the literature rather than conducting focus groups.

In order to develop surveys that would deliver consistent, accurate and credible information, the construction process was largely influenced by Fink and Kosekoff (1998) as well as Fielder and Bourque (1995). In the latter parts of the survey development process, the surveys were pilot tested in respective language. Questions were checked for biases, confusing or misleading structure and language. Risk of misunderstanding the scenario descriptions was also pre-tested. The pilot tests also allowed the author to establish approximate time needed for completion of the survey. Finally, the author found it important to ensure high response rates which argued by Fink and Kosecoff (1998) can be improved through pilot testing since the identification of potential sources of difficulty (e.g. limited place to record answers and poorly worded questions) can be facilitated and effectively eliminated. The survey was iteratively improved. In total, 9 pilot tests of the UK survey and 8 pilot tests of the Swedish survey were conducted in a face-to-face interview setting with research colleagues and acquaintances of the author. After these interviews, no additional inconsistencies were identified.

The author was not able to collect sufficiently good data through the original target population (the UK) in terms of sample size and frame (explained in detail in the next section). In order to obtain further information about factors underlying consumer reasoning about PSS offers that were not sufficiently well addressed in the UK survey due to low response rates, the researcher developed a second similar survey, distributed personally in-store in Sweden. This approach also allowed for verbal communication with respondents in relation to completion of the questionnaires and more in-depth insight to consumer perceptions.

Although an extrapolation of the survey results to the entire population of each country was deemed inappropriate, the results were sufficient for an identification of perceptions and attitudes that needs to be taken into account when developing PSS offers on the B2C market. More specifically, the results shed light on consumer aspects and criteria that affect PSS business model development within the household furniture sector.

The total sample from Sweden and the UK combined mounted to 87 (41 in the UK and 46 in Sweden) respondents and a summary of general demographic information of respondents can be found in Appendix 4. Although some comparisons were made, the reader should remember that the author did not aim at juxtaposing consumer attitudes between the regions but rather widen the potential arrays of perceptions that consumers bare towards the two presented scenarios. As a final point, the content, length and structure of the two surveys varied. Therefore, the two forthcoming sections elaborate on the specific questions, and underlying behavioural variables of each survey.

UK

An internet questionnaire survey was conducted using a web-based questionnaire service, Sunet.se ®. The target sample included individuals that were citizens as well as residents of the UK at the point of distribution. Request letters were sent out asking consumers to participate in the survey by e-mail and spread through so called snowball sampling (Bryman, 2012), where participants proposed additional random participants fitting the target sample. In order to avoid duplicate answers, participants were unable to access and answer from the same IP address more than once. The estimated time for completion mounted to approximately 10 minutes and the questionnaire was distributed online. Because exact numbers of how many people came into contact with the questionnaire could not be identified, it was not possible to define a formal response rate. The period of the survey: 3rd August – 24th August 2015 (the original was 20th of August but additional requests were sent out in order to increase the number of responses, with the deadline up to 24th of August).

The survey contained 23 questions and answers were captured on five-point Likert scales using established items to measure perceptions, attitudes and in some cases the relationship between attitude and behaviour (see Appendix 5).¹¹ In addition to questions related to respondent specific attributes (gender, age, level of education, income, number of people in the accommodation as well as ownership status of accommodation) the survey covered a

¹¹ The survey was structured as follows: question 1 related to citizenship and current country of residence. If the answer was not the UK, the respondent was directed to a thank you message. Questions 2 to 4 tested behaviour such as general frequency of purchase, question 5-6 related to the first scenario and more specifically, attitude towards offer, behavioural intention towards offer, perceived convenience and perceived environmental-friendliness. A possibility to comment freely on the offer was also included here and the same option was included for the second scenario which questions 8-11 dealt with. Same factors were as with the first scenario tested here with addition to preference for non-ownership, product involvement, financial intention and risk. Question 13 to 18 identified demographic details of the respondents. Finally, the last eight questions consisted of environmental concern questions aimed at measuring general attitudes and not at specific environmental protection domains (Diekmann & Preisendörfer, 2003).

number of factors (described in Chapter 3) in order to construct a valid measure for acceptance.

Schrader (1999) describes acceptance as “the readiness to adopt a new product or service” (p.110) which can be understood as a condition between an attitude and “real behaviour. Allan Sik Hung, (1999) argue that in order to obtain a strong prediction, a measure of acceptance should be specific in four ways; it should include the product of reference, the action the individual wants to do with the product, the time the individual desire to do it, and the context. However, if attitude is measured without a measure of corresponding behavioural intention, only passive acceptance is measured (Schrader, 1999). Taking these aspects into consideration, the proposed framework recognises the interaction between attitude and behaviour intention towards two hypothetical offers (action, context, time), while also account for product specific aspects (furniture purchasing frequency and product involvement) and configuration of main conditioning factors for the acceptance of PSS offers as found in the literature (convenience, financial intention, risk and environmental-friendliness). Figure 2-2 below summarises the underlying factors that guided the survey design.

Attitude towards offer (scenario); An attitude is within the marketing literature often described as “a learned predisposition to behave in a consistently favourable or unfavourable way with respect to a given object” (Fishbein & Ajzen, 1975, p.6). This definition suggests that attitudes are learned (through experiences), are evaluative (unfavourable/favourable), have intensity (weak versus strong attitudes and are stable and consistent (do not tend to change much (Szmigin & Piacentini, 2015).

Behaviour intention; Relates to the individual’s intention to perform a given behaviour and is assumed to capture motivational factors that influence behaviour (Ajzen, 1991). By measuring behaviour intention, an indicator of how hard an individual is willing to try and how much of an effort he/she is planning to exert, in order to perform the behaviour can be obtained (Ajzen, 1991).

Perceived environmental benefit; has been surveyed in relation to consumer acceptance in a number of PSS articles (Armsrong et al., 2015; Baumeister, 2014; Rexfelt & Hiort af Ornäs, 2009 to name a few). Hence in order to enable a comparison towards findings in previous research, this factor was deemed important to include in the survey.

Convenience; this factor along with financial intention and risk were found after a thorough literature review to be reoccurring as major influencers of consumer acceptance (under the category of relative advantage) and were therefore included in the survey.

Financial intention (only use-oriented PSS)

Risk (only use-oriented PSS)

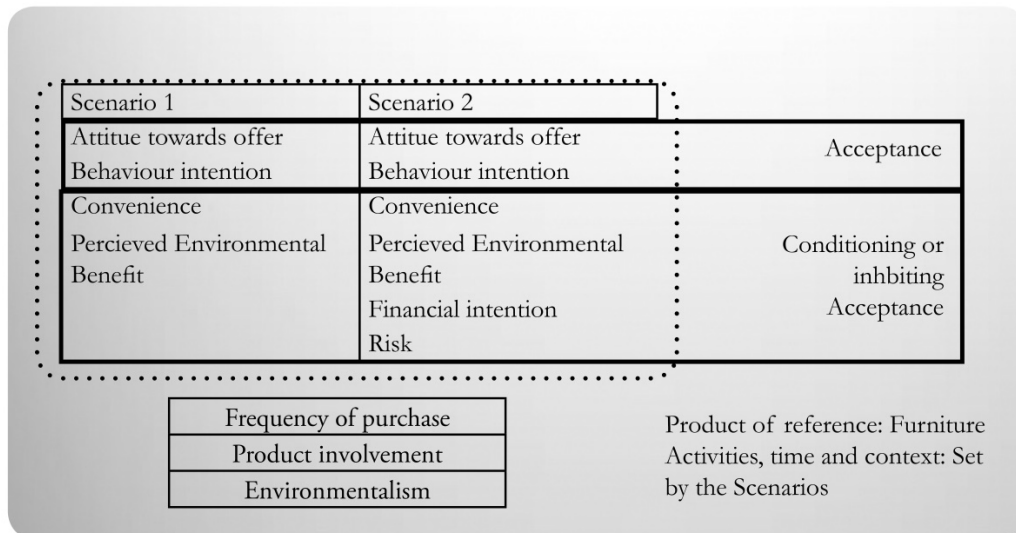


Figure 2-2. Underlying factors in survey

In addition, two factors were investigated for better understanding of consumer purchasing behaviour in relation to furniture and environmental profiling questions were included in order to investigate how individual environmental attitudes impact attitudes towards the two scenarios for better evaluation of communication strategies of PSS.

Frequency of purchase; was deemed an important product specific aspect, included in order to obtain a better view of purchasing patterns and consumer furniture needs.

Product involvement; was deemed an important product specific aspect, included in order to obtain a better view of purchasing patterns and consumer furniture needs.

Environmentalism; Two established scales were considered for inclusion in the survey: the well-known NEP scale, developed by Dunlap et al. (2000) as well as a model for measuring environmental concern developed by Diekmann and Preisendörfer (2003). The latter was eventually featured in the survey. The primary reason for not selecting the NEP scale was due to the length of the survey. The NEP scale contains a set of 15 questions aiming at measuring individuals' general awareness of the consequences of harming the natural environment, whereas the scale for measuring environmental concern consists of nine questions. Secondly, the latter better captures salient topics in contemporary public debate (Diekmann & Preisendörfer, 2003) which the author found most relevant for the purpose of this research. The environmental profiling questions concentrated on (self-reported) environmentally relevant behaviour. However the stated attitude of a person towards a contemporary phenomenon does not necessarily make them behave accordingly but has been shown to predict certain trends according to the developers.

Sweden

The second survey targeted consumer in Sweden through random sampling. The sample population was restricted to people in an IKEA store, in Helsingborg, Sweden on August 12th 2015. The questionnaire used in this survey differed in the sense that it contained much fewer questions: 13 (see Appendix 5).¹² In addition to questions related to respondent specific

¹² The questionnaire took approximately 3 minutes to complete. The survey was structured as follows: questions 1 and 2 focus on the sample's composition in terms of age and gender. Questions 3 to 8 collected information on attitudes and

attributes (gender, age) the survey covered the same factors in the UK survey with additional question regarding

Required incentives (product oriented); as it was found to be of importance in the free answer section in the UK survey, it was decided to investigate this aspect further in the Swedish based sample.

Environmental consideration at purchase; included for the same reasons as for the profiling questions explained above.

The underlying reasoning was that consumers in store would have less patience than individuals completing a survey online since they did not get the possibility to plan an appropriate time to complete the survey. Furthermore, it was assumed that people completing the survey online had an interest to do so, and were therefore ready to spend more time. Finally, by keeping the questionnaire short, the author got more time to maintain conversation about general perceptions could be discussed and aid the respondents through the questionnaire. The interviewees assessed the same scenarios as in the UK sample. However, the survey distributed in Sweden differed in many aspects compared to the survey targeting consumers in the UK.

behavioural intention towards leasing of products. Questions 9 and 10 measured convenience, product involvement and risk perceptions between access-based and traditional purchase consumption. Questions 11 to 12 related to product return at EOL measuring behavioural intention and convenience and finally, on the last question, consumers were asked to grade on a 5-item Likert scale, their level of environmental awareness while purchasing furniture.

3 Literature Review

In order to construct an understanding of the research area, this chapter starts with a description of the main typologies and characteristics of PSS, followed by a description of previous findings in the literature relating to consumer acceptance of PSS. In the latter part of this chapter, product, service and consumer characteristics that affect consumer acceptance of PSS are described.

3.1 Main Characteristics of Product-Service Systems

A product service system (PSS) is an integrated product and service offering that promotes a “customer-centric” approach rather than a “product-centric” approach and focus is pointed towards the activities of the customers rather than volume sales (Lee et al., 2015). Bains et al., (2007) remark that companies that desire to develop a PSS, needs to move away from the traditional “product-thinking” and instead take a “system approach”. Hence, it entails a move from a resource-based production system to a knowledge based system in which all commercial activity seeks to fulfil client’s needs (Durugbo, 2013; Baines et al., 2007). The limelight is put on assisting customers in reaching their goals, which is done by creating the right combination of products and services rather than viewing products as isolated entities.

The PSS literature proposes a variety of definitions of the concept, some of which highlight the environmental superiority towards traditional transactions and some of which has excluded this aspect and only focus on the value proposition. However, as environmental sustainability is central in this paper, three definitions were found appropriate for the purpose of this thesis; “a system of products, services, supporting networks and infrastructure that is designed to be: competitive, satisfy customer needs and have a lower environmental impact than traditional business models” (Mont, 2004, p.18). Vezzoli et al. (2013) focus on eco-efficient PSS and define the concept as follows: “a PSS where the economic and competitive interest of the providers continuously seeks environmentally beneficial new solutions” (p. 2). Finally, Ceschin (2013) makes a distinction of eco-efficient and sustainable PSS and argue that the first mainly focus on economic and environmental dimensions whereas the latter also includes socio-ethical dimensions and derive at the following definition of a PSS; “a sustainable PSS can be defined as a PSS where the economic and competitive interest of the providers continuously seeks environmentally beneficial new solutions, while maximising social well-being, equity and cohesion” (p. 25).

PSSs are commonly divided into three different categories within the literature; product-oriented, use-oriented and result oriented (Reim, Parida, & Örtqvist, 2015, Tukker, 2015, Baines et al., 2007) as seen in Figure 3-1. Although all three models combine products and services in order to create utility or function based solutions that satisfy customer needs (Baines et al., 2007) some distinct differences can be observed.

Product-oriented services constitute the first category. Here, the property right of a product is as traditionally transferred to the customer and the producer or retailer commits to the provision of value offers related to the product. The difference however, is that the service provider offers additional services during the use and/or at the end-of-life phase (Baines et al., 2007). Product-oriented services further add value by decreasing the amount of work the customer has to do themselves (Reim, Parida & Örtqvist, 2015) and ensure agreed-upon product performance over a given period of time (Cook, 2014).

Many authors divide this type of provision into two categories; product related services and product related advice/consultancy (Ceschin, 2013; Tukker & Tischner, 2006). Examples of services that fall under the first category include: repair, maintenance (contracts), upgrading

(contracts), product substitution, re-use, recycling, financing schemes and take-back agreements for when the product is no longer of use to the customer or when the product has reached its end of life (Ceschin, 2013; Baines et al., 2007; Tukker & Tischner, 2006). Examples of product related advice and consultancy include courses, training, advice and consulting in order to help the customer optimise the application or disposal of the product.

Although the sale of a product (with extra services) is central in this type of offer, it motivates service providers to offer durable, well-functioning products that are designed for disassembly, recycling, remanufacturing so as to minimize costs (Baines et al., 2007) and thereby also to improved resource utilization through prolonged product and material life-times (Reim, Parida & Örtqvist, 2015).

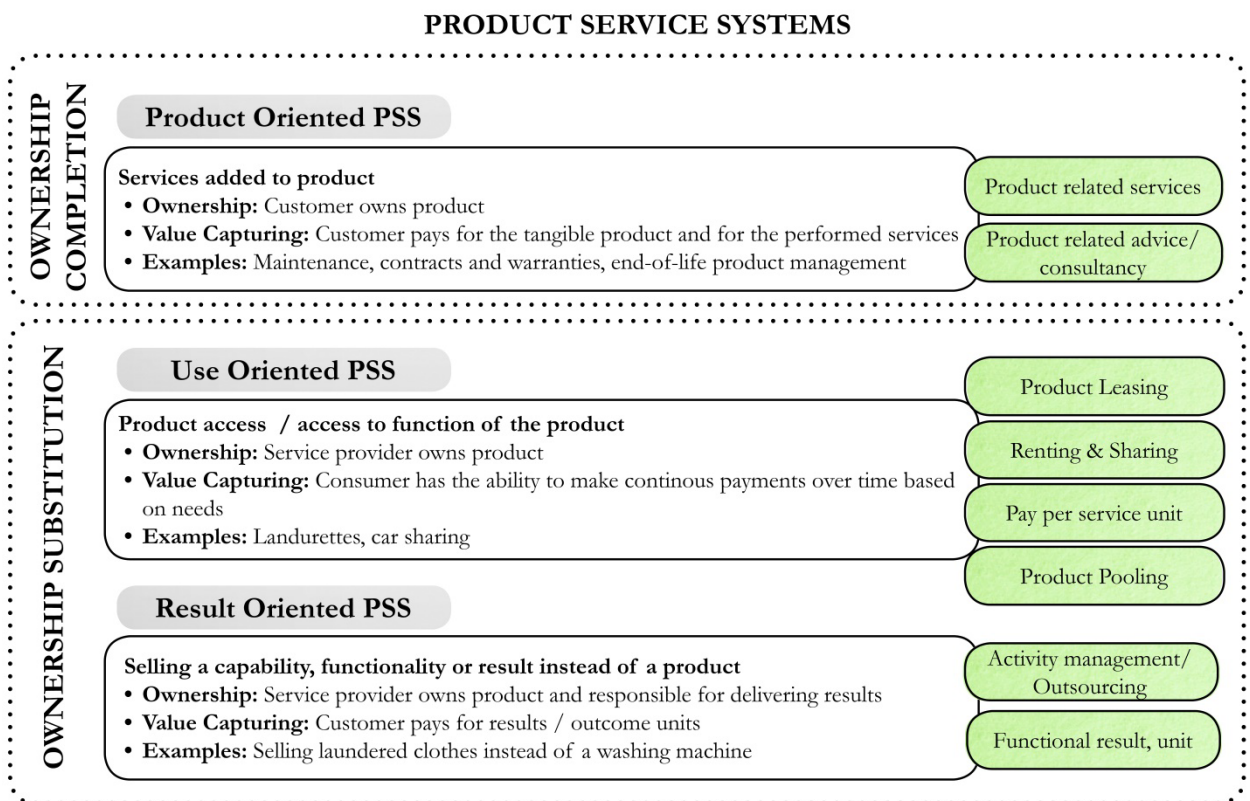


Figure 3-1. A typology of Product Service System

Source: Adapted from Reim et al., (2015); Baines et al., (2007) and Tukker & Tischner, (2006).

Use-Oriented services constitute the second category. Here, ownership of the product is maintained by the provider and the product is made available to the customer through leasing, rental and sharing agreements (Baines et al., 2007). Value creation moves from customer purchases to customer functionality, reliability, service and flexibility with emphasis on the “sale of use” rather than the “sale of product” (Lee et al., 2015). In this type of PSS business model, the product is still central, however, not sold to the customer. Instead the service provider guarantees availability of a product on a continuous basis or pre-defined time-frame in return for periodical payments made by the customer (Reim, Parida & Örtqvist, 2015). In general, the service provider is also responsible for control, maintenance and repair of products. The service provider is improving resource utilization by more intense use of products, prolonged life-times of products and reduces the number of products in use (Reim, Parida & Örtqvist, 2015). Naturally, incentives to design for durability, disassembly, recycling

and remanufacturing in order to keep materials with customers for as long as possible and close material loops arise.

Finally, *result-oriented services* constitute the third category which entail that the service provider sells a capability or result as opposed to a product (Baines et al., 2007). In principle, no pre-determined product is involved in this type of offer (Tukker, 2015). Instead, the offer is often a customised mix of services and the customer only pays for the agreed outcome, performance or result (Baines et al., 2007). Result-oriented PSS are more sophisticated but also more complex in comparison to the two previous PSS categories and has been identified as most promising in terms of resource productivity (Tukker & Tischner, 2006) and circularity (Cook, 2014). This because incentives for the provider to improve resource utilization increases (Reim, Parida & Örtqvist, 2015). Examples of result-oriented services include; selling laundered clothes instead of a washing machine or web information replacing directories (Baines et al., 2007). As presented in Fig 3-1, product oriented PSS are completing customer ownership, whereas use- and result-oriented PSS substituting customer ownership.

3.2 PSS Drivers and Barriers

The amount of knowledge regarding PSS that has been accumulated throughout the last two decades is impressive. A large number of PSS examples presenting a multitude of benefits that an appropriately designed PSS can bear are found in the literature. Yet, as Ceschin (2013) points out, the uptake of this type of business concept among companies is still very limited. The adoption of a PSS business model is a challenging process both from an internal and an external firm perspective and often require multi-dimensional changes (Bardhi & Eckhardt, 2012). In short general terms, Mont (2004) provide a good overview of the main internal drivers for adopting a PSS; better management of resources, competitiveness and improvement of environmental performance and external drivers relates to; legislative changes, new possibilities for growth as well as customer demand (Mont, 2004). Internal barriers relates to costs; concept design as well as organisational barriers and main external barriers relates to relations with actors along the value chain; regulatory and context related barriers (Mont, 2004). Vezzoli et al. (2015), Ceschin (2013) and Mont (2004) provide further information on drivers, barriers, opportunities and challenges with PSS.

3.3 PSS Environmental and Strategic Opportunities

A well-developed PSS creates competitive and economic incentives for all actors in the value chain to decrease and optimise energy and material consumption (Ceschin, 2013). Whether a firm employ elements of a PSS as an extension of their existing offer, or apply a PSS as a main business model and survival strategy (Mont, 2001), the economic and competitive benefits with PSS can be manifold and lead to an improved strategic positioning (Vezzoli et al., 2015). First, in comparison to traditional product-sales, greater customer interaction at multiple touchpoints can be achieved through value-offerings such as leasing and renting, and adding services to the product offer (Reim, Parida & Örtqvist, 2015; Sempels & Hoffmann, 2013). A PSS also has the possibility of increasing service elements and thereby improve total value for customers (Baines et al., 2007) while at the same time have the possibility to improve competitiveness through prolonged customer relationships, increased customer satisfaction, customization and the customer “lock-in” effect (Armstrong et al., 2015). The latter of which have been argued to become increasingly important in mature markets where customers’ value reliability and functionality rather than ownership of products (EMF, 2013). A significant benefit for companies that adopt a use-based PSS relates to the absence of transfer of ownership. Since the property rights stay with the service provider, the company can keep control of the materials and according to optimised schemes, organise a closed loop system. In relation, a PSS business model can also bring about cost savings for the service provider

since the procurement of valuable materials can be reduced, streamlined managerial costs and reduced costs related to waste and disposal of products (Vezzoli et al., 2015). Additional profits can also be obtained through maintaining low failure rates, reliability and performance visa upgrades. However, it demands a higher trust and closer cooperation between suppliers and consumers (Rexfelt & Hiort af Ornäs, 2009).

Furthermore, since products can be reused by several customers and value is created through performance rather than volume sales, companies are naturally incentivised to produce products with higher quality, upgradability, recyclability so as to prolong product and material life-times (Vezzoli et al., 2015). Innovative business models that focus on product as a service or services added on to the product offer also facilitate the dilemma of product recovery and relying on consumer goodwill to bring back products at the end of their lifetime, as these issues can be built into the service offer and stand ground for value creation (Schulte, 2013).

Product service systems have further been identified as fundamental building blocks towards a circular economy and regenerative forms of consumption (Planing, 2015; EMF, 2013; Schulte, 2013). This because a PSS has the possibility of facilitating for companies to decouple material consumption from economic success and thereby reduce environmental impacts caused by economic activity (Baines et al., 2007). In cases where the organisation maintain ownership of its products and the control of materials, the possibility of implementing schemes of closed loop systems also arises. Access-based schemes such as leasing and renting thereby also reduce the reliance on natural resources (Armstrong et al., 2015). However, it is important to note that PSS in comparison to product systems will not per definition be more circular or resource-efficient (Tukker, 2015) but increases the ability for corporations to decouple material consumption with economic success. Some studies have shown that when there is an absence of ownership, certain individuals tend to take less or improper care of the products (Vezzoli et al., 2015). Authors such as Ficher et al., (2015) have suggested that PSS can potentially, contrary to the desired positive impacts on resource efficiency, shorten the use-phase of products. Hence, in order for such a system to generate less emissions and material efficiency than competing product oriented models the PSS needs to be specifically designed, developed and delivered (Ceschin, 2013). Reim, Parida and Örtqvist (2015) conclude their study by highlighting that by emphasising environmental sustainability during the development of a PSS, a proactive approach can be signalled and ensure that both environmental and economic benefits are achieved.

Business models that build on products as a service can synergise the common division between corporate financial performance and environmental management in a natural way as well as naturally integrate sustainable consumption into value propositions. Botsman and Rogers (2011) further suggest that PSS can create more efficient consumerism as they can facilitate the prediction of needs through IT that support customer management.

3.4 PSS Environmental and Strategic Challenges

In order for PSS to be economically viable and to exploit the maximum environmental benefit potential of a PSS, appropriate design of products including consideration for environmental impacts over the whole life-cycle needs to be taken into account (Ceschin, 2013). Products that are of high quality, durable, and have a high resistance towards wear and tear can be reused within the system for longer periods. Furthermore, by taking facility of disassembly, repair and maintenance into consideration, the resistance towards intensification of their use can be minimized (Sempels & Hoffmann, 2013). Although the configuration of stakeholder interactions within a PSS also needs to be optimized for a PSS to reap significant environmental benefits, only if products included in a PSS offering are designed accordingly, will these benefits actually be achieved (Ceschin, 2013). In addition, product suitability for use-

oriented PSS entails a cost dimension as products with a low cost structure risk of rendering access unprofitable due to high idling costs, unpredictable demand or too high proportion of products available for rental in proportion to demand (Baumeister & Wangenheim, 2014). Tukker (2004) highlight that product that entail a high environmental impact during the use-phase might be less suitable for use-oriented PSS such as renting and leasing since products with this characteristic might not evoke environmentally conscious user behaviour, but more appropriate for pooling and sharing because more people can use them at the same time (examples include cars and laundry machines). Finally, the decision-making process in purchasing services in comparison to buying goods is more extensive and the mixture of goods and services that a PSS often entail increase the number of alternatives and complexities presented to the consumer (Mont & Plepys, 2003).

There is a need for companies to understand how their customers will value their services in order to develop effective and efficient PSS (Baines et al., 2007). The traditional approach of buying goods remain the main competitor for use-oriented PSS offers entailing that innovative marketing activities, an attractive value proposition and efforts to decrease the perceived risk with the PSS needs to be developed in order for the PSS to tackle the competition (Sempels & Hoffman, 2013). Since consumer needs constantly change, the ideal PSS is flexible and fulfil customer goals to the extent where the customer do not need to commit to an offer in advance but rather return on a regular basis (Rexfelt & Hiort af Ornäs, 2009). Use-oriented models, in comparison to product-oriented models entail a lower risk for the consumer, but a higher risk for the service provider due to a lack of transfer of ownership and responsibility to the customer (Tukker & Tischner, 2006). Hence, the opposite is true for product-oriented PSS schemes.

3.5 Consumer Benefits and Risks of PSS

A PSS has the ability to deliver functionality and customisation better suited to customer needs (Vezzoli et al., 2015; Baines et al., 2007) and should strive at facilitating for consumers to engage in activities or at least promote the avoidance of undesirable activities that entail larger environmental impacts than traditional consumption and disposal modes (Rexfelt & Hiort af Ornäs, 2009). Product-oriented PSS such as take-backs has the potential of reducing responsibilities and costs for the customer in the product end-of-use/disposal phase. Value-adding services provided during the use-phase such as repair and maintenance further has the potential of adding convenience and save time that the customer can use for other purposes (Tukker & Tischner, 2006). Product-oriented services also have the potential to entail cost-savings for the consumer since through repair and maintenance product life-times could be extended (Reim, Parida & Örtqvist, 2014). From a consumer point of view, there are many benefits with paying for the use of an asset as opposed to purchasing and owning a product, namely, restructuring of cost, release from liabilities and risks of asset ownership (Baines et al., 2007). A shift towards business models focusing on services could further entail higher flexibility for consumers, allow for less ownership of products and can enable the use of expensive products without high initial expenses (Baumeister & Wangenheim, 2014; Bardhi & Eckhardt 2012; Lamberton & Rose 2012).

Yet, the cultural shift away from ownership that is necessary for a wider adoption of these offers is often presented as the main barrier by many authors (Schaefers, Lawson, & Kukar-Kinney, 2015; Baumeister & Wangenheim, 2014; Rexfelt & Hiort af Ornäs, 2009 to name a few). Within the PSS literature, use-oriented PSS are often considered radical innovations because they challenge existing habits and routines of consumption (Lee et al., 2015; Armstrong et al., 2015; Catulli, 2012). For some consumer segments accepting the renouncement associated with changing to a service option might be difficult and rather perceived as a sacrifice (Sempels & Hoffmann, 2013). Another challenge is also an inherent

connotation that leasing is more expensive and inconvenient than ownership among many consumers (EMF, 2013). However, Schaefer, Lawson, and Kukar-Kinney (2015) and many other authors argue that leasing contracts can significantly lower the price of the product as the customer only pays for the time of use and thereby become more affordable than purchasing products, especially when the product has a relatively high cost structure. To overcome these obstacles, there is a general consensus in the literature that effective communication and new ways of engaging and incentivising customers in order to promote the uptake of these consumption alternatives among consumers are needed (Armstrong et al., 2015; Mont, 2004). Rexfelt and Hiort af Ornäs (2009) suggest that the conceptual design of consumer-oriented PSS solutions should be a twofold process where on the one hand the PSS in itself is described and on the other hand a description of how the PSS offer should be communicated to consumers.

Clear communication of the added value associated with the PSS offer needs to be provided since customers are presented with a new solution that is configured in a completely different way compared to their earlier experiences (Reim, Parida & Örtqvist, 2015). In a use-oriented PSS, the value proposition is based on a contract that should formalise the intended results and include the service level agreement (SLA) that assesses the level of achievements (Sempels & Hoffman, 2013). Furthermore, environmental gains should be included, defined and set up in the SLA in order to be efficiently measured (Fisher et al., 2015). It should be noted that the primary competitor towards leasing is still the traditional approach of purchasing tangible goods (Planing, 2015) and it has been suggested that the emotional and functional needs associated with ownership can be overcome by creating systems and brands that makes people feel safe, attractive and smart (Botsman & Rogers, 2011). The PSS therefore also needs to be sensitive towards market demand (Catulli, 2012). Planing (2015) further state that it is important to consider both rational and irrational motives as well as routines and habits of consumer behaviour when developing a value proposition that promote more sustainable consumption patterns.

Botsman & Rogers (2011) remark that PSS offers should not particularly target customers that are “environmentally conscious” but in order for a PSS to attract a range of different consumers, consideration for different consumer motivations (convenience, adequate selection of products, cost-efficiency, fashion and design) needs to be taken into account. Hence, rather than developing one universal solution, specific consumer segments can be targeted through differentiated offers (Rexfelt & Hiort af Ornäs, 2009).

3.5.1 A Few Words about Ownership and Disposal

A consumption mode can be defined as the circumstances under which a consumer fulfils his or her consumption needs (Baumeister & Wangenheim, 2014). Ownership of products has historically been and still is the dominant consumption mode.¹³ Factors such as living standard, status symbols, personal identity perception, time, convenience, flexibility and safety are reasons for why individuals prefer owning much of the private equipment that they use (Fischer et al., 2015).¹⁴ Catulli et al. (2013) present a range of dimensions that could be inherent in consumer perceptions of ownership such as the perception of possessions as a source of financial security or as a legacy to be passed on as well as affective dimensions between people and their material possessions such as the attachment to objects because these might be a symbol of interpersonal ties, expression of oneself or the objects might carry memories of experiences or events they had. They also argue that projection of status or image has been connected to the accumulations and consumption of products (Catulli et al., 2013). In relation, Russell W. Belk (1988) argue that intentionally or unintentionally, knowingly or unknowingly, individuals perceive that their possessions are a part of themselves and functions as an extension of the identity that is communicated to others.

Catulli et al. (2013) imply that the accumulation of things as to build an estate can be perceived as a rational attitude towards ownership. However, within the literature of neuromarketing it is recognised that consumer behaviour is of complex nature since choices are often made at a subconscious level and the assessment of cost-benefit do not always appear rational (Szmigin & Piacentini, 2015). For example, some people tend to rather "irrationally" accumulate possessions with the believe that "they one day might come in handy" and in due course lose track of the amount of accrued possessions. The risks associated with ownership include performance and obsolesce of products, insufficient capacity utilisation, potentially having to repair or product failure (Schaefers, Lawson, and Kukar-Kinney, 2015). Lovelock and Gummesson (2004) further add financial risk regarding ownership, which relates to the uncertainty of potential financial loss of a purchase decision (buyer's remorse due to unsatisfying purchase) which in general increases with product price.

Most individuals do not think about how and when they will dispose of products at the time of purchase (Szmigin & Piacentini, 2015). However, products are most commonly discarded because they no longer are of use or no longer satisfy the needs of owner (Curran, 2010). Stevels and Boks (2000) elaborate on consumer selection of end-of-life treatment and find that final disposal strongly depend on consumer behaviour (regarding disposal and return of products) as well as product characteristics (the way in which the functionality is embodied). They further explain that type of ownership, size of the product, regulation and legislation as well as supply and demand in second-hand markets affect the final choice of disposal (Stevels & Boks, 2000). Product recovery value also affect the consumer disposal strategy, and EMF (2013) found that swapping or selling products is common when products maintain high recoverable value, producer/retailer take-back program when products have a medium recoverable value and that products that have a low or inexistent value are often disposed through kerbside collection. If the consumer has to pay for disposal or is unable to discard of the product in a convenient way, the related process can cause discomfort to the consumer

¹³ Traditionally, goods were purchased for rational need-based purposes but consumption patterns are becoming increasingly emotional (Szmigin & Piacentini, 2015). Ownership includes having an exclusive long-term or permanent right to consume a product and most commonly, people obtain proprietorship of goods through purchasing, inheritance, finding something or receiving a gift (Baumeister & Wangenheim, 2014).

¹⁴ Particularly, tools, computers, cars, white ware, toys and other private equipment are mentioned by (Fischer et al., 2015).

¹⁵ Note that the product has not necessarily reached its end-of-life.

(Rose & Stevels, 2000). This has further supported by EMF (2013) who maintain that high levels of convenience and sufficient economic benefits are crucial in developing recovery systems that are attractive to consumers.

3.6 Furniture Characteristics and Consumption

The contemporary home in the western world represents a place where members of the family, neighbours and friends connect and create common grounds of interest (Ekström, 2010). The home also reflects the identity, lifestyle and personal values of individuals (Karki, 2000). However, many people struggle to find housing (due to pricing, area, availability etc.) that fully reflects their desires and long-term expectations. Hence, furniture has become a means of providing individuals with more affordable options to enhance the projection of self-image (Yoon & Cho, 2009) express social status, feelings and personality (Karki, 2000). The product group of household furniture consist of a diverse range of products (e.g. tables, chairs, wardrobes sofas, mattresses kitchens) that can be assembled with a multitude of materials (e.g. wood, plastics, glass, metals, textiles and leather). Due to the materials used in its construction, general product size, and usage patterns the furniture is often referred to as a consumer durable however, noting that a more fashion-centred and disposable notion of furniture has been observed in the last decade (Leslie & Reimer, 2003).

People increasingly want to be able to change style and home-furnishing when their demands change and particularly when individuals face major life stages such as purchasing or moving to a new home, having children, remodelling, marrying, advance their career and when economic status improves, to name a few (Annette Burnsed & Hodges, 2014; Ozanne, & Smith, 2007). A recent trend report showed that British consumers are buying and selling property with increasing frequency which in turn increase demand for home furnishing (RAM, 2014). With this backdrop in mind, furniture represents the changeable part of the home. It is a product group that is of personal nature and associated with consumer emotions but also address pragmatic issues in the household (Annette Burnsed, & Hodges, 2014). Hakala, Autio and Toppinen (2015) further contemplate that furniture represents an important product for many individuals as they might signify experiences and memories. In sum, a piece of furniture not only represents a utility article, but reflects lifestyle, homemaking and consumption values. However, the bulky nature and (although declining) life-cycle of furniture entails a challenging purchasing process and often a significant financial commitment (medium to high purchase price) for the majority of people (Yoon & Cho, 2009).

A number of authors have identified attributes that are important in the purchase decision-making process of furniture among consumers. Although they identify the same attributes, some disagreement concerning the order of importance is evident. Hence, the following order does not respect any hierarchy of importance. First, price is a major factor, however, overall appearance, colour, design and style, ease of maintenance, comfort, material, construction, quality, relative value, certificates and how well the piece of furniture match with other items have also been found important (Hakala, Autio & Toppinen, 2015; Yoon & Cho, 2009; Karki, 2000). Ozanne and Smith, (2007) further add durability, workmanship, and brand name as important attributes of the furniture selection process. Leslie and Reimer (2003) on the other hand, mention that a general lack of brand recognition among US consumers towards furniture producers and retailers in comparison to many other goods. In a more recent study by Hakala, Autio and Toppinen (2015), environmental and ethical aspects are further added to the long list of valued attributes selecting furniture and decoration the home.

Due to varying values, needs and perceptions, consumers will prioritize differently, which is also believed to be the underlying reason for the dissimilar results among the authors mentioned above. As an example, Yoon and Cho (2009) found significant variations in

purchasing decision behaviour between male and females. Particularly, they found that their female respondents put a higher value both on the importance of furniture and the aesthetic aspects (colour, style) of these products than men. Ozanne and Smith (2007) on the other hand, suggest that demographic factors, affluence and patterns of household formation will affect importance of attributes in the decision of furniture. Furthermore, culture is believed to influence importance grading of these aspects. Expectations, aesthetic values, usage, norms and symbolic meaning of furniture are often culturally defined (Hakala, Autio & Toppinen, 2015). Belk (1988) further argue that some products alter the individual's body, whereas other alter the family's body. He suggests that the home and furnishing alter the family's body, whereas e.g. clothing alters individual extensions. He further discuss self-expression of the home in relation to social class and suggest that a self-expressive home or "hominess" is in general more important to individuals that are more mobile as well as those belonging to lower social segments of the society whereas higher social classes rather aim for "status" (Belk, 1988).

Symbolic and communicative values such as self-presentation and identity construction are also of importance when consumers select home interior decorating styles (Hakala, Autio & Toppinen, 2015). Hence, many people no longer only purchase furniture for their practical application in the home but are increasingly becoming interested in furniture that is fashionable. Dobers and Strannegård (2005) argue that consumers are indeed becoming more fashion sensitive in general and have seen an increased interest in products and services that are well designed and aesthetically appealing. Consuming fashion in the furniture domain is therefore in this thesis understood as the use of furniture for purposes that go beyond utilitarian needs (Gwozdz et al., 2013). This type of consumption activity provides (beyond practical benefits) symbolic, hedonistic and immaterial value and is part of the individuals identity-making process (Dobers & Strannegård, 2005; Gwozdz et al., 2013). To clarify; hedonic values relates to sensations derived from experience of using products whereas utilitarian values relate to the function performed by the product (Voss, Spangenberg, & Grohmann, 2003).

3.7 Consumer Acceptance of PSS

Consumers are not only receivers of a particular service but are also key actors in the product service system value chain. Therefore, consumer acceptance, attitudes and perceptions of particular categories of products as a service are crucial in the development of innovative and regenerative business models. The large majority of literature on consumer acceptance of PSS relates to the acceptance of new consumption modes e.g. *ownership vs leasing* (see Baumeister & Wangenheim, 2014; Catulli et al., 2013; Catulli., 2012; Moeller & Wittkowski, 2010; Rexfelt & Hiort af Ornäs, 2009; Lovelock & Gummesson, 2004; Schrader, 1999). The only study identified that also included acceptance of *product-oriented PSS* was that of Armstrong et al. (2015). Perhaps, because ownership completion offers are more common on the market and do not challenge habits of consumption in the same way as use-oriented PSS does (Bardhi & Eckhardt, 2012) or perhaps because they do not have the same environmental benefit potential as use-oriented PSS provide potential for (Tukker & Tischner, 2006).

Common among scientific articles focusing on consumer acceptance towards PSS schemes is the consultation of innovation theory. This because as mentioned earlier, objects, ideas or practices such as PSS schemes, that are perceived as new by an individual, can be classified as innovations (Rogers, 1995 p.11). In particular, Everett M. Rogers (1995) well cited characteristics of innovations that affect adoption rates among individuals have been found (with a few adaptations) to be applicable within the service literature (Rexfelt & Hiort af Ornäs, 2009; Mont & Plepys, 2003; Schrader, 1999). These characteristics related to innovation acceptance have also been found useful for the purpose as evaluation criteria in the

development of consumer surveys in many innovation studies (Mont & Plepys, 2003). The factors identified by Rogers (1995) include; *relative advantage, compatibility, complexity, trialability and observability*. These perceived attributes of innovation is a good starting point in the quest of obtaining a better understanding of factors that impact acceptance of PSS offers. However, Schenkl, Rösch, and Mörtl's (2014) suggest that these factors are insufficient when explaining the complex nature of consumer acceptance and behaviour towards *PSS offers*. Although not explicitly stated, the insufficiency is believed to be reasoned partly due to the lack of inclusion of socio-demographic factors among consumers and partly because they do not included product specific characteristics. Therefore, as suggested by Schrader (1999) factors conditioning the acceptance of PSS offers have been divided into three categories (see Figure 4-1): product, service and consumer characteristics. The factors presented by Rogers (1995) fall into the service characteristics category.

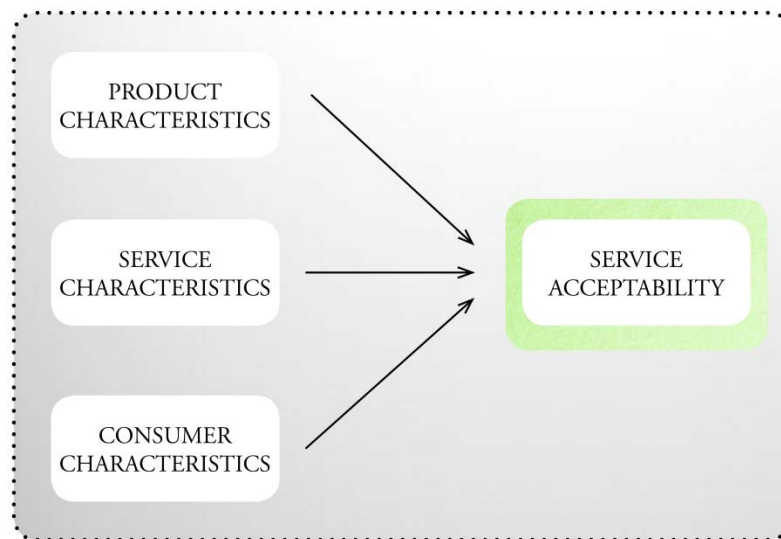


Figure 3-2. Categories of factors conditioning the acceptance of PSS offers

Source: Adapted from Schrader (1999).

Product Characteristics

Consumer desires and needs vary and can be satisfied in many different ways. However, their need formulation is to large extent framed by the product (Catulli et al, 2013). Product characteristics such as price, need for service and maintenance, use intensity, level of “product involvement” (individual importance of product) and product size are argued to affect consumer acceptance of access-based consumption (Schrader 1999; Catulli et al., 2013). Schrader (1999) further argue that products need to meet a certain price level in order to be candidates for product purchase substitution, since consumers will not see benefits in leasing products of very low value and instead purchase the product. Finally, Chen (2009) proposed that the type of object and the values they represent in individuals (hedonic, functional) in a PSS affect the acceptance of the offer, particularly so, in use-oriented PSS (Bardhi & Eckhardt, 2012). Product specific characteristics that would apply to the product group of furniture further include cost of ownership and intensity of use (Sempels & Hoffmann, 2013). In addition, Bardhi and Eckhardt (2012) further elaborate on a dimension relevant to use-oriented PSS; anonymity; which shapes the relationship with and behaviour toward other consumers and measure to what extent the context of use is private or public. In terms of household furniture, access is described as exclusive.

Service Characteristics

Relative advantage; relates to which degree the service offer is perceived as better in comparison to the previous means of need satisfaction (Schrader, 1999) and has been identified as one of the most crucial conditions for consumer acceptance of PSS offerings (Rexfelt & Hiort af Ornäs, 2009). Both tangible and intangible dimensions of product-service offers affect the perceived satisfaction of the service quality (Mont & Plepys, 2003). It has further been suggested that consumer acceptance of access based consumption depends on the alternatives consumers have at hand (Rexfelt & Hiort af Ornäs, 2009). Factors such as convenience, social prestige, satisfaction, transaction costs, perception of risks, or monetary aspects can hold as measurements for relative advantage of both product and use oriented PSS (Rogers, 1995). Service attributes that have been identified as to provide a relative advantage in use-oriented PSS relates to customers being able to lease products for various periods of time (Chen 2009; Mont & Plepys, 2003), the quality of the offer (availability, reliability), need for careful handling (perceived degree to which a consumer feels that they are required to handle the product with care) (Baumeister & Wangenheim, 2014) as well as the redistribution of costs related to the alternative (Sempels & Hoffmann, 2013). A use-oriented PSS can allow for consumers to afford product that they would not be able to purchase (Vezzoli et al., 2014). However, Catulli (2012) found that consumers are in general more likely to commit to long-term regular payments for a PSS when the purchase price of the product was higher. Moeller and Wittkowski (2010) further highlight the most distinct difference between ownership and access-based consumption being the avoidance of burdens, risks and accompanying responsibilities related to ownership. Lovelock and Gummesson (2004) further add that leasing allows consumers to enjoy facilities and physical goods that they cannot justify purchasing, afford or prefer not to retain after use. In relation, it has been suggested that in order to overcome the rooted cult of ownership, service providers need to ensure that leasing is secure, convenient, and more cost-efficient than ownership (Botsman & Rogers, 2011).

For example, a use-oriented PSS can allow for more frequent product changes and renewal on a regular basis (Baumeister & Wangenheim, 2014; Lovelock & Gummesson, 2004) which in the case of furniture can be hard to achieve due to the relatively high purchase price. However, these attributes offer low possibilities for the service-provider to offer product differentiation as they are so called basic attributes of the service, meaning that customers are likely to be dissatisfied and potentially select a competing service provider if these attributes do not maintain satisfying levels (Mont & Plepys, 2003). By adding, improving or extending more attributes to the PSS, customer satisfaction can be increased (Mont & Plepys, 2003). In relation, unexpected attributes or “surprise characteristics” added to PSS offers have the possibility of generating very high levels of customer satisfaction and that do not lead to customer dissatisfaction if not available since the customer does not expect them. (Mont & Plepys, 2003).

Problematics regarding relative advantages that have been found in previous studies relates to concerns regarding continuation of the business (Armstrong et al., 2015). Service reliability has been found an issue within product groups such as cars (Zipcar) in particular, where consumers have been found having low expectations on availability and accessibility at the “right point in time” and therefore in some cases have lower acceptance towards access-based offers (Catulli 2012). Previous research has also showed that individuals perceive higher levels of risk when exposed to a PSS which can affect the overall perception of relative advantage, hence facilitators and informants at the point of sale or service provision is crucial for the success of a PSS on the B2C market (Mont & Plepys, 2003). Baumeister and Wangenheim (2014) also add that perceptions of use limitations could both be in favour and not in favour of use-oriented PSS depending on to what degree a consumer feels limited in their usage possibilities given a certain consumption mode. Finally, with every market transaction, the

cost incurred in making an economic exchange and in the act of contracting between a customer and a supplier is often referred to as a transaction cost (Schrader, 1999). In consumer markets, transaction costs have special relevance as relatively low volumes of products are exchanged and the proportion of transaction costs in relation to total cost risk of becoming high (Schrader, 1999). In relation, the transaction effort which relates to the time and effort necessary to get access to a service (Baumeister & Wangenheim, 2014) particularly needs to be considered when reviewing potential for product-take back services and logistics of products from consumer to service-provider. By obtaining information about the consequences a PSS solution may have for the way the targeted consumer live their lives, the development of an offer that provides the customer with a relative advantage in comparison to alternatives can be facilitated (Rexfelt & Hiort af Ornäs, 2009).

Compatibility; if an offer is not compatible with the values and norms of a social system it will not be adopted as fast as an offer that is well-matched with past experiences, values and needs of potential adopters (Rogers, 1995). The bigger the required change a PSS evoke, the stronger the resistance against it and the lower the acceptance (Schrader, 1999). Here there are considerable differences between product-oriented and use-oriented PSS. Ownership is and has been the consumption mode norm and therefore challenges consumer compatibility with purchasing behaviour norms (Baumeister & Wangenheim, 2014). As mentioned, the frame of reference for leasing and renting among some consumer groups, is somewhat blemished. By developing offers that are in line with convenience, associations and control benefits similar to that of ownership, PSS has the possibility of reversing the stigma associated with old-fashioned renting and leasing (Botsman & Rogers, 2011).

However, consumers are increasingly looking for new experiences which the old ownership model is not designed to satisfy. It is further argued that lifestyle trends among new generations are changing (Fischer et al., 2015; Rexfelt & Hiort af Ornäs, 2009) and that younger generations in the western world, do not have the same perception of social status associated with ownership as older generations due to a general absence of asset and economic hardship throughout their upbringing (Baumeister and Wangenheim, 2014; Botsman & Rogers, 2010).¹⁶ Some examples include Catulli et al (2013) who found that consumers were positive towards access based consumption of nursery and baby equipment. Armstrong et al., (2015) found in their study of female attitudes towards clothing PSS that many respondents perceive benefits in both product-oriented and use-oriented types of business models, particularly in terms of improvement in environmental advocacy (take-backs) and overall quality and durability (repair).

A number of lifestyle and associated values have also been described in the literature as to affect the level of acceptance of use-oriented PSS such as; innovativeness, desire for independence, personal attachment, environmental sensitivity, political consumerism, how well the offer is signalling an individual's personality and impressing others (Sempels & Hoffmann, 2013).

Innovativeness or "trend-orientated" individual as Moeller and Wittkowski (2010) prefers to call it, is described as an individual that often replace products not because they have become dysfunctional but rather because they constantly urge for new, innovative and/or fashionable products and services. It has been found that individuals are classified as "trend oriented"

¹⁶ In developing countries, ownership is believed to still be of utmost importance (Planing, 2015). However, some authors suggest that under certain conditions, saturated markets in the west are ready to adopt new modes of consumption such as use-oriented services (Planing, 2015; Sempels & Hoffmann, 2013).

might have a higher interest for innovative PSS offers e.g. short-term renting as it allows for them to obtain new product on a regular basis (Moeller & Wittkowski, 2010). However, if access-based consumption modes become more “trendy”, these individuals could potentially be attracted by leasing offers in their own right due to their innovative status. In relation, Botsman and Rogers (2011) present the concept of “service envy” which entails the goal of making people desire services more than products (p.111). This is achieved by enabling consumers to express self-identity through the use of services instead of through ownership of things (Botsman & Rogers, 2011). Desire for independence relates to the willingness to purchase and obtain associated rights to the object rather than lease due to the limited access that the latter entail (Moeller & Wittkowski, 2010). Personal attachment relates to the perceived degree of psychological closeness to the product included in the PSS (Baumeister & Wangenheim, 2014).

Political consumerism is described as consumer choice as a political tool or the use of market action as an area for politics by Bardhi and Eckhardt (2012). They further explain that some individuals might accept PSS offers as a reflexive strategy of signalling access as an antimarket consumption alternative or a more environmentally sustainable consumption mode/disposal alternative (Bardhi and Eckhardt, 2012). Swedish consumers have been found maintain high levels of political consumerism believed to be a result of a high number of environmental groups (Ekström, 2010). It has also been suggested that PSS offers can attract individuals that are environmentally concerned if they perceive the offer as causing less environmental harm than alternatives (Baumeister & Wangenheim, 2014).

However, consumption modes also entail certain perceived risks. Schaeffers, Lawson, and Kukar-Kinney (2015) discuss social risk, which relate to the extent to which purchase decisions are believed to be judged by individuals in their social sphere and influence their social standing. Baumeister & Wangenheim (2014) refer to a similar concept evolving around impressing others, where consumer beliefs regarding their involvement in different PSS and whether that involvement makes a good impression on others. In relation, Catulli et al., (2013) found that in some cases individuals do not want others to know that the products they use have been leased since that could be interpreted by others as them not having the financial means to buy products.

Complexity; complexity refers to how simple or difficult the service offer is to use and understand for the user (Rogers, 1995). According to Schrader (1999) complexity occurs as a combination of the objective features of the offer and the consumer’s ability to assess them. He further argues that the latter creates uncertainties and increases the perception of complexity due to the general, relative intangibility and heterogeneity of services. These two factors entails that a lower portion of search qualities can be evaluated by consumers before purchase, and a higher proportion of experience and credence qualities that can be evaluated after use (or if at all) (Schrader, 1999). In terms of use-oriented PSS, practical examples include complexities in relation to consumers’ ability to predict the accruing amount of cost in advance (Baumeister & Wangenheim, 2014). Armstrong et al., (2015) also found that many of their participants had a desire of obtaining information regarding how the service would be practically delivered, how exceptional cases would be handled and what guarantees would be included. However, a way overcoming problems relating to consumer evaluation of consumer complexity is to enhance *trialability*. Consumers tend to adopt new service offers quicker if they have the possibility to try them out for a limited time before confirming the transaction since the level of uncertainty of the customer decreases (Rogers, 1995).

Observability; refers to the degree to which individuals can see the results of a service. Individuals are affected by their social network and are more likely to try a service if people

they know have done so as well (Rogers, 1995). Intangibility of services is often presented as an obstacle for their diffusion (Schrader, 1999). This has been confirmed by Rexfelt and Hiort af Ornäs (2009) who found that references from friends and media were important for consumers when considering the PSS offers they presented to consumers (renting and payment for utility). Hence, consumer perceptions need to be managed via advertising, image campaigns, and other marketing measures in order to ensure that the relationship with the buyer is constant (Moeller & Wittkowski, 2010). Finally, an interesting idea presented by Planing (2015), is for companies to ensure that customers that are early adopters of PSS schemes are visible so that their peer networks are influenced to adopt the PSS offer as well.

Consumer Characteristics

Apart from the consumer related values, demographics factors found to affect acceptance of PSS in the literature include; age, gender, level of education and income (Sempels & Hoffmann, 2013; Schrader, 1999). Within the furniture literature, Bednárík & Pakainé Kováts (2010) further suggest that in addition, type of residence as well as place (rural vs urban) could affect consumption of furniture products and should be included in research about furniture purchasing behaviour. In relation to age, Armstrong et al. (2015) suggest that some age groups (especially young people) could be more appropriate for PSS offers than others. The same is argued by Schrader (1999) who further suggest that with age, the diffusion and duration of ownership generally increases which has a significant negative effect on acceptance of use-oriented PSS. Schrader (1999) further argue that young people that has achieved above-average education are an important target group for more sustainable consumption alternatives as they might be easier to influence before they become “owners of habit.”

3.8 Summary of Findings from the Literature Review

This Chapter has introduced the topic of PSS and showed that consumer acceptance is one of the main challenges for the uptake of these circular business models. Consumer attitudes and perception vary on an individual level to a large extent. Some might be trend-seekers, whereas others are looking for a high level of convenience. By reviewing the PSS literature on the subject, a better view of what affects acceptance of PSS in offers and in what way in *generic terms* has been obtained. However, it should be noted that not all factors identified here, are relevant to all types of PSS and not to all types of products. Factors important for the conditioning or inhibiting of acceptance vary largely depending on the product type and what the nature of the service offer. Bhardi & Ekhardt (2012) by focusing on the sharing economy, describes and investigates six factors relating to temporality, anonymity, market mediation (profit to not for profit), consumer involvement, the type of accessed object, and political consumerism in the case of car sharing. These factors although relevant in the acceptance of varying cases of PSS, also better explain the structure and nature of the consumption mode rather than specific factors for the conditioning of acceptance. In, contrary to the majority of articles on the subject of consumer acceptance of PSS, they are equally relevant to both product-oriented and use-oriented PSS.

Articles that specifically focus on *acceptance* of PSS offers include Catulli (2012) Baumesiter (2014), (Rexfelt & Hiort af Ornäs (2009) and Schrader (1999) which has proposed many of the factors described in the above literature review. Rather apparent, they all focus on use-oriented e.g. consumption without ownership. However the generic intangible nature of services allows for the identification of factors that also affect the acceptance of product-oriented PSS. For a complete overview of factors that influence attitudes towards services found for the purpose of this study and relevant in the context of *use-oriented PSS* (B2C) see Figure below. A general lack of literature focusing on consumer acceptance of product-oriented PSS became apparent throughout this study as only one study within the PSS

literature was found to focus on product-oriented PSS (see Armstrong et al., 2015). Perhaps, because ownership completion offers are more common on the market and do not challenge habits of consumption in the same way as use-oriented PSS does (Bardhi & Eckhardt, 2012) or perhaps because they do not have the same environmental benefit potential as use-oriented PSS provide potential for (Tukker & Tischner, 2006). Despite the weak coverage of consumer acceptance of product-oriented PSS in the related literature, some service related factors that affect consumer acceptance of these schemes could still be derived from Roger’s (1995) framework of innovation acceptance namely, relative advantage (convenience, transaction effort and cost), complexity, compatibility, trialability as well as observability.

Table 3-1. Overview of identified factors for acceptance of use-oriented PSS

| Product | Service | Consumer |
|--------------------------------------|-------------------------------|------------------------------------|
| Price | Relative advantage | Socio-demographics |
| Total Cost | Service reliability | Age |
| Price-for-value challenges | Compatibility | Education |
| Perception of fixed & variable cost | Temporality | Gender |
| Predictability of costs | Convenience | Size of apartment and household |
| Transaction effort/cost | Ease of use | Number of individuals in household |
| Use intensity | Complexity | Ownership of housing |
| Product Modification / Customisation | Flexibility / Inflexibility | Income level |
| Brand | Trust in service provider | Socio-psychographics |
| Hygiene (if used goods) | Trialability | Absence of costs |
| Storage space /effort | Observability | Environmental awareness |
| Product involvement | Performance | Materialism |
| Pre-and after-usage effort | Significant range of products | Innovativeness |
| Need for careful handling | Helpfulness of service staff | Desire for independence |
| Responsibilities | | Political consumerism |
| Maintenance effort | | Fun |
| Risk of failure | | Signalling one’s personality |
| Environmental benefit | | Personal attachment |
| | | Impressing others |
| | | Lifestyle and associated values |

Source: Derived from the following publications; Armstrong et al., (2015); Baumeister & Wangenheim, 2014; Schenkel et al., (2014); Catulli et al., (2013); Bardhi and Eckhardt, (2012); Rexfelt and Hjort af Ornäs, (2009); Mont & Plepys, (2003); Schrader, (1999) and Rogers, (1995).

It should be noted that additional factors than those identified above may be relevant for the acceptance of PSS. However, the list above, adds some clarity to the multitude of aspects that affect the overall acceptability.

4 The PSS Case for Household Furniture

The first part of this chapter presents the main findings relating to practical applicability and potential of PSS for household furniture as revealed by the interviewed researchers and business representatives. This is followed by a presentation of two provisional scenarios for PSS (product- and use oriented) of household furniture that were developed by integrating general PSS characteristics from the literature and information on product specific circumstances and attributes of furniture derived from the interview findings.

4.1 Furniture PSS options for dematerialization and revenue generation

In discussion of PSS potential within the home furnishing industry, the majority of the interviewees saw great opportunities for the furniture sector to improve environmental performance, resource recovery and competitiveness through PSS. None of the interviewees indicated that it would be technically unreasonable; the discussion rather evolved around product design, consumer acceptance and market demand as well as economic feasibility for the service-provider. Focusing on product design, furniture experts highlighted the importance of design for durability, disassembly, recycling and using as few and durable materials as possible in order to make a PSS model economically viable. The longer the service provider can keep the furniture on the market and make better use of materials when returned, the more business potential the offer has. Here, it was also included that, by using fewer materials, products become easier to repair and maintenance for the appeal of products becomes facilitated. Some respondents further noted that a certain level of quality of the products would be necessary for the PSS to be feasible. If products do not have a satisfying level of quality, the PSS would potentially lead to higher resource use, particularly so, in use-oriented PSS.

Product-oriented and use-oriented PSS models were brought forward by industry representatives as most suitable for home furnishing. Result-oriented PSS models were argued to be less relevant for this particular product group, since the plausibility of substituting functions such as “a comfortable surface to rest or sleep upon” or “sitting” is improbable. This is supported by Besch (2005) who argue the same in her research focusing on barriers and opportunities for PSS of office furniture. Hence, moving forward, the author focused on the two former types of PSS models. These two varieties were selected for simplicity reasons, whereas they are sufficiently different in nature to try testing consumer preferences while reflecting the core characteristics of product servicizing.

The author is, however, aware that as pointed to by several of the interviewees, companies are not limited to having only one business model and leading companies tend to test a number of business models and/or offers concurrently due to mainly two reasons; First, by having a range of different business models, the company can target and propose value offerings to a diverse number of consumer segments. Second, by testing out different types of offers and business models, firms can obtain early insights and experience about what consumers’ wants through dialogue, what it entails for internal processes as well as build knowledge internally. Furthermore, it was mentioned that by starting early, companies can reap business benefits relating to avoiding costs related to predicted price volatilities, get experience before competitors and thereby gain a competitive advantage.

Several points regarding consumers were also made especially in relation to current market demand. First, PSS development teams’ should take into account future lifestyles, in order to create offers that are flexible and align with consumer demands. Changing habits is a challenging task, hence, by obtaining feedback from customers, educating and co-creating with

consumers, industry promotes the action that is needed in order for consumers to get acquainted to these types of offers and push for the mainstreaming of sustainable consumption. Keeping track of acceptance towards PSS offers among young consumers was further mentioned as of particular importance since they are expected to maintain a large importance on furniture consumption in the future.¹⁷ Finally, all respondents mentioned the importance of communication of benefits related to convenience, environmental issues and economics for the successful uptake of new more sustainable modes of consumption.

4.1.1 Product-Oriented Furniture PSS

When discussing the topic of product-oriented PSS, a number of offers such as; repair, upgrading and maintenance as well as refurbishment services were pointed out as feasible possibilities for prolonging product lifetimes and thereby support sustainable consumption. Service offers relating to aesthetics improvement, maintenance and repair are already made available by some retailers and although they have the potential of prolonging product lifetimes, they do not offer solutions for furniture at end-of-life which apart from the production process entail the largest environmental impact over the life-cycle of this particular product group. Although these offers were also identified as potential threats to the current model of maximizing sales as it would entail that customers would keep furniture for longer. Offers that were identified as less likely to pose this threat and in the same time provide a greater potential in increasing product recovery than those mentioned above include *take-back services* with options for consumers to choose product destiny, and *buy-back services*. All of the above mentioned services would be addition to the traditional product sale and could serve as additional incomes, adding customer value as well as increase customer contact points. Many of the respondents recommended further focus on product take-back and product buy-backs. Partly because these types of services could be a good starting point for companies to test out what materials and products could be recovered, what state the materials are in, and what types of re-processing strategies could enable the reuse of materials. Corporate reputation was also mentioned as a driver for offering take-backs as environmentally concerned consumers could be attracted by such an offer. It was further mentioned that this type of offer could be more attractive in countries where fees for disposal of bulky products are applied.

The factors that were emphasized as to affect the acceptance of furniture PSS included; *transaction cost* and the effort that the consumer has to make in order to return the product; *convenience* which relates to transaction cost but also to distance to store and physical effort required; time it takes to return, here it was further mentioned that the probability for returning furniture would be higher if the customer was going to the store anyway to make a purchase; finally *type and bulkiness of furniture* is believed to affect the prospect of the consumer returning the good. In regards to consumers' willingness and likelihood of returning products in general, consideration to if the product is in working condition or not needs to be taken into account as consumers might be more prone to sell furniture that is believed to still maintain quality and function. A proposed way to compete with this type of riddance was to offer buy-back services for products that are still estimated to maintain value. Buy-backs were recommended to be structured through vouchers of varying value that can be used for purchase at the same retailer providing the buy-back. Thierry et al. (1995) argue that buy-back offers have three advantages; customers' disposal costs for landfilling and incineration can be

¹⁷ This is supported by findings from a recent study funded by the European Commission regarding the current EU furniture market situation where a total sample of 5072 respondents from 10 EU Member States (equally spread): Italy, Germany, France, Austria, United Kingdom, Poland, the Netherlands, Romania, Sweden and Spain of which 1561 were in the age group of 27 to 40 years of age and 863 were under 26 years of age. it was found that individuals aged between 27 and 40, 88% (although arbitrary) reported a recent purchase or intention to purchase furniture within the coming 12 months Additionally, 83% of those aged under 26 reported the same as above (Renda et al., 2014).

reduced, manufacturers may acquire an inexpensive source of components and materials for service or manufacturing purposes. Third, buying-back used products could provide manufacturers with the opportunity to sell or lease new products. In addition, a few of the respondents argued that take-backs are in competition with an increasing market for second-hand products and that service providers should take this into account when developing a take-back scheme.

4.1.2 Use-Oriented Furniture PSS

In terms of use-oriented PSS, it has been suggested by Botsman and Rogers (2011) that furniture could be well suited for leasing and rental models, due to high purchasing cost. Many of the interviewees likewise saw great potential in use-oriented PSS such as leasing and renting for the product group of furniture. In comparison to take- and buy-backs, lease offers requires the customer to return the product when the lease or rental contract has expired and costs related to customer incentives can be avoided (Bartolomeo et al., 2003). However, some of the respondents articulated long-term leasing challenges related to frequency of purchase (argued that furniture is not bought very often and that people plan to keep for longer periods of time). Challenges that were argued to be less relevant when consumer needs are temporary such as while studying, work displacement, contracting etc. In terms of sharing and pooling, these offers are more complicated to apply within the furniture sector due to their bulkiness and related difficulties in logistics (Besch, 2005).

Customers were frequently brought up by interviewees during the discussion about use-oriented PSS. Here, particular focus was put on the variation in needs and wants between different consumer segments. A given example was that some consumers are innovation seekers and want new and trendy products whereas others put high focus on functionality. It was therefore suggested that offers should be flexible in order to be able to satisfy these variations and communication strategies targeting different consumer segments should be implemented. Cost-competitiveness was also mentioned as a strong driver for the acceptance of leasing. If the service-provider is able to develop leasing schemes that entail lower total cost of ownership than traditional purchasing, the acceptance is likely to increase. By habit, many individuals only look at the price at the time of purchase, hence, if the service-provider is able to show the total cost of the leasing offer to the consumer, they might be more comfortable signing a contract. In relation to cost-structures and consumer segments, two respondents argued that a PSS can be made more efficient through appropriate re-looping strategies. The example given was that by first distributing the piece of furniture to a segment that value innovation and newness with a price that corresponds to the highest fee level. When that product is returned it could be re-looped to a consumer segment that is price sensitive for a price that is lower on the fee scale. These findings are in line with Lovelock and Gummesson (2004) findings that promotional and variable pricing strategies, two-way distribution channels with reference to ease of return needs to be employed in order to increase demand for short-term leasing. Finally, convenience was also mentioned as an important factor for acceptance.

Visual verification is also believed to be important, especially so when purchasing or leasing second-hand products. If the customer has the chance to see the furniture before (especially second hand) they will probably be more interested because they can see the condition and become more positive than they actually say that they are. Consumer flexibility was also highlighted as important to account for when considering leasing offers. It was suggested that consumers should have the choice of leasing single pieces of furniture as well as full room settings in order for the offer to bring value to the customer and for the offer to be competitive. Additionally, one respondent remarked that people are likely to get attached to objects entailing that they do not always want to return them at end of contract. When they

get attached they prefer to buy. Hence, at least at start, the customer should be able to purchase the product if they want to.

Logistics was further a factor that often was brought up for discussion. Due to the bulkiness of furniture, it was argued that if the offer could include delivery at contract start and pick-up and contract termination, this would offer higher customer value and potentially drive acceptance. It was also mentioned that it is important to investigate how long people keep furniture in order to develop leasing periods that correspond to consumer needs.

One of the respondents further pointed out that by decreasing the number of materials in products, repair and maintenance can be facilitated and the overall consumer notion of quality can be improved and indirectly decrease fears related to furniture durability. The same respondent further suggested that people handle furniture that is clean and fresh more carefully than those that look old or used. The discussion surrounding product quality also revealed that warranties and related consumer risk-reduction can be made more favourable for the customer by ensuring that products are of high quality and durable. “Warranty is safety” (Interview, 2015) one respondent commented. One type of furniture that was often brought up as more appropriate for a leasing model from a consumer perspective was garden furniture. In most European countries, these types of furniture are used during the summer season. Due to the shorter time-period of use, consumer might find it beneficial to lease this type of furniture so that they do not have to worry about storage during winter months. However, here high quality is of outmost importance; since this type of furniture is most often kept outside and therefore prone to be exposed to conditions that entail high levels of wear and tear.

4.2 Summary

In sum, product-oriented and use-oriented business models have the potential of avoiding risks related to resource scarcity and prepare companies for challenges related to future changes in consumer attitudes. In terms of environmental efficiency, the difference between product-oriented and use-oriented PSS is that the former somewhat contradicts the maximization of product sales business model and increases the risk of cannibalization of sales whereas the latter, opens up possibilities for new ways of income collection while keeping property rights of products and materials. Hence, product-oriented offers can be suitable for companies that are not yet ready alternatively lack of desire to implement a used-based business model, but want to recover materials and products. However, the environmental potential and extension of product life-time is believed to be lower compared to e.g. a leasing model and should therefore not be considered as an end destination in the quest of lowering environmental impacts of operations. The literature review and inputs from business professionals and researchers have given valuable input that is important to consider in the development process of PSS for household furniture. One of the largest obstacles identified for furniture PSS targeting the B2C market is that they often challenge existing consumer habits. On the other hand, the recent acceleration of successful real-life examples¹⁸ within the B2C and P2P further suggests that the general acceptability towards access-based consumption is increasing among certain consumers.

The purpose of developing the scenarios was twofold. First, the scenarios facilitated the elicitation of data on consumer acceptance of the two scenarios. Second, the development of scenarios facilitated the answering of the third research question of this study (how feasible furniture PSS business models could be designed in order to add more value to consumers

¹⁸ Airbnb, Vigga, Uber, Mud Jeans

compared to traditional product systems) by contextualising and narrowing the focus of the study.

Revisiting Bardhi & Eckhardt’s (2012) six contextual features that structure the nature of consumption facilitates the visualisation of the scenarios as depicted in Table 4-1 below. The next section will present the two working scenarios conducted on the basis of the identified characteristics of furniture, consumer preferences and PSS models.

Table 4-1. Overview of Proposed Scenarios

| Dimension | Scenario 1 | Scenario 2 |
|--------------------------------|--|---|
| Temporality | Contract equivalent to conventional product-purchase but extension of relationships is encouraged through additional service offerings | 1 month to 5 years (extension encouraged through additional service offerings) |
| Anonymity | Product consumed exclusively in private | Product consumed exclusively in private |
| Market Mediation | For profit | For profit |
| Consumer Involvement | Co-creation at initial purchase as well as at the end-of-life phase of the product | Co-creation at the initial stage of the contract |
| Type of accessed object | Household furniture | Household furniture |
| Political consumerism | Extension of customer relationships, value offering and environmental efficiency, new market segments | Extension of customer relationships, value offering and environmental efficiency, new market segments |

Source: Adapted from Bardhi and Eckhardt (2012)

4.3 Scenario 1 – Product-Oriented PSS – Product Take-Back

The first proposed scenario would classify as a use-oriented PSS according to the description by Baines et al. (2007). The basic scenario entails that the service provider offer take-backs and buy-backs of furniture in order to prolong material and product life-cycles as well as to decrease the use of natural resources. The customer brings back the furniture to the service provider whenever the product is no longer of use/wanted. The service provider evaluates the state of the furniture and communicates an estimated value. Here the customer has the choice of contacting a sales-representant (by phone or online) for advice on the value of the product prior to drop-off. If the product is estimated to maintain no scrap-value, the service-provider will give the option of handling the product from that point on. The value for the customer in this case relates to less hassle and costs related to the disposal of the product. However, if the furniture is estimated to still maintain a value, the service provider offers a buy-back option, where the customer receives a coupon (that can be used at the same service provider) relative to the value of the product. The service-provider has many alternatives to prolong the life-time of the obtained product or the materials within the product.

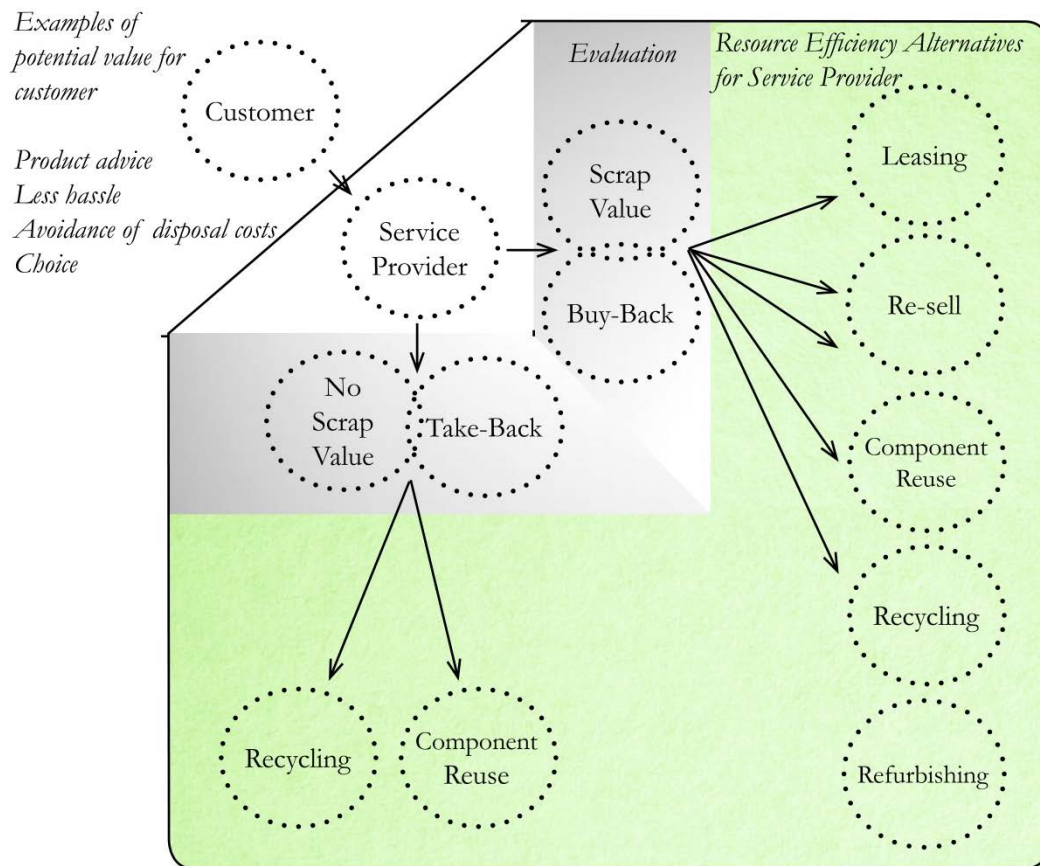


Table 4-2. Overview of Proposed Scenario for product take-back and buy-back

4.4 Scenario 2 – Use-Oriented PSS – Product Leasing/Renting

The basic idea of the second proposed scenario encompasses that the service-provider offer products for lease. According to Baines et al. (2007) the scenario would classify as a use-oriented PSS. Here, the customer is offered to lease single pieces of furniture as well as full room settings both long and short-term.¹⁹ The customer further has the possibility of exchanging furniture throughout the lease period on the condition that they have the same cost structure. All products come with warranties and the returns of faulty products comply with national policies of consumer protection. If the product is damaged (due to unsatisfactory quality) within the warranty timeframe, the product will be exchanged. When the product is returned to the service-provider, it is examined and if the wear is considered “natural” the contract is terminated, or replaced by a new contract if the customer would like to continue leasing but desire to change product(s). Breaching the conditions of due care will warrant an additional charge depending on the extent of damages. The scenario naturally creates motivation for the service-provider to design and produce durable product with high quality that are easy to disassemble, recycle or refurbish and thereby prolong material and product life-times. Due to the possibility of distributing the product to more than one consumer further has the potential of prolonging product-life-times. Naturally, the service-provider maintains ownership of products and the value inherent in those products. Due to this ownership, the service-provider can choose when to remove the product from the leasing scheme and further processing.

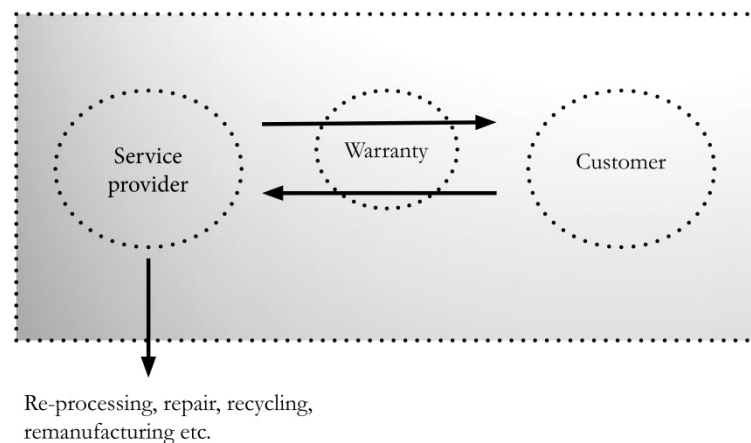


Table 4-3. Overview of Proposed Scenario for product leasing

¹⁹ In order to facilitate notion of time, the proposed time-frames departs from 1 month to 5 years.

5 Main Findings from the Consumer Surveys

This Chapter revisits key findings from two surveys in which participants were presented with the two scenarios shown in Chapter 4. The results are presented in illustrative form and structured according to the underlying factors that formed the basis of the surveys Figure 5-1.

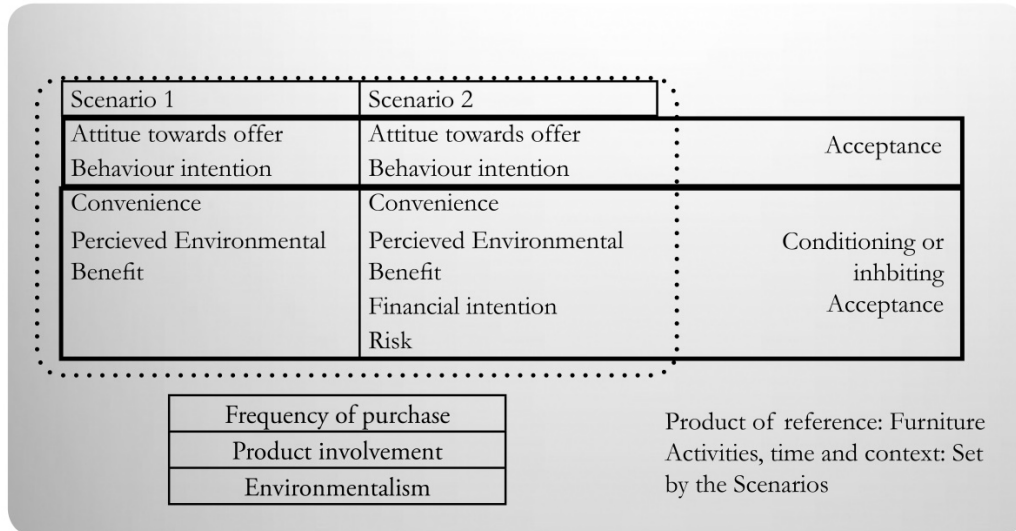


Figure 5-1. Underlying factors in survey

Source: Authors own creation based on findings from an extensive literature review.

5.1 Consumer Perceptions of Furniture Take-Back

The first scenario addressed product-based PSS and product take-backs in particular. In this survey, it was deemed appropriate to narrow the wide range of objects included in the furniture product group in order to facilitate for the participants to respond to the statements especially so, since the survey was self-administered and the researcher was unable to facilitate. Hence, kitchen furniture was used as an example in the description of the offer to consumers and a total of 41 questionnaires (UK) were collected. Figure 5-2 shows the scenario as presented to the respondents.

A retailer offer kitchen furniture to purchase (cabinets and doors, cabinet structures and countertops) with a possibility to return it to the same retailer after use. Depending on the condition of the used furniture the retailer can resell it as second-hand, upgrade it or recycle materials thus saving natural resources. Upon the return you can also receive a coupon of different value, which you can use when you want to purchase new furniture from the same retailer. As a customer you have a possibility to buy both new and second-hand kitchen furniture. The latter are sold at a lower price.

Figure 5-2. Product-Oriented PSS Description – UK Consumers

Source: Authors own creation

Due to the presence of the author during the completion of the questionnaire distributed in a furniture store in Sweden, scenario one was described to the respondents but was not limited to kitchen furniture and rather focused on furniture in general.

Attitude

In general the UK respondents had an overall positive attitude (58.5 %) towards returning kitchen furniture with 48.8 % going as far as to state enthusiasm towards the offer. The following comment depicts the overall positive perception among respondents “This is a sensible idea and I would like to see it implemented” (Survey, 2015). However, the result also showed a fairly large number of participants (37.7%) conveying the impression of not relating to the statement as they neither agreed nor disagreed. Only 9.8 % (4 individuals) clearly stated that they did not have a positive attitude towards returning kitchen products. Respondents in Sweden were slightly more positive towards returning products (67.8 %) at end-of-life than in the UK.

Behaviour Intention

Intention to return products is assumed to increase (apart from correlating with a positive attitude) relative to provided financial incentives. Related questions were therefore included in the survey. Without a financial incentive such as a coupon in return, 62.5% of the respondent in the UK sample stated that they would be willing to return products. A considerably high number of participants (82.9%) further stated that they would be willing to return products in return for a coupon. Respondents in Sweden were slightly more positive (65.8 %) towards returning products at end of life than in the UK. However, the results from the survey of Swedish consumers showed considerable differences in terms of return of products without a financial incentive where 20 % of the Swedish sample stated that they would return products without a provided financial incentive.

Convenience

Due to the bulky nature of furniture, perceived convenience was found to highly affect stated acceptance towards product-take back and consequently successful recovery of products. Hence, with respect to convenience, the general attitude among respondents in the UK sample towards the possibility of returning products to the retailer/producer (excluding any consideration to logistics) was positive among 65% of the respondents versus 22.5% that did not perceive return of products to the retailer as convenient. The Swedish sample showed a lower perceived level of convenience at (17.1%). From a consumer perspective, providing logistics can be perceived as convenience however, from the service provider’s perspective, facilitation of logistics in order to increase return rates is rather perceived as an incentive. Due to the focus on consumer acceptance, facilitation of logistics was perceived from a convenience point of view. Respondents in the Swedish sample reported that pick up of furniture was deemed to be of higher importance in comparison to the provision of a financial incentive for overall acceptance of the offer. Convenience (particularly in relation to logistics) was further interpreted as to be of high importance to respondents in general as stated willingness to return furniture would be much higher if some type of collection service was in place. Fig 6-3 shows some of the main comments and perceptions in relation to convenience.

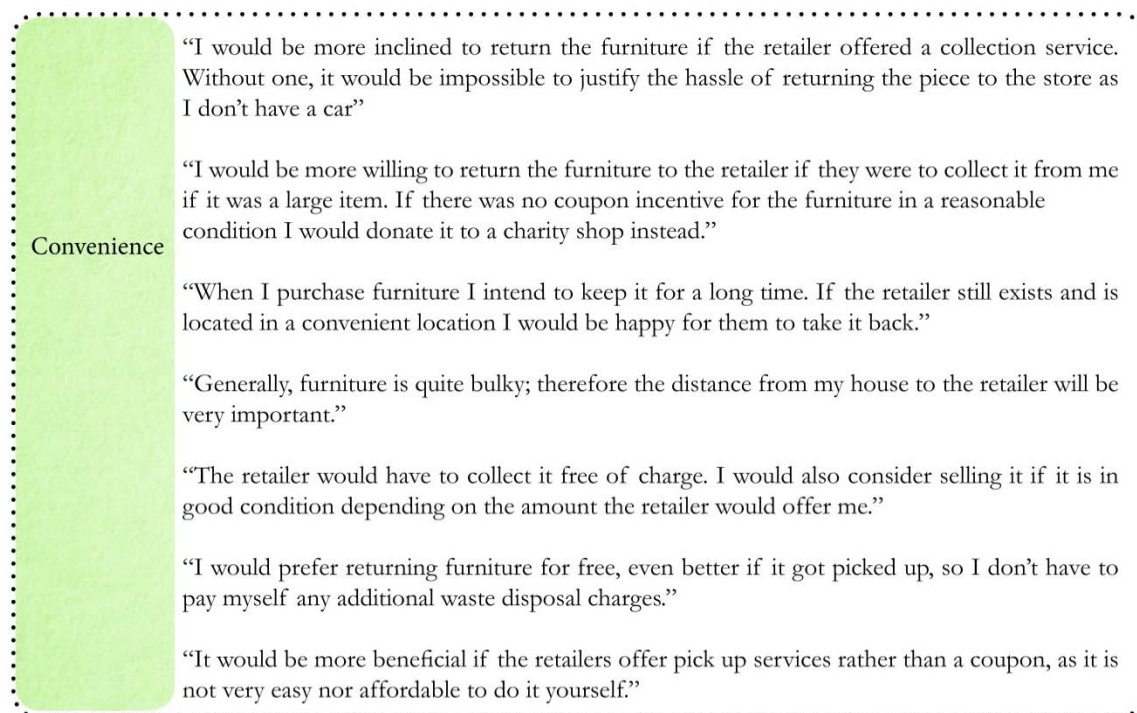


Figure 5-3. Use-Oriented PSS Description – UK Consumers

Source: Survey (2015).

However, it should be noted that a certain difficulty for consumers to visualise a “take-back” offer can be expected as a number of the participants expressed concerns of how this type of offer would practically work and some of the respondents communicated that they had a positive attitude towards the offer but were not sure how real world viability would be achieved. On a final note, it should be noted that answers also suggest that some consumer groups maintain high philanthropic values that steer furniture disposal habits depicted by the following comment: “I like to donate my used furniture to charity therefore I may be more likely to return it to the retailer for free if they were to give it to charity, otherwise I would just donate it myself to charity” (Survey, 2015).

Perceived Environmental Benefit

Measurements of consumer perception towards the service offers being more environmentally sound in comparison to alternative offers showed that 85.4% of the respondents in the UK and 52.8% of respondents in Sweden believed that by giving back furniture to a retailer they would be doing something good for the environment. One respondent in the UK stated: “I believe that we should all recycle whenever possible and not be swayed by fashion trends great idea!” (Survey, 2015), and another respondent in Sweden stated “I think there should be more recycling of furniture, it’s sad that so many beautiful things go to waste when people don’t want them anymore” (Survey, 2015).

5.2 Consumer Perceptions of Leasing Furniture

The second scenario focused on use-oriented PSS, entailing consumption without ownership. In particular, long and short term leasing of furniture (individual pieces) and room settings (complete set of furniture for a room). Figure 5-4 shows the scenario as presented to the respondents.

A retailer offers to lease new and/or second-hand furniture for bedrooms, dining and living rooms (wardrobes, closets, chest of drawers, sofas, armchairs, TV-sets, tables, chairs, beds, mattresses and garden furniture). You can choose between single pieces, pre-designed room sets, or custom-design your own furniture sets. Orders can be placed in-store or online with free advice from experienced room designers.

The leasing periods are from 1 month to up to 5 years, where the retailer will both deliver and pick-up the furniture. The customer also has a possibility to purchase the leased furniture at any time of the rental period where the loss of value is deducted from the price. Depending on condition, the returned furniture can be recycled, remanufactured, or re-rented so that the products' lifetime could be extended and resources saved for the production of new furniture.

Figure 5-4. Captured perceptions and attitudes in relation to convenience

Source: Authors own creation

Attitude

Participants in the UK sample expressed rather unfavourable attitudes towards leasing furniture. 46.3 % of the respondents stated that they did not have a positive attitude towards leasing as opposed to 34.1 % respondents who stated that their attitude towards leasing was positive, correlated with a stated behaviour intention of high likelihood; 29.3% and a high willingness of 43.9%. According to the respondents, the attitude towards leasing of furniture is dependent on the duration of need as a considerate amount of respondents (78.1 %) stated that they would be willing to lease furniture if they only needed them for a short period of time. "I would not be interested in leading furniture but can see the value in it if moving home regularly and only needing it for a short time" (Survey, 2015). In the Swedish sample, just over half of the sample (52.1%) stated that they had a positive attitude towards short term leasing and 47.8 % stated that they were positive towards long term leasing. Those respondents who were positive in both samples, were very expressive in their comments; "I think that leasing of furniture is a great option for people in the city and people with low income" (Survey, 2015).

Factors that were mentioned in relation to temporary leasing were efficiency and convenience. The results also suggest that current life-situation affects the attitude towards leasing due to varying needs at different stages of life. A contributing factor to the lack of positive perceptions towards leasing could relate to a sentimental value that consumers' manifest in their furniture. However, consumers expressed strong preference towards paying for furniture upfront, 68.3%. Here, disposable income seemed to be a dominant factor affecting their judgement towards paying for furniture upfront. As an example, participants with lower disposable income were less interested in the offer due to uncertainty of not being able to afford monthly payments, risk losing their furniture and thereby increase their monthly liabilities. However, a few respondents stated that if they had a higher disposable income their attitude towards the offer would probably change for the better.

The survey distributed in Sweden also included questions relating to differences in attitude depending on product group. As can be seen from the responses relating to furniture type Figure 5-4, a large majority (55%) were rather negative towards leasing of upholstered furniture but 47.5% were as seen in rather positive towards the lease of wood-based furniture. Respondents were also asked the same question but with focus on attitude towards leasing of second hand furniture. Here the results were rather different, 47.8% stated a negative attitude towards leasing of wood-based furniture and 73.9% stated a negative attitude towards leasing of upholstered furniture. One person commented; "I would be very suspicious about quality

and hygiene of returned goods” (Survey, 2015). Many of the comments in-store relating to second-hand products involved fear of pest contamination (bed bugs were mentioned several times), allergies (what if the previous users had pets or smoked) and general fear of unhygienic condition of products.

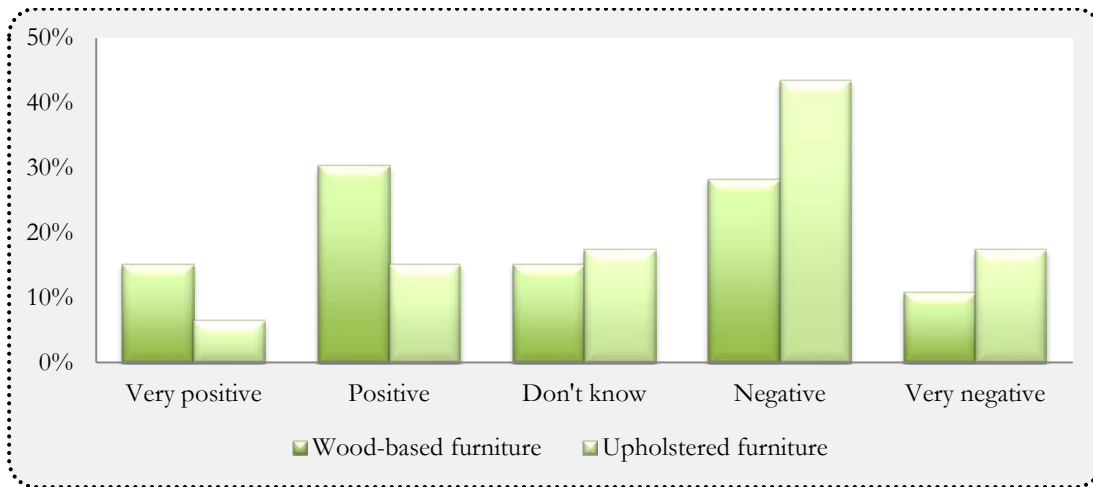


Figure 5-5. Product group differences in attitude towards leasing of furniture.

Source: Survey (2015).

Finally, when comparing gender specific attitudes towards leasing, a slightly larger share of women stated a positive attitude towards leasing furniture in comparison to men. This pattern was observed in both samples. However, due to a larger portion of women than men in the total sample, the representation of stated attitudes was not deemed sufficiently reliable to draw conclusions on gender specific acceptance.

Behaviour Intention

The behaviour intention was in general rated higher than the stated attitude towards leasing. Potentially, because the questions related to intention included additional information such as reasonable price, need for furniture only during a short period of time, which increased the stated intention in relation to attitude. The results then indicate that if the price level convenes with a consumer’s willingness to pay and that the consumer perceives a relative cost advantage of the leasing offer in comparison to purchasing furniture the intention to buy increases. Regarding period of lease, the stated behaviour intention corresponds with the stated attitude in the sense that acceptance of leasing is suggested to be higher when consumer needs of furniture are temporary.

It was further deemed interesting to retrieve data on consumer preferences towards shopping experience in relation to leasing of furniture. As Figure 6-2 shows, more than half of the respondents would want to meet an interior designer prior to confirmation of contract (right), and much fewer respondents (32.5%) would be interested in ordering online (left). Hence, the assistance of an interior designer seemed appreciated by the respondents as it would facilitate the creation of a home that reflects the personality of the individual.

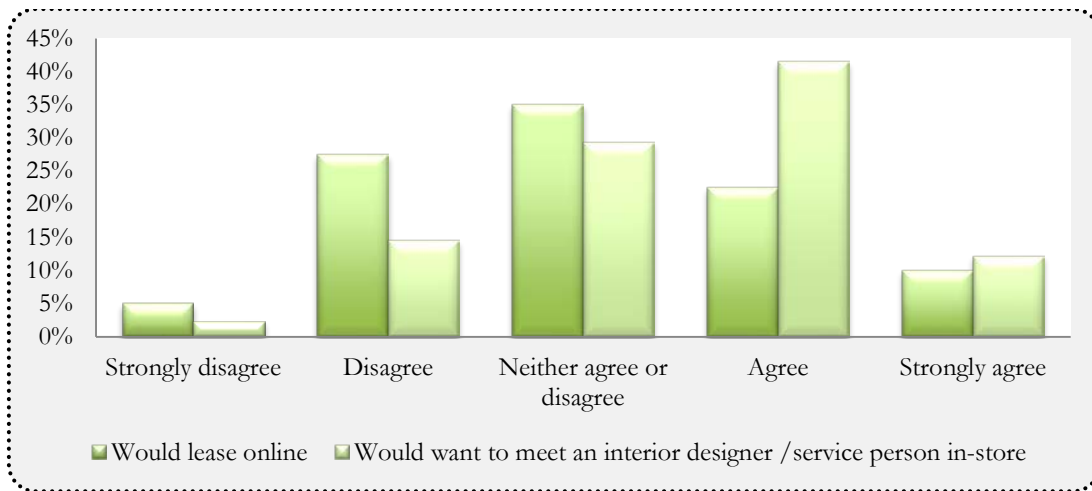


Figure 5-6. Lease online versus interior designer /service person in-store

Source: Survey (2015).

Convenience

As for scenario one, perceived convenience of the use-based PSS (leasing) was also measured. A conservative 14.7 % of respondents stated that leasing furniture seemed convenient in the UK based sample as opposed to 36.7% in the Swedish based sample. Hence, a large portion of the respondents did not perceive leasing as more convenient than purchasing furniture. For example, in the survey targeting consumers in Sweden, only 19.4% stated that leasing of furniture seems inconvenient. The responses related to convenience are likely to have a correlation with consumer difficulties in visualising how leasing would work and what it would entail in practical terms. However, respondents did realise some of the consumer benefits related to use-based PSS. For example, a large part of the UK based respondents (63.4 %) perceived a benefit of being able to change furniture more often. However, only a few of the respondents agreed that leasing would make it easier to plan furnishing of their home.

Perceived Environmental Benefit

On the question relating to how environmentally beneficial leasing of furniture as opposed to purchasing furniture, a large number of UK based participants (60.9%) perceived leasing as better for the environment in comparison to purchasing furniture. On the same question, the Swedish based sample 50% perceived leasing as more favourable towards the environment than ownership. In relation, the respondents in the Swedish survey were asked to rate their level of environmental concern and awareness when shopping for furniture for which 44.5% argued that they had high awareness, 44.4% were modest and said that they partly think about environmental impact of furniture and 11.1 % clearly stated that they did not think about environmental impacts when purchasing furniture.

Financial Intention / Perception of Costs

Although no cost structures were included in the provided scenarios due to decrease complexities for the consumer and due to lack of sufficient information to create realistic price structures, general perceptions of costs related to leasing were measured. 68.3% of the UK respondents stated that they have a preference towards paying for furniture upfront however, 50.2% stated a general perception of being able to avoid costs related to repair and maintenance through a leasing offer. The results further showed that 30% of the respondents in the Swedish survey maintained a belief that leasing would allow obtaining furniture that

they would not be able to afford to purchase and 43.3% saw a potential for leasing being cheaper than ownership.

Risk

Perceived product risk was also measured and the results showed that 63.5 % of the respondents in the UK expressed concern for the consequences related to furniture dysfunction, wear and tear. Put together with 53.7% of respondents stating that they would handle leased furniture more carefully than purchased furniture.

5.3 Frequency of Purchase & Product Involvement

Even though the primary interest lays in acceptance towards the two scenarios, testing the stated frequency of purchase was deemed important in order to obtain a better view of purchasing patterns and consumer furniture needs and the results showed that a large part of the respondents (43.9 %) like to replace some of their furniture every few years. However, this replacement is not likely to be due to consumer desires of keeping up with design trends as 87.7% disagreed with the statement: “I change my furniture often to keep up with design trends” (Survey, 2015). On a similar question relating to life-expectancy of furniture, 92.7 % agreed on the rather arbitrary statement that furniture should last for a long time. In relation, when a division between wood based and upholstered furniture was made, 90.2 % responded that whenever they purchase wood furniture, they plan on keeping it for a long time, whereas for upholstered furniture, 75.7 % responded the same. Figure 6-1 below shows the results from two questions relating to how long people believe that wood-based and upholstered furniture should be kept for. As depicted, consumers state that they do think that upholstered furniture should be kept for the same amount of time as wood-based furniture.

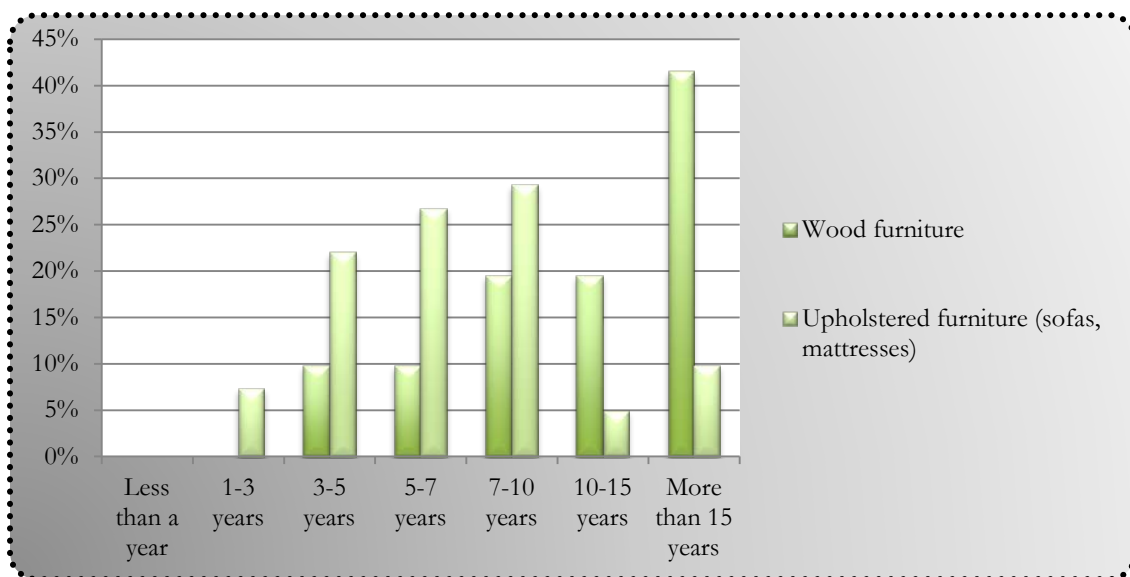


Figure 5-7. Stated time frames for keeping furniture

Source: Survey (2015).

Approximately half of the respondents in the UK sample stated that they prefer purchasing furniture as opposed to leasing due to sentimental values versus 21.4% in the Swedish sample.

Environmentalism

The survey targeting residents and citizens of the UK also included a number of environmental profiling questions in order to measure environmental concern and correlated attitude towards the proposed PSS scenarios.

Environmental problems are often described as emotionally charged topics (Diekmann & Preisendörfer, 2003). The survey shows that 61% of respondents fear that environmental conditions will cause problems for future generations.²⁰ In addition, a large portion of the respondents, 82.5% believe that there will be environmental catastrophe if we continue the current style of living. But on the other hand, stated willingness to reduce current standards of living is considerably lower at 45%. The assumption upheld was that individuals would have a higher acceptance for the return of products at end-of-life if they scored high on the environmental scale. As presented in Fig. 5-7 below, the correlation between environmental profile score and acceptance an insignificant correlation between environmental score and attitude towards leasing.

However, the correlation appears to maintain a certain level of significance between environmental profile score and acceptance of product return.²¹ It should be noted here that in comparison to leasing, the activities concerning return could potentially require more effort from the consumer than what they are used to. However, return of products does not challenge consumer purchasing behaviour in the same way as leasing does and might therefore be easier for the consumer to adopt.

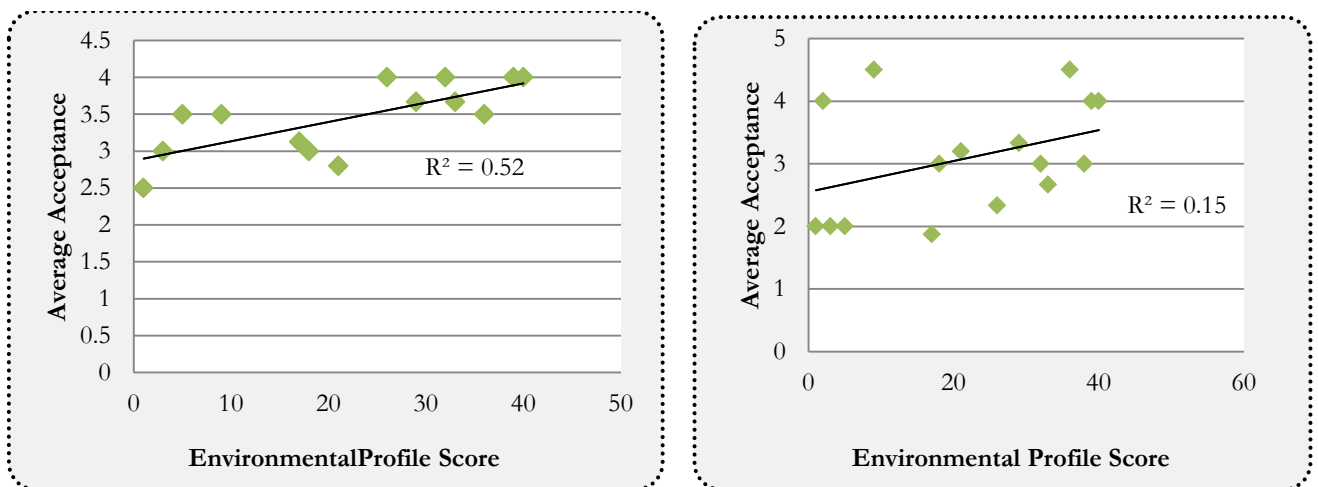


Figure 5-8. Correlation between acceptance and environmental profile score.

Source: Survey (2015).

²⁰ A scale for measuring consumer concern and attitude towards environmental issues was included with the aim of measuring the correlation between attitude towards the two scenarios and environmental concern. The acceptance was calculated on a 5-point Likert scale and averaged between the different environmental profile scores. The environmental score was also calculated based on a 5-point Likert scale and ranged from 7 to 39, the latter being a very environmentally concerned individual and the former not concerned at all. It should be noted that environmental questions were placed last in the survey in order not to influence participant answers to the previous questions.

²¹ Correlating general environmental concern with the general attitude towards the two scenarios showed moderate correlations, which was expected due to the “correspondence rule presented by (Ajzen, 1991). The correspondence rule states that the attitude and the behaviour measures should be of similar field and a comparable degree of specificity/generality. These measures violates this rule.

6 Analysis

This chapter presents the analysis of the findings related to acceptance of the two proposed PSS offerings. The findings are interpreted, analysed in relation to findings from the literature review as well as interviews, and juxtaposed with altitudinal findings from previous research within the PSS literature. The aim is to answer the two first research questions that set the scope of this thesis namely; what is the general acceptance of consumers towards proposed business offerings of household furniture based on Product Service System typology; and what factors are important for the conditioning of consumer acceptance of furniture Product Service Systems. The discussion is then followed by a revisit of the two proposed PSS scenarios presented in Chapter 5 and suggests improvements for increased customer value. Consumer behaviour is a complex phenomenon, and thus the primary contribution of the current analysis is to show particular pattern of relationships, and identify factors for acceptance more so than any absolute strength.

When attitude and behavioural intention measures are combined, they form a measure for acceptance which is defined as “the readiness to adopt a new product or service” (Schrader, 1999 p.110) as shown in Figure 6-1. The scenario provided the consumer with a product of reference, an action, context and time, specific factors that combined with stated attitudes and behaviour intentions enables a stronger measure of acceptance as argued by Allan Sik Hung, (1999). The analysis separates each scenario and first reviews acceptance and then factors found to condition or inhibit acceptance for each scenario.

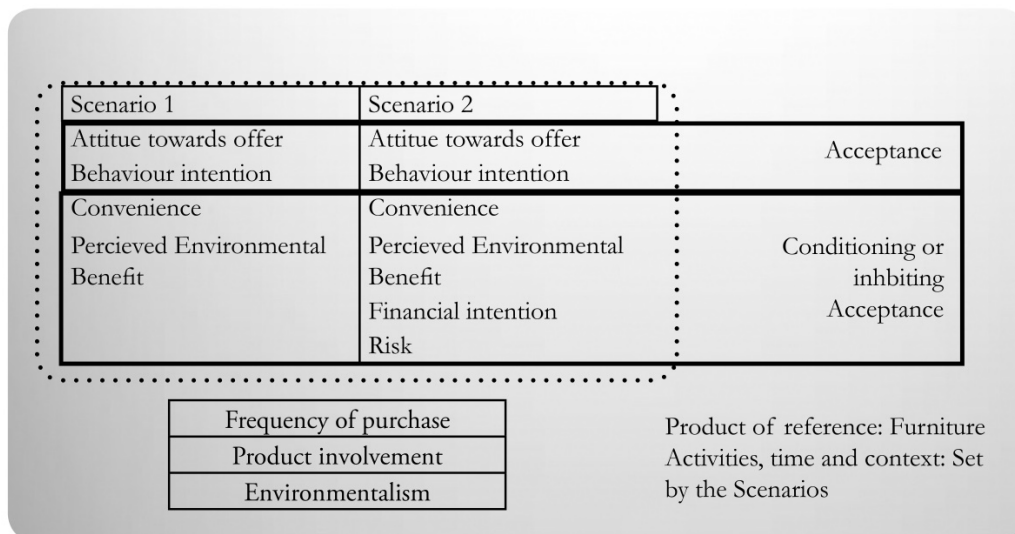


Figure 6-1. Underlying factors in survey

Source: Authors own creation based on findings from an extensive literature review.

6.1 Scenario 1 – Product Take-back

The first scenario framed the stated acceptance towards the act of returning furniture to a service-provider/retailer at the EOL/disposal of the product. The way the scenario was explained to the respondents, the product did not necessarily have to have reached its actual EOL but rather when the respondent was no longer in need of the product, regardless of the state of it.

Similar studies in the past have found that consumers were hesitant towards how the service would actually work in practice (Armstrong et al., 2015; Rexfelt & Hiort af Ornäs, 2009) which was a reoccurring issue in relation to both offers in the current study.

Acceptance

Findings in this research showed higher stated acceptance towards returning furniture at end-of life in comparison to lease of furniture. These results correspond well with previous research where it has been found that the former do not challenge habits of consumption in the same way as use-oriented PSS does (Bardhi & Eckhardt, 2012). Since the consumer has the intention of rejecting the product, a take-back offer only adds an additional disposal option and does not affect consumption patterns for the individual consumer. In general, findings could be interpreted so as to show a certain level of “readiness” among consumers towards this type of PSS. Both stated behaviour intention and attitude were in general positive. However, attitude correlation with behaviour intention showed considerable differences between the UK and the Swedish sample. The former showed a high willingness to return furniture without a financial incentive whereas the latter showed a low willingness when there was a lack of financial incentive provided. Due to the low number of identified studies that are of similar nature, the findings here were not comparable with previous research. However, as suggested by Stevels and Boks (2000) disposal activities are mainly affected by cultural, supporting facilities and related costs of disposal provided on a national level.

Conditioning and Inhibiting Factors of Acceptance

Acceptance is driven by a number of conditioning factors. As suggested by Rogers (1995) the perceived relative advantage of an offer needs to be higher than that of other alternatives for it to be preferred in comparisons to methods that previously have been used.

Survey findings show that the *main underlying factors supporting a relative advantage* and thereby promote the acceptance of take-back and buy-back services relates to the perceived convenience. Financial aspects (incentives), which originally were assumed to be the greatest motivators for acceptance of take-back services, were found to be of lower importance in the UK where convenience in the form of product-pick up and the perception of doing something good for the environment were the stronger motivators for acceptance. This aligns with findings from recent research of consumer attitudes towards clothing PSS conducted by Armstrong et al. (2015) who found that environmental benefits strongly contributed to the overall perception of PSS offers. In Sweden however, financial incentives were found to be a strong motivator for acceptance followed by convenience and lastly “doing something good for the environment. This discrepancy should not be taken as an absolute reality, as many different aspects lies beyond the narrow scope of this thesis e.g. differing cultural distrust towards environmental performance of companies. On another note, these findings are interesting because they exemplify suggestions from a number of researchers within the field of PSS who denote that communication strategies for PSS offers should not particularly target customers that are “environmentally conscious” but rather take into consideration different consumer motivations (convenience, transaction effort, fashion and design) (Lamberton & Rose, 2012; Botsman & Rogers, 2011; Rexfelt & Hiort af Ornäs, 2009).

Convenience - Although convenience have been found to be of high importance for the acceptance of PSS offers in previous studies (Lee et al, 2015; Baumeister & Wangenheim, 2014; Catulli, 2012), the service and product attributes frames what convenience involves. When referring to convenience for the particular product group of furniture, a few different interpretations can be made. The findings in this study allow for a specification of convenience for the specific product-service offer of furniture take-back namely; logistics,

hassle of moving furniture (due to the general bulkiness), transport/transaction cost and distance to store. If take-backs are conveniently organised, taken the above factors into account, one can assume that consumers are more likely to accept and have a positive attitude towards the service offer. Further supported by Armstrong et al. (2015).

The results further showed that consumer attitude towards take-back offers largely increase if pick-up services are offered, with the main reason being the bulky nature of furniture. Hence, two aspects are of relevant here. (1) It seems necessary for *furniture* service-providers to provide some type of pick-up. (2) Similar studies of other product groups (unless them to are of bulky nature), will most likely not arrive at the same findings as this aspect is strongly correlated with the rather large nature of furniture. Without a pick-up service, successful recovery rates are believed to be hard to achieve, and the offer risk of excluding consumers that do not have access to adequate transportation measures or perceive the effort and cost of logistics to be too high to justify the return. These findings were further supported by the consultations with industry professionals.

Environmental benefit - Survey findings suggest that acceptance can be enhanced through the promotion of a take-back service as being environmentally beneficial. Authors within the literature of sustainable production and consumption have clearly stated that due to the resource insensitivity related to furniture production (use of wood in particular), consumer concern about the environment has a tremendous potential to negatively affect the furniture industry in general (Ozanne & Smith, 2007). As suggested by (Schrader, 1999), it becomes important for the service provider to communicate the relative advantages of the service offer in comparison to alternative means of disposal. The findings showed that many consumers believe that by returning furniture to the service-provider, they are doing something “good for the environment”. This perception alone could signify a sufficient relative advantage for consumers that are environmentally concerned to adopt such an offer. Although, argued as arbitrary by some, a small, significant correlation between environmental concern and acceptance of a take-back offer was interpreted by the author.

Financial incentives – The findings of this research indicate that acceptance among some consumers is strongly promoted through the provision of financial initiatives. As found from the interviews conducted for the purpose of this thesis, furniture take- and buy-back is in competition with second-hand markets for furniture. Furniture often maintains value at the time of disposal (both in reuse and recycling potential) and consumers therefore needs to be provided with a relative advantage stronger than the alternatives.

On a similar note, findings also showed that some consumers want to be able to choose how the returned product should be managed. Largely steered by altruistic values, findings showed that many consumers want to be able to donate their products to charity. This can in some ways hinder acceptance of take-back offers that focus on environmental efficiency. However, promote acceptance for organisations that take-back furniture with the aim of dispersing them to lower segments of the society. However, from a business perspective, findings from industry showed that by offering the consumer the possibility to choose the destiny of their products can attract a wider arena of consumers, provide them with a relative advantage compared to alternatives which often only allow for one type of disposal option with different interests while concurrently enhance reputation and the collection of furniture for re-processing.

Considering previous research and findings related to factors that condition acceptance of PSS with the findings from the surveys and the interviews with industry and academia some

generic factors underlying consumer attitudes towards take-back of furniture can be summarised.

Table 6-1. Factors underlying acceptance of product take-back

| Product | Service | Consumer |
|------------------|-------------------------------------|-------------------------|
| Value of product | Relative advantage | Product involvement |
| Functionality | ➤ Transaction effort/cost | Cultural values |
| Size | ➤ Incentives | Environmental awareness |
| | ➤ Convenience | |
| | Complexity | |
| | Observability | |
| | Compatibility | |
| | Environmental improvement potential | |

Source: Authors own creation

6.2 Scenario 2 – Furniture Leasing

The second scenario framed the stated acceptance towards the act of leasing furniture as opposed to purchasing. It provided a flexible time frame that was suggested by industry professional interviewees. The offer did not explain any benefits to the consumers. After a thorough analysis, the author decided not to include any “selling” language in the scenario, in order not to influence the current and inherent attitudes towards leasing. Promotional language in scenarios used to elicit consumer attitudes have previously been done by e.g. Rexfelt and Hiort af Ornäs (2009). Hence, the implication here is that if the scenarios would have been promoted as “offers” advantageous to the consumer, the stated attitudes could potentially had been different (most likely in the favour of higher levels of stated positive attitudes). In relation, it was deemed important to include the underlying business reasoning of prolonging material lifetimes in the scenarios for better understanding of the scenarios among the respondents. This could have influenced the answers in favour for higher stated positive attitudes due to environmental benefit. On a final note, the lack of existing industry PSS examples seemed to make it difficult for some consumers to imagine. Furthermore, it is important to note that access and ownership are not mutually exclusive consumption modes (Schaefers, Lawson, & Kukar-Kinney, 2015). Consumers can for example lease certain products but still purchase others. However, this seemed to be difficult for some consumers to take into account. Once they had leasing on their mind, the option of leasing just a few pieces of furniture as to complement with owned furniture seemed to be difficult.

Acceptance

Unlike ownership, the leasing consumption mode entails that the service provider maintains ownership of the product but the customer is given access to that product in exchange for monetary payment. Some authors within the service literature discuss an ongoing paradigm shift in how individuals perceive ownership of products in relation to access and related self-identity (Belk, 2014; EMF, 2013; Botsman & Rogers, 2011). In the current case, consumer acceptance towards lease of furniture has not showed to be strong enough to support the above statement. However, some interesting observations can be derived from the resulting findings in this study.

First, there was a considerable difference in terms of stated acceptance towards long-term and temporary leasing. When furniture needs are only temporary such as while studying, displacing for a temporary work contract, stated consumer acceptance was considerably higher. As a side note, this finding is deemed to be valid among a wider audience as research findings presented by a colleague earlier this year showed that 62% out of a total sample of 1177 individuals aged 20-35 years of age *stated* a positive attitude towards leasing furniture (Gullstrand Edbring, 2015). As mentioned in the findings section, the behaviour intention was in general rated higher than the stated attitude towards leasing. Potentially, because the questions related to intention included additional information such as reasonable price, need for furniture only during a short period of time, which increased the stated intention in relation to attitude. The results then indicate that if the price level convenes with a consumer's willingness to pay and that the consumer perceives a relative cost advantage of the leasing offer in comparison to purchasing furniture the intention to buy increases. Regarding period of lease, the stated behaviour intention corresponds with the stated attitude in the sense that acceptance of leasing is suggested to be higher when consumer needs of furniture are temporary. It should be noted that while the semantics of the word temporary can be confused with one of the two meanings; access and usage of temporality as described by Bardhi and Eckhardt (2012). Here only long-term use of a product in a private lease setting is referred to.

Conditioning and Inhibiting Factors of Acceptance

Respondents recognised some of the benefits with use-oriented PSS and perceived clear economic associated benefits such as possible savings by being able to use furniture on lease, when needs are temporary, and being able to pay only for the usage they make of the product would lead to financial savings. (e.g. smarter purchasing, trying before investing and affording more exclusive product). However, the findings from the survey as well as previous literature (Vezzoli et al., 2015; Rexfelt & Hiort af Ornäs, 2009) also show that consumers might have negative perceptions from bad reputation of leasing in the past as well as resistant due to habits. In line with Rexfelt and Hiort af Ornäs (2009) observations, respondents did not specifically state that they were not interested due to habit of ownership but the way in which the comments were made suggest that so was the case. This particularly shined through when consumers were commenting freely on the offers. Hence, a conclusion that can be drawn from the current study is that ownership of goods is still important to many consumers and hinders the acceptance of PSS. It should also be noted that scepticism about adding additional payments monthly was mentioned related to the offer as well and some of the respondents commented on their current living standard and problems with paying bills every month and would not be interested in adding additional monthly expenses.

Convenience was perceived as low by majority of respondents. This further supports the notion of consumers having difficulties in understanding how the offer would work and what it would entail for the consumer. This is a strong barrier for acceptance, since it is related to relative advantage. If the consumer does not perceive a relative advantage with the leasing offer, the uptake of it is predicted to be low.

The result from the survey also clearly showed that acceptance of leasing second-hand upholstered furniture is lower than wood-based furniture. Largely due to hygienic reasons and fears of previous owners maintaining pets or being smokers. In Sweden, a big fear of insects (bed bugs and moths) was also observed. These results support Baumeister's (2014) findings that attitudes differ depending on product groups. Attitudes in relation to hygiene should be generalised with caution, because as found through the interviews with industry, second-hand trading is on a steady up rise, where both upholstered and harder material furniture products are traded continuously. Furthermore, as found in the literature review

Perceived environmental benefit - A large portion of the respondents also perceived lease of furniture as more environmentally beneficial as opposed to purchasing furniture. However, this finding should be interpreted with a level of caution. Due to the intangible nature of services, and unfamiliarity with this type of offer, consumers might have a hard time understanding all aspects of a service and even more so, what the resulting environmental impacts of a particular consumption mode.

Financial intention – Consumers seems to be victims of habits regarding paying for products upfront which the case with furniture was shown to be in the findings. This is further a barrier towards acceptance of leasing offers. However, findings from the interviews with industry clearly state that cost-efficiency is the largest potential driver for acceptance of use-oriented PSS. If leasing offers can be developed so that there is a clear economic incentive for consumers to lease consumer willingness would increase.

Risk- Previous research has shown that consumers have been hesitant to use-oriented offers and the consequences that would follow if the product would break. The results in this survey support previous research. In relation, it was deemed interesting to investigate whether consumers would handle leased furniture with more caution in comparison to owned products both due to the assumed risk perception but also because some previous studies have found that consumers have had a tendency to misuse leased furniture and therefore, diminished the environmental benefits with such offers (Vezzoli et al., 2015). The findings show rather weak results for both handling and not handling products with more caution. Hence, this would be an area that would need more research attention before drawing conclusions.

Apart from obtaining a better view of stated acceptance, the findings showed additional aspects that could positively affect the acceptance of PSS offers as those specifically tested for in this study namely, consumer perceptions of being able to follow home furnishing design trends, and afford pricy high-quality furniture that the individual would not afford to purchase through lease offers. Findings relating to increased acceptance of leasing among consumers with a trend orientation further find support in previous research. Moeller and Wittkowski (2010) investigated a number of determinants of preferences for renting goods and found that individuals with a strong “trend” and “convenience” orientation have higher preference for leasing of products. The current study show similar results indicated by a number of respondents stating a positive attitude towards leasing due to their potential in satisfying wants for design and trendy furniture that would not be afforded in the normative ownership model.

In sum, as many previous studies have shown, the culture of ownership is deeply rooted among consumers. Acceptance for furniture leasing goes up when the needs for furniture are only temporary which in addition has been shown in previous studies (Armstrong et al., 2015; Rexfelt and Hiort af Ornäs, 2009). The results from the surveys regarding consumer acceptance of use-oriented PSS coheres well with results from earlier research (Table 6-2).

Table 6-2. Factors influencing consumer acceptance of PSS

| Product | Service |
|-------------------------------------|---------------------|
| Price | Relative advantage |
| Total Cost | Service reliability |
| Price-for-value challenges | Compatibility |
| Perception of fixed & variable cost | Temporality |
| Predictability of costs | Convenience |

| | |
|--------------------------------------|-------------------------------|
| Transaction effort/cost | Ease of use |
| Use intensity | Complexity |
| Product Modification / Customisation | Flexibility / Inflexibility |
| Brand | Trust in service provider |
| Hygiene (if used goods) | Trialability |
| Storage space /effort | Observability |
| Product involvement | Performance |
| Pre-and after-usage effort | Significant range of products |
| Need for careful handling | Helpfulness of service staff |
| Responsibilities | |
| Maintenance effort | |
| Risk of failure | |
| Environmental benefit | |
| | |
| | |

Source: Derived from the following publications; Armstrong et al., (2015); Baumeister & Wangenheim, 2014; Schenkl et al., (2014); Catulli et al., (2013); Bhardi and Eckhardt, (2012); Rexfelt and Hjort af Ornäs, (2009); Mont & Plepys, (2003); Schrader, (1999) and Rogers, (1995).

7 General Discussion

As discussed, the findings in this study largely support previous research within the field. The unique aspects in the current study relates to the product specific attributes and their implications on acceptance of PSS. In particular, the results confirm previous research that showed convenience being of outmost importance when developing successful PSS.

The literature review performed for the purpose of this thesis revealed that very few articles leave out the importance of communication for the conditioning of acceptance towards PSS offers. Consumer acceptance is largely influenced by communication from service providers, friends and family and the society as a whole (Armstrong et al.,2015; Schrader, 1999). Hence, for a satisfying uptake by consumers and success of PSS offers within the furniture industry, companies need to realise the importance of communication adapted to various consumer segments. As the surveys showed, consumers seemed more willing to lease furniture short-term. Here, communication targeting people that are only settling down for a limited time such as students, expats, and project-based workers should be developed. Highlight could be put on the relative advantages such as lack of pre-and after usage efforts and potential cost savings with leasing as opposed to purchasing furniture.

Furthermore, due to the innovative status of leasing and its effect on traditional purchasing behaviour, consumers need to be informed about the benefits of leasing. By testing out in small scale and ensuring that consumers have a good experience, they can become change agents and brand ambassadors that could communicate their positive experiences to their social spheres and decrease reluctance among those people as suggested by Planning (2015).

For companies that have quality and recyclability, design for disassembly integrated into their design processes, the product related challenges and barriers might be lower than those who have not. It has been argued (use the lit review) that the quality on furniture has become worse, for these companies an evaluation of the design process might be necessary. It also entails more product related challenges. If the company already has a reputation of bad quality, this will become even more challenging and a lot of focus needs to be put on communication.

7.1 Revisiting the Scenarios

Although consumers in general had a positive attitude towards both leasing and return of products, the latter was received better than the former. Hence a distinction between the efforts and challenge towards the inherent culture of ownership is largely different between the scenarios. These findings offer important implications for future sustainability and future furniture retail and marketing practice. As found through interviews with industry professionals and academics with knowledge of PSS and circular business models, a realistic scenario should provide a believable alternative to the existing offering with clear information about the key characteristics that consumer overweigh when they make a decision, e.g., total user utility, individual quality attributes, cost/price, tangible and intangible benefits, total cost of ownership, the size of risk to make a transaction etc.

The author share belief with Armstrong et al.'s (2015) suggestion that possibly, the development of furniture-related PSS is currently more ideal for companies with a well-established brand image due to trust issues among consumers.

Scenario 1 – Furniture Take-back

The findings show that there is potential for furniture retailers to promote sustainable consumption through the implementation of take-back schemes of furniture. It should however be noted that a certain difficulty for consumers to visualise a “take-back” offer can be expected as consumers in both the UK and Sweden expressed concerns of how this type of offer would practically work. Clear communication of the benefits that the take-back offer entails for them individually including the environmental benefits and what happens with the furniture once the retailer is in charge of the furniture is therefore needed. The take-back offer should also be conveniently organised for consumers. Due to the bulky nature of furniture, some hassle can be expected for consumers to return products. Hence, if possible, the retailer should arrange some type of logistical solution to consumers. With the increase in online purchasing, potential to offer take-backs in relation to the purchase of new furniture could decrease logistical costs, offer value and convenience to the customer and decrease emissions related to product deliveries and pick-ups. Clear communication of the environmental benefits should also be provided so as to motivate consumers that are environmentally concerned. Something which is believed to increase in the future as the consequences of current consumption and production patterns becomes more visible and apparent. The offer needs to provide clear relative advantages in comparison to other options. Here, by adding a number of different options to the consumer to choose from, the perception of relative advantage can be improved. Furthermore, the findings in this research shows that altruistic values sometimes guide the disposal of furniture, hence by adding this option to the offer, higher consumer value can be achieved.

Scenario 2 – Furniture Leasing

Overall, the whole sample was less positive to lease upholstered furniture in comparison to wood based furniture. This could create barriers consequently presents challenges for furniture service-providers that aim for re-leasing of these types of products for more than one cycle. Ultimately, the service-provider should aim at implementing strategies for the sanitation of furniture once returned. Making reliable estimations about the quality of these products can nevertheless be quite difficult. However, by ensure that consumers have the possibility to observe second-hand products prior to purchase or lease, the consequences of this barrier could be decreased. It cannot be underestimated how important product quality and design for durability, disassembly, remanufacturing and refurbishing are for a leasing scheme for a company that wants to improve its environmental footprint through a leasing scheme.

Many would not classify furniture as costly in relation to time of use, the decreasing life-time of furniture and increased mobility among younger generations makes a leasing offer more attractive both from both a financial and a convenience perspective. Lease offers needs to be adapted to the individual consumer. Also, this could show important aspects that need to be considered in marketing practices in order to get achieve more wide-spread acceptance and awareness of theses alternative modes of consumption.

On that note; business model development is a journey and not a destination and the contribution of this paper is as a discussion point to fuel further research rather than declaring 100% certainty of results.

7.2 Methodological Choice and Implications

The research in this thesis specifically focused on acceptance. The chosen methods for data collection only allowed for consumer opinions and stated behaviour rather than observed behaviour. Actual behaviour is preferred but hard to achieve due to the general lack of these types of business models. Although the author purposely aimed at integrating as many previously tested questions (with high validity) many aspects could have affected the stated answers. On a similar note, Schiffman, Kanuk and Hansen (2012) highlight that even though attitudes may result from behaviour; they do not equal behaviour and vice versa. Furthermore, due to the risk of the survey becoming too long, some aspects that could have been interesting to study were not included in the current study. Hence, it is not because they are not included here, that they are not relevant for overall acceptance. Furthermore, this study did not include actual prices. Hence, it would be interesting to study what the acceptance would be by providing actual prices.

The scenarios assessed in this research highlight a fraction of the options available to the furniture industry. The author hopes that the findings in this thesis can function as a grain of interest and starting point in the discussion of alternative business models and their applicability in the B2C market. The findings in this thesis do not represent a comprehensive list pertinent to the furniture B2C industry, nor does it present the two most suitable options that businesses should explore. Other variations or options on the business models presented in this report, may in practice be more suitable for implementation or provide greater economic or environmental benefit as well as customer value.

7.3 Recommendations for Further Research

Many questions remain unanswered, and those below are proposed directions:

Replication of the qualitative study in larger scale in order to be able to include a larger amount of factors.

Generation research might be needed in order to discover and uncover changes in attitudes, values, and preferences since lifestyles and social values might affect acceptance of these types of offers.

Studies on strategies for mainstreaming services as a consumption mode

Running of a “pilot” scheme of furniture products PSS based on a defined specification

8 Conclusions

This chapter reflects on the research questions, reveals the main inferences drawn from the consumer surveys and makes suggestions for business offerings of household furniture based on Product Service System typology.

Circular and so called regenerative systems of doing business have been promoted as substantial drivers for more sustainable production and consumption. Previous research has suggested that in order to promote the uptake, development and implementation of circular and service-based business models, further research focusing on attitudes among individuals towards specific product groups. This thesis aimed at contributing to this knowledge gap by assessing consumer acceptance of home furnishing PSS particularly targeting the B2C market. In order to do this, three research questions were guiding the research:

- I. What is the general acceptance of consumers towards proposed business offerings of household furniture based on Product Service System typology?

Product-oriented PSS and take-back offers in particular, offer potential for resource efficiency and consumer value within the furniture industry. The surveys showed that respondents had a rather high stated acceptance for take-back services.

It was found that consumers gave a strong rooted habit of ownership that hinders the acceptance of furniture use-oriented PSS offers within the furniture industry. However, a promising level of stated acceptance was found towards leasing when furniture needs are temporary.

Due to a general lack of these provisions on the European market, consumers have a difficult time realising the customer and environmental benefits with these types of provisions.

- II. What factors are important for the conditioning of consumer acceptance of furniture Product Service Systems?

The factor that was found to be central for acceptance of take-back services was: convenience. To achieve this and ample recovery rates, some type of pick-up service is perceived to offer the most value among consumers.

Factors that were found to be central for the acceptance of lease of furniture were cost-efficiency and relative advantage. In order to achieve this, further research should focus on developing an understanding the impacts of PSS on consumers' lives and consumption patterns.

- III. How could the proposed business offerings add more value to consumers compared to traditional product systems?

Due to the bulky nature of furniture, service-providers need to ensure that offers are convenient and cost-effective. The home represents an important part of many people lives. The critical point is to develop high-quality and durable and recyclable furniture that can be re-looped to several consumers for better overall environmental performance of the system but also in order to be able to offer competitive warranties which is crucial for consumer perception of risk.

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Appendix I – Interview guide, Industry

Business Related Questions

- How would you describe your service offer?
- What is your main market?
- How would you describe the typical consumer/customer?
- How would you describe the operational challenges that you meet today?
- Does your company recognize pressure to improve environmental performance?
 - From who?
- What are the legal challenges you face today?

Product Related Questions

- How would you describe the procedure in case of damaged products?
- What is the average technical lifetime of your products (how long could they be used without problems)?
- Do you lease second-hand products?
- Do you design your products for end-of-life, disassembly, remanufacturing, and repair? How?
- Do you offer maintenance and repair services for your products? How?
- What happens with products when they have reached their end-of-life?

Customer Related Questions

- Why are customers attracted by your offer?
- How often and why do your customers change offer/product?
- How do you establish and maintain contact with your customers?
- Which percentages of your customers use these services (if applicable)?

Scenario Oriented Questions

- How do you define circular business models?
- How do you think that PSS fit into the concept of circular economy?
- What market developments do you see for PSS and B2C in the future?
- What do you believe are obstacles for the development of B2C to become mainstream?
- What potential do you see in the proposed PSS scenarios from a
 - Consumer perspective
 - Business/operational perspective?
 - Environmental/Sustainability perspective
- What are in your opinion the weak parts of the PSS scenarios
 - Consumer perspective
 - Business perspective
 - Environmental/Sustainability perspective
- What consumer groups do you think will be most likely to be interested in renting based on the proposed scenarios?
- Are there any consumer groups in your view that would not be interested in any of the proposed scenarios?

Appendix II - Interview Guide, Researchers

Research Related Questions

- Please explain your line of research?
- What have been the main findings?
- What practical applicability do you see for household furniture PSS?

Scenario Oriented Questions

- How do you define circular business models?
- How do you think that PSS fit into the concept of circular economy?
- What market developments do you see for PSS and B2C in the future?
- What do you believe are obstacles for the development of B2C to become mainstream?
- What potential do you see in the proposed PSS scenarios from a
 - Consumer perspective
 - Business/operational perspective?
 - Environmental/Sustainability perspective
- What are in your opinion the weak parts of the PSS scenarios
 - Consumer perspective
 - Business perspective
 - Environmental/Sustainability perspective
- What consumer groups do you think will be most likely to be interested in renting based on the proposed scenarios?
- Are there any consumer groups in your view that would not be interested in any of the proposed scenarios?

Appendix III – List of Interviewees

Industry Professionals

Houdini Sportswear AB, personal communication with Mia Grankvist, Manager of Marketing and Communication. June 30th 2015.

IKEA Global, personal communication with Per Stoltz, Manager Circular Economy. August 19th 2015.

Offect, personal communication with Maria Ragnarsson, Environment & Quality Manager. August 18th 2015.

Turntoo, personal communication with Debbie Appleton, Business Developer, June 10th 2015.

Academics and Researchers

Ingvar Kamprad Designcentrum (IKDC), Lund University, personal communication with Katrin Molina-Besch, PhD Student. August 14th 2015.

Viktoria Swedish ICT AB, personal communication with Thomas Nyström, Researcher Sustainable Business. June 8th 2015.

Collaborating Centre on Sustainable Consumption and Production (CSCP), personal communication with Deng Yang, Project Coordinator (Business Model Innovation for Sustainable Lifestyles), June 12th 2015.

Linköping University. IEI- Department of Management and Engineering. Personal communication with Mattias Lindahl, Associate Professor, Environmental System Analysis and Environmental Management. August 4th 2015.

Appendix III – Sample Demographics

The total UK sample consisted of 41 respondents

- 24 women and 17 men
- 46.3 % being under 30 years of age
- 22% between 31 to 40 years
- 17.1 % between 41-50 years
- 14.6% between 51-60 years
- No respondents were over the age of 61

The sample was well-educated with 75.6 % that had obtained a university degree or higher and 22 % that had obtained a degree from higher secondary school.

The total Swedish sample consisted of 46 respondents

- 30 women and 16 men (concluding a rather skewed gender division)
- 65% under 30 years old
- 15% between 31-50
- 20% were 51- and older

Appendix IIII - Survey

| | | |
|--|--|---------------------------|
| Question | 5-level Likert scale | |
| | Frequency of purchase decisions | |
| I feel that it is important for me to update my style by replacing my furniture often | | Ponder, 2013 |
| I expect my furniture to last for many years | | |
| Whenever I purchase wood furniture, I plan on keeping it for a long time | | |
| Whenever I purchase upholstered furniture, I plan on keeping it for a long time | | |
| I like to replace some of my furniture every few years | | |
| I change my furniture often to keep up with design trends | | |
| I believe that wood furniture (e.g. tables, chairs, cupboards, kitchens) should be kept for: | Frequency of purchase decisions | |
| Less than 1 year | | Ponder, 2013 |
| 1-3 years | | |
| 3-5 years | | |
| 5-7 years | | |
| 7-10 years | | |
| 10-15 years | | |
| More than 15 years | | |
| I believe that upholstered furniture (sofas, mattresses, arm chairs) should be kept for: | Frequency of purchase decisions | |
| Less than 1 year | | Ponder, 2013 |
| 1-3 years | | |
| 3-5 years | | |
| 5-7 years | | |
| 7-10 years | | |
| 10-15 years | | |
| More than 15 years | | |
| A retailer offer kitchen furniture to purchase (cabinets and doors, cabinet structures and countertops) with a possibility to return it to the same retailer after use. Depending on the condition of the used furniture the retailer can resell it as second-hand, upgrade it or recycle materials thus saving natural resources. Upon the return you can also receive a coupon of different value, which you can use when you want to purchase new furniture from the same retailer. As a customer you have a possibility to buy both new and second-hand kitchen furniture. The latter are sold at a lower price. | | |
| | SCENARIO 1 | |
| Tell us how much you agree with the following statements | 5-level Likert scale | |
| My attitude about returning kitchen furniture is favourable | Attitude | Teo (2002) |
| I am enthusiastic about returning furniture | Attitude | Richins (2007) |
| The likelihood that I would return kitchen furniture is high | Behavioural intention toward return of product | Teo (2002); Lawson (2011) |
| If the value of the coupon is reasonable to me, it is likely that I would return my kitchen furniture | Behavioural intention toward return of product | Lowe & Alpert (2015) |
| Tell us how much you agree with the following statements | 5-level Likert scale | |
| I would be willing to return kitchen furniture at its end-of-life if no coupon was given to me | Behavioural intention toward return of product | Lowe & Alpert (2015) |
| I would be willing to purchase second-hand furniture from a retailer | Behavioural intention toward return of product | Lowe & Alpert (2015) |
| I think that by returning my kitchen furniture to the retailer I am doing something that is good for the environment | Perceived environmental-friendliness | Own creation |

| | | |
|---|--|------------------------------|
| I think that it seems convenient to return kitchen furniture to a retailer | Perceived convenience | Own creation |
| I think that by returning kitchen furniture I can save money by using the coupon | Perceived convenience | Own creation |
| A retailer offers to lease new and/or second-hand furniture for bedrooms, dining and living rooms (wardrobes, closets, chest of drawers, sofas, armchairs, TV-sets, tables, chairs, beds, mattresses and garden furniture). You can choose between single pieces, pre-designed room sets, or custom-design your own furniture sets. Orders can be placed in-store or online with free advice form experienced room designers. The leasing periods are from 1 month to up to 5 years, where the retailer will both deliver and pick-up the furniture. The customer also has a possibility to purchase the leased furniture at any time of the rental period where the loss of value is deducted from the price. Depending on condition, the returned furniture can be recycled, remanufactured, or re-rented so that the products' lifetime could be extended and resources saved for the production of new furniture. | SCENARIO 2 | |
| Tell us how much you agree with the following statements | 5-level Likert scale | |
| My attitude about leasing furniture is favourable | Attitude | Teo (2002) |
| I am enthusiastic about leasing furniture | Attitude | Richins (2007) |
| Tell us how much you agree with the following statements | 5-level Likert scale | |
| The likelihood that I would lease furniture is high | Behavioural intention toward-non ownership | Teo (2002); Lawson (2011) |
| If I would only need furniture for a short period of time, I would be willing lease furniture | Preference for non-ownership | Moeller & Wittkowski (2010) |
| If I had the opportunity to lease furniture for a reasonable price, it is likely that I would do so | Preference for non-ownership | Moeller & Wittkowski (2010) |
| If I were to lease furniture, I would lease it online | Behavioural intention toward-non ownership | Teo (2002) |
| If I were going to lease furniture, I would want to meet an interior designer/service person | Behavioural intention toward-non ownership | Teo (2002) |
| Tell us how much you agree with the following statements | 5-level Likert scale | |
| I would be willing to lease furniture | Behavioural intention toward-non ownership | Teo (2002); Lawson (2011) |
| I would be willing to lease furniture for a short period of time | Preference for non-ownership | Moeller & Wittkowski (2010). |
| If the price is reasonable, I would be willing to lease furniture | Preference for non-ownership | Moeller & Wittkowski (2010). |
| Tell us how much you agree with the following statements | 5-level Likert scale | |
| I think that leasing furniture would be more convenient than buying furniture | Perceived convenience | Own creation |
| I can avoid repair costs associated with owning furniture by leasing furniture instead | Perceived convenience | Own creation |
| I only have to pay for the time I need the furniture | Perceived convenience | Own creation |
| It makes it easier for me to better plan furnishing of my home | Perceived convenience | Own creation |
| It is more environmentally friendly | Perceived environmental-friendliness | Own creation |
| I could change furniture more often | Perceived convenience | Own creation |
| Tell us how much you agree with the following statements | 5-level Likert scale | |
| I prefer purchasing furniture because they have a high sentimental value to me | Product involvement | Own creation |
| I prefer paying for my furniture upfront | Cost perception | Own creation |
| I would worry of the consequences in case the furniture would break during a lease | Risk | Own creation |
| I would be less careful with leased furniture compared to purchased furniture | Environmental-friendliness | Own creation |
| What is your gender? | Demographics | UK Data Service |
| Female | | |
| Male | | |
| What is your age group? | Demographics | UK Data Service |
| 20-25 | | |
| 26-30 | | |

| | | |
|--|---|---------------------------------|
| 31-35 | | |
| Level of education completed? | Demographics | UK Data Service |
| Basic secondary school or none | | |
| Middle secondary school | | |
| Higher secondary school | | |
| University degree or doctoral degree | | |
| Which best describes your (gross) personal monthly income? | Demographics | UK Data Service |
| Less than £1,250 | | |
| £1,251 to £1,667 | | |
| £1,668 to £2,333 | | |
| £2,334 or more | | |
| Prefer not to answer | | |
| Number of people in the accommodation you currently reside in? | Demographics | UK Data Service |
| 1 person | | |
| 2 persons | | |
| 3 persons | | |
| 4 persons or more | | |
| Do you rent or own the accommodation that you currently reside in? | Demographics | UK Data Service |
| Rent | | |
| Own | | |
| Tell us how much you agree with the following statements | 5-level Likert scale | |
| The great majority of British people do not act in an environmentally responsible way | Environmental attitude / concern - Cognitive aspect | Diekmann & Preisendörfer (2003) |
| I am worry when I think about environmental conditions for future generations | Environmental attitude / concern - Affective aspect | Diekmann & Preisendörfer (2003) |
| If we continue our current style of living, we will soon experience large environmental consequences. | Environmental attitude / concern - Affective aspect | Diekmann & Preisendörfer (2003) |
| There are limits of economic growth which the industrialized world has already reached or will reach very soon | Environmental attitude / concern - Cognitive aspect | Diekmann & Preisendörfer (2003) |
| Watching TV or reading in the newspaper about environmental problems, I am often upset | Environmental attitude / concern - Affective aspect | Diekmann & Preisendörfer (2003) |
| In my opinion, environmental problems are greatly exaggerated by proponents of the environmental movement **** | Environmental attitude / concern - Cognitive aspect | Diekmann & Preisendörfer (2003) |
| It is still true that politicians do much too little to protect the environment | Environmental attitude / concern - Conative aspect | Diekmann & Preisendörfer (2003) |
| To protect the environment, we all should be willing to reduce our current standard of living | Environmental attitude / concern - Conative aspect | Diekmann & Preisendörfer (2003) |

*** REVERSE SCORING

