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Does collaborative fashion consumption support sustainable consumption?

An exploration of two collaborative fashion consumption models

by

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Abstract

There is an urgent need for change within the garment sector as it continues to massively contribute to the climate crisis. This need for change has led to a growing interest in collaborative fashion consumption and its possibilities to support sustainable consumption within the garment sector. This research explores whether the two identified models of collaborative fashion consumption, business to consumer and peer to peer, are able to support sustainable consumption. A model has been developed, expanding on Joyner Armstrong and Park's (2017) model, detailing the criteria for supporting sustainable consumption. The model has been applied to 37 collaborative fashion consumption companies. The results show that both models of collaborative fashion consumption are able to support sustainable consumption, however, there are distinct differences highlighted and neither model can fulfil all of the criteria. These findings can be used to ensure collaborative fashion consumption continues evolve to support more sustainable consumption patterns.

Key words: sustainable consumption, collaborative fashion consumption, garment industry

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Introduction

1.1 Research Problem

In 2014, The European Environmental Agency placed the clothing, textiles, and footwear industry fourth on their list of industries ranked by the environmental impact (Pal and Gander 2018). A significant aspect of this ranking was the influence of fast fashion industry. In 2015, sustainability was thrust in to centre stage with the UN's Sustainable Development Goals, 12 of which call for both national and sectoral plans to include sustainable consumption and production (United Nations 2015). While many companies are working hard to improve the damaging aspects of the garment industry, there is still a long way to go. A growing number of organisations are promoting a totally different consumption concept as an alternative solution. This concept subscribes to the ideas of collaborative consumption—a vital aspect of the sharing economy. This specific form of collaborative consumption, known as collaborative fashion consumption (CFC), extends the use phase of an item of clothing while reducing the need for further production of new items through business models such as clothing rental and second hand clothing sales. CFC is purported as being a more sustainable business model, due to the extension of the use phase of a garment, while still providing consumers with the opportunity to update and change their wardrobes as they wish. But just how sustainable are CFC business models and do they provide a genuine alternative to fast fashion?

Sustainability is a broad and far reaching term. It is also thrown around a lot to mean a number of different things. Sustainability refers to three connected areas: environment, society, and economy (Binet et al. 2019). Three main ideas concerning these areas were drawn up during the Earth Summit in Rio Janeiro 1992. It was emphasised that these three aspects are interconnected and actions taken impacting one aspect cannot be seen as separate from the other aspects. Moreover, a focus on the future impacts of actions was also made clear. The needs of future generations and the impacts current actions will have upon them must be considering for current actions. Finally, the need for an exhaustive structural-shift within the economy is necessary in order to achieve consumption patterns that are within the environmental bounds of the planet. (Binet et al. 2019)

Binet et al. (2019) draw attention to the fact that sustainability has thus far been used in marketing and general public discussion to focus on the natural environment. The "green" aspect of sustainability is well known and familiar to most people. However, the authors are clear in their criticism of this. Focus should certainly be given to the social aspect of sustainability, pertaining to living and working conditions, and food security amongst other things, as well as the economic aspect, heavily emphasising the fact that profit should not come before the other two pillars. Long-term growth cannot negatively impact the other two areas of sustainability if the company is to be considered successfully sustainable. This thesis will therefore use the three pillars concept of sustainability: environment, society, and economy, as its definition of sustainability. This is also known as the triple bottom line.

From this definition, it is overtly clear that fast fashion companies cannot be sustainable with their current business model. Fast fashion refers to a specific approach taken by garment industry companies whereby "the design, creation, and marketing of clothing …[makes] fashion trends quickly and cheaply available to consumers" (Merriam-Webster 2020). With rapid success, fast fashion has quickly become a cornerstone of the fashion industry. Its roots were formed in 1980s America as a response to increased consumer demand and the opening up of China as an option for exporting production (Buzzo and Abreu 2019). It thoroughly emerged in the late 1990s as a way of referring to the rapid shift in business model and consumption patterns within the fashion industry (Buzzo and Abreu 2019). The fashion industry is a clear intersection of all three aspect of sustainability mentioned above, as supply chains have grown longer and more global in recent years and demand for new styles increases every year.

The advent of the slow fashion movement, as a backlash to the fast fashion frenzy of recent decades, is supported by CFC models that prevent the need for new production of clothing items. Slow fashion, coined in 2007 by Kate Fletcher (2007 cited in Brewer 2019), "emphasises responsibility in … production and consumption" (Brewer 2019). Slow fashion companies prize craftsmanship and quality over speed and turnaround. There is a focus on timeless items rather than fleeting trends. Slow fashion companies also promote the use of sustainable materials, generally opting for more durable and environmentally friendly options. The value of the labour involved in producing slow fashion garments is recognised through higher wages, better working conditions, and an emphasis on traceability (Brewer 2019).

The slow fashion movement tends to focus on the production phases of a garment, and aiming to reduce waste by designing items with longevity in mind. These companies do not however offer alternatives for the use or end phase of the cycle. As the end phase of clothing accounts for approximately two-thirds of the entire lifecycle waste footprint (WRAP 2012), the use and end phase of the life cycle of an item is vital to address and CFC companies are

offering a potential solution through changing consumption patterns in order to directly reduce this waste.

On top of this, many of these companies remain much more expensive than their fast fashion competitors. This is perhaps not surprising considering they are actively working to do things differently to fast fashion companies in terms of sustainability in all areas, including providing good living and working conditions for their workers, and consumers are having their eyes opened to what this actually costs. While this sector of eco-clothing (generally referring to sustainable materials and humane working conditions) is growing, it is still not reaching the core fast fashion consumers and pricing may be a big aspect of this (Gazzola et al. 2020). Many CFC companies position themselves at a point where they are able to compete with the prices of fast fashion companies as well as stay up to date with the turn-over of fashion trends.

As consumers are demanding more in terms of sustainability, CFC companies are on the rise. An 11% increase in the market for this type of business is predicted over the next 3 years (Technovia 2019). In such a growing sector, there is understandably a large variety of different businesses ranging from small AI-based start-ups to multi-national companies such as H&M, testing CFC models in an effort to boost their green credentials. It cannot, however, simply be assumed that CFC companies do provide a more sustainable consumption option. There is a need to understand how sustainable differing forms of CFC models are and how they compare with fast fashion alternatives.

With such vast claims being made about their sustainable credentials, and at a time when the garment industry desperately needs a shift in consumption patterns, the role of CFC companies could prove vital in the global attempt to address the current climate crisis. It is necessary then to ensure a deep understanding of the sustainable impact of the different CFC models currently identified.

1.2   Aim and Scope

The aim of this research is to understand the degree to which two different CFC business models, namely business-to-consumer (B2C) and peer-to-peer (P2P), provide a sustainable consumption model for the clothing industry. This will build upon previous research that has been undertaken concerning the sustainability of the garment industry and consumer attitudes towards CFC models. It will also provide a more tailored model, than exists in current literature, for assessing the sustainability of CFC companies, which can be used for future research on the topic.

This research will draw on B2C and P2P CFC companies from around the world to gain an understanding of the sustainability of these models. Vast claims are made about this form of consumption providing a more sustainable option for consumers who still want to experience new-to-them clothing and variety within their wardrobe. Predominantly these services are positioned as an alternative to fast fashion consumption and this therefore provides a point of comparison against which the environmental impacts of CFC models can be understood. This research will contribute to the ongoing discussion concerning how to innovate within the garment industry and provide more sustainable consumption models for consumers.

The research questions for this thesis are therefore as follows:
RQ1: How do B2C and P2P CFC models compare in terms of facilitating sustainable consumption?

RQ2: How do CFC models in general compare to fast fashion in terms of sustainable consumption?

1.3   Outline of the Thesis

Chapter two of this thesis will detail the previous research contributing to this paper as well the theoretical approach that this paper is taking. This thesis is drawing on research from a number of different areas, all of which are discussed in detail in chapter two. Following this, chapter three presents the data that is used for this thesis. The sources of data, as well as the characteristics of the data are laid out, addressing the reliability, representativeness, and validity of the data used. Chapter four sets out the method that is used for this research. Following this, the analysis of the data is outlined in chapter five. This includes a discussion of the results of the analysis as well as how the findings of this research relate to the literature outlined in chapter two. Finally, chapter six details the conclusions of this research. It relates the research back to the aims of the thesis as well as offering practical implications of this thesis and suggestions for future research. The bibliography of this thesis and appendices can be found after chapter six.

2

Theory

2.1 Previous Research

Research in to the garment industry is substantial and includes work from many fields and disciplines, resulting in a rich and varied area of study. Two journals were consistently being represented throughout this research. These were *Sustainability* and the *Journal of Cleaner Production*. Research was also undertaken using garment industry watchdog organisation publications which provide a more market orientated understanding of the field. They allow for a very up-to-date understanding of current practices within the garment industry and speculate at future changes.

The following sections will detail research undertaken in to the environmental impact of the fashion industry, particularly that of fast fashion, and measuring sustainability in this sector. They will also outline the different types of CFC models that will be explored in this thesis and the research that has been undertaken considering consumer behaviour surrounding CFC.

2.1.1 The Environmental Impact of the Garment Industry

There is a large body of research considering the environmental impact of the fashion industry. Much of this research focuses on the fast fashion industry, as it is the most damaging from an environmental perspective. There are five problematic aspects of the fashion industry that fast fashion in particular contributes to, of which four are direct environmental impacts. These five aspects are violation of human rights and labour standards, high water consumption, production of waste, the releasing of hazardous chemicals, and greenhouse-gas emissions (Business of Fashion and McKinsey & Company 2017).

The production of fashion items has increased significantly in recent years which has resulted in an increased strain on natural resources. In 2017, the fashion industry accounted for the use of 79 billion cubic metres of water (Eder-Hansen et al. 2017). This is particularly important considering water scarcity is ever increasing and fashion garment production

predominantly takes place in areas of the world facing severe fresh water shortages. Fibre production reached 100 million tonnes in 2018 and it has been estimated that the garment industry is responsible for between 3% to 6.7% of all global CO_2 emissions caused by humans. Land that is suitable for food is being used for fibre production for the fashion industry. Furthermore, cotton cultivation is responsible for 16.5% of pesticide use globally, despite only being grown on 2.4% of the world's farmable land. It has also been estimated that between 20% to 35% of all micro-plastics found in the marine environment are fibres from the use of clothing made from synthetic materials (Laitala et al. 2018). Buzzo and Abreu (2019) emphasise the complexity of production processes within the garment industry, stating that the smaller aspects of dyes or metal for trims still have an enormous environmental impact. Untreated wastewater, a by-product of dying garments, is often disposed of directly in to local fresh water systems releasing toxins and heavy metals that are detrimental to human and animal health (Bick et al. 2018). With this in mind, it is concerning that Eder-Hansen et al. (2017) predict that clothing garment consumption will increase by 63% from 62 million tons in 2017 to 102 million by 2030.

As production has increased, so has the disposal of fashion items. Iran and Schrader (2017) highlight the massive increase the fashion disposal in recent year. In 2013, 15.1 million tons of textiles were thrown away in the USA compared to 7.4 million tons disposed of in 1995 and 2.5 million tons in 1980 (US EPA 2003 cited in Iran and Schrader 2017). In the UK, roughly 0.8 to 1 million tons of textiles are thrown away every year and sent to landfills; among them, at least 151,300 tones could be directly reused (Barlett et al. 2013 cited in Iran and Schrader 2017). The majority of textiles sent to landfill end up in landfills in the Global South, resulting in the clogging of waterways and straining already lacking waste systems (Bick et al. 2018). It is also worth noting that every year in the US, an estimated 500,000 tons of used clothing is exported to the Global South. This clothing is sorted by low-wage workers with many of the non-usual items being sent to landfills in the country where it was sorted (Bick et al. 2018).

According to Buzzo and Abreu (2019) a survey conducted by Bernados in 2015 found that one third of women aged 16 and over considered an item of clothing old once it had been worn just over three times. The same survey also found that one in ten women wear an item of clothing three times before discarding it (Buzzo and Abreu 2019). This is in line with Roos et al. (2015) findings that the practical lifespan of clothing (how long an item is used for) is considerably shorter than the technical lifespan of clothing (how long an item could be used for even if it is no longer fashionable).

In 2006, Woolridge et al. (2006) showed that the selling and distributing of second hand clothing was associated with a much lower level of energy consumption than that of the production of virgin materials. However, as the garment industry has expanded in to its current online presence, there is a need to revisit these findings to account for current

consumption patterns. In 2017, Zamani et al. found that the environmental impact of producing new clothing items is still significantly higher than that of reusing an item. Reim et al. (2015) further highlight that by sharing fashion resources through CFC structures, the material utilisation is intensified and therefore the use phase is prolonged.

One important factor here, and a hypothesis put forward by Leismann et al. (2013), is that CFC models may contribute negatively in terms of sustainability efforts as the increased and frequent transaction of the clothing items may result in a high environmental impact than the reduction in production. Zamani et al. (2017) build upon this by highlighting in their life cycle assessment of clothing libraries, that the more customers a clothing library has, the more transportation occurs. The frequency of transactions of the clothing item compared to the number of uses is vital to understand the environmental impact of this model. For companies that run their operations online, green transportation methods can be used to ensure transportation does not negate the benefits of reusing clothing items. In fact, Zamani et al. (2017) found that online shopping has less of an environmental impact that shopping in a store, even when green transportation methods are not used, unless the consumer lives within walking distance of the store they are shopping at. This corroborates Wiese et al.'s (2012) findings that, when analysing the CO_2 emissions of a retailer with both online options and brick-and-mortar stores, online retailing caused less CO_2 emissions.

2.1.2   The Social Impact of the Garment Industry

While sustainability is often equated with environmental impact, the social aspect is equally important when considering the sustainability of a brand or entire sector. For the garment industry, both the production phase of the garment and the end phase of the garment have huge human impacts. It has been well documented that working conditions in garment factories, especially in the Global South, are in direct opposition to the human rights of those working there. It is also clear that this is not unique to fast fashion companies, but is common practise for companies ranging from fast fashion to high-end luxury. Adams (2002) states that garments that are sold by fast fashion companies are sold for 1% of the true manufacturing cost. In order to achieve this, companies force workers to work in inhumane conditions, such as not being allowed breaks and having to stay in poorly ventilated environments around chemicals (Adams 2002). This is exemplified by the case of 13-year-old girls in Honduras being forced to make clothes in a factory under armed surveillance. They worked 13 hours shifts and received $0.31 per hour. The clothing was ultimately sold at Wal-Mart in North America (Adams 2002). According to the International Labour Office (2013), roughly 170 million children are involved in forced labour, the majority of which takes place within the garment industry. This equates to 11% of the world's children (International Labour Office 2013).

A gender perspective is also vital in understanding the social impact of clothing production. The vast majority of factory workers in the garment industry are women, with the National Labour Committee of Bangladesh (2001 cited in Buzz and Abreu 2019) reporting that 85% of the 1.6 million textile workers in Bangladesh were women aged between 16 and 25. This report also found that they were working 12 to 14 hour days for all 7 days of the week (Buzz and Abreu 2019). Working conditions significantly decrease if a worker becomes pregnant. Pregnant workers often have their wages cut, face the threat of dismissal, and are forced to work longer hours in unhealthy conditions to make up for the loss of income. This also holds true after childbirth (Buzz and Abreu 2019). Contributing to this, it is common practise in countries such as Cambodia for large companies to hire smaller companies who, in turn, subcontract out the demands of the large companies. These structures have been designed specifically to increase competition resulting in the lowest possible production price for the large company. Perhaps conveniently for the large companies, they also decrease the tractability of goods (Buzz and Abreu 2019).

A nuanced approach must be taken when considering the social impact of the garment industry. The advent of job opportunities, particularly for women, within the manufacturing and production portion of the garment industry has been hailed by some as revolutionary. According to Huq (2019) the language of female empower has had dangerous impacts on female garment workers in Bangladesh, masking the realities of female workers. While jobs have been provided, women continue to experience terrible working conditions and the double labour of a formal job and informal work in the household (Huq 2019).

2.1.3   Measuring Sustainability in the Garment Industry

A large amount of research has been undertaken comparing different aspects of sustainability in the garment industry. These range from assessing the sustainability of one or multiple types of fashion items through a life cycle analysis, to forming and utilising a framework to compare fashion brands in one or multiple aspects.

Many life cycle analyses have been undertaken within research focused on the garment industry in an effort to understand the environmental impact of the entire life cycle of an item of clothing, rather than only focusing on one area, such as the production phase. A life cycle analysis is a method that is used and accepted on a global scale. Using a cradle to grave perspective, this method assesses the environmental impact of a product through the inclusion of phases such as: "raw material extraction, material processing, product manufacture, distribution, use, disposal and recycling" (Roos et al. 2017). Life cycle analyses allow for a comparison to be drawn on the environmental impact of, for example, different

materials, such as in the life cycle analysis undertaken by Roos et al. (2017) comparing the same type of garment (T-shirt, jeans, and hospital uniforms) made out of either cotton or Tencel. The largest impact of using Tencel being the significantly decreased amount of water used. Life cycle analyses have also been conducted to understand the impact of clothing libraries in Sweden (Zamani et al. 2017), an average year of clothing consumption for a woman in Germany (Piontek et al. 2019), and fashion brands about their own specific products (Levi Strauss & Co. 2015; Vicaria and Engelen 2020).

In an attempt to unify and bring clarity to the question of sustainability in the garment industry, a lot of research has been undertaken to form rubrics or matrices by which organisations can report their sustainability actions and results, or to provide frameworks for further research to use and allow for a straightforward comparison to be made. Caniato et al. (2012) formed a framework with which green supply chain management of fashion companies could be compared and analysed. The framework analyses driver, practices, and performance indicators. The research applied this framework to five fashion companies that claim to be employing green supply chain management. Their results show a significant difference in supply chain management between large companies and small companies, despite their common objective of improving their environmental sustainability (Caniato et al. 2012).

Garcia-Torres et al. (2017) put forward a sustainability scorecard with which fast fashion companies should report their sustainability goals and actions. Their extensive research based on data from two of the world's largest fast fashion companies, Inditex and Hennes & Mauritz AB, led to the insight that fast fashion companies have developed a system for analysis but continue to lack action orientation in their sustainability reporting. Their "Fast-Fashion Sustainability Scorecard" shifts the focus of sustainability reporting away from merely reporting and in favour of action, as well as away from financial performance in favour of sustainable value creation (Garcia-Torres et al. 2017).

Frameworks have also been developed in the private sector to bring clarity to the garment industry as well as consumers about the sustainability of brands. An example of this is Good On You. Good On You has developed a framework with which they rate how ethical a fashion company is. Their framework is broadly split in to three areas of focus: people, planet, and animals and relies on data gathered from certifications, accreditations, and other standards systems, independent third party reports and ratings, and brand and parent company websites (Good On You 2020).

Furthermore, frameworks have been developed outside of the garment industry with the intention that they be applied to many different industries in an attempt to provide comparison both within and between industries. In 2016, the Global Reporting Initiative (GRI) developed the first global standards for companies to self-report on their sustainability

impacts. The standards are split in to three categories: economic, environmental, and social, and include guidelines on how to measure the indicators and report results (GRI 2020). Another example is the Sustainable Brand Index who produce annual reports on the perception of the sustainability of brands from consumers. Their 2020 reports (Sustainable Brand Index 2020) included data on 1400 companies, spanning over 35 industries from 8 different countries. Desk based research is combined with two quantitative web-surveys where consumers are asked to rank their perception of a brands sustainability in terms of environmental responsibility and social responsibility (Sustainable Brand Index 2020).

2.1.4   Different CFC Models

But what are these CFC models and how can they be used to achieve this goal? According to Iran and Schrader (2017), there are two distinct models within the field of CFC: P2P and B2C. The P2P model consists of consumers directly interacting with each other to exchange or pass on fashion items. This is usually facilitated by an online platform but interactions may also occur in physical spaces, such as community centres. Facebook marketplace, for example, is a popular platform through which people can interact directly to purchase or exchange fashion items. Social media in general is commonly leveraged to promote P2P fashion swapping events or second hand markets. Companies may also act as facilitators of CFC by acting as the mediator between transactions and taking a percentage cut of sales that take place. Sellpy is an example of this in Sweden, where the company collects second hand clothes from people and re-sells them on their website taking a percentage cut of the sales while the original owner of the item receives money from the sale as well. Despite a company facilitating this transaction, it is still classified as a P2P business model.

The B2C model describes when a business facilitates and controls the renting or buying of fashion items (Iran and Schrader 2017). Companies following this model provide the platform through which transactions take place as well as providing the products. They are usually either clothing rental/leasing companies or more traditional second hand stores. Both options are commonly online and offline. Fashion libraries, such as Swopshop in Malmö, collect a library of second hand clothes and offer a physical space that people can subscribe to or become a member of. In return, they are able to rent a certain number of fashion items for a specified amount of time depending on their subscription level. This is similar to online versions whereby consumers subscribe to a service, such as Hack Your Closet, and receive a specific amount of second hand fashion items that they may use for a pre-set amount of time before returning them and receiving different items. Companies specialising in the leasing of fashion items may also angle themselves at the higher end of the market. For example, consumers may choose to lease a special dress for an event such as a wedding or

graduation. The Wow Closest in Stockholm is an example of such a service, maintaining both a physical store and online service.

2.1.5   Consumer Behaviour Surrounding CFC

A growing body of research is investigating consumer behaviour and attitudes towards CFC companies. Armstrong et al.'s (2016) study exploring use-orientated product-service system (PSS) models found a high preference among participants for user-orientated PSS concepts rather than product-orientated PSS concepts. The user-oriented PSS models explored in this study are clothing consultancy, clothes renting and clothes swapping. The consumers in this study (females based in Finland and the US) were most positive towards services that were able to meet their desire for new and different outfits, even if this was done through re-imagining what they already own or adding one item to a pre-owned outfit. Some participants also noted that while the services may provide change, it would not come with the same quick emotion high that is generally felt with an impulse purchase. The use of many of these services needs to be at least somewhat planned and organised by the consumer. A sense of comradery and community was also desirable for many participants especially when discussing clothing swapping or direct renting services. Finally, a common worry for consumers was to do with the newness and unfamiliarity of many brands launching these types of services. However, Armstrong et al. (2016) suggest that this may be counteracted by these services being launched by or in conjunction with already established retail companies.

Further understanding is given concerning consumer drivers and barriers in adopting CFC models by Becker-Leifhold and Iran (2018). The drivers are split into three categories: hedonic motives, utilitarian motives, and biospheric motives. The barriers are also split in to four categories: hygiene and health issues, lack of trust and information, lack of ownership, and consumption habits (Becker-Leifhold and Iran 2018). A different approach was taken by Lang et al. (2020) who applied a text-mining approach to three fashion rental companies in order to understand the experience of the consumers using their services. Four major benefits as purported by the consumers on the company websites were experiential value, financial value, ease of use, and utilitarian value. Lang et al. (2020) found unsatisfactory customer service, poor product performance, and insufficient inventory to be the three major consumer concerns. Another example of research in to consumer behaviour surrounding CFC is that of Vasques et al. (2017). This research specifically analysed the barriers and motivations of use for users of Vaatelainaamo (a Finnish clothing library). The main motivations for use found in this research were environmental awareness, saving money, and the option of different frequently getting to use different clothes.

Moreover, the concept of sustainable consumption is currently growing in popularity as it is seen as a potential solution to some of the detrimental environment impacts of the garment industry. Sustainable consumption within the garment industry is understood using Haugestad's (2002 cited in McNeill and Venter (2019) definition: "our consumption pattern is sustainable if all world citizens can use the same amount of basic natural and environmental resources per capita as you do without undermining the basis for future generations to maintain or improve their quality of life". Joyner Armstrong and Park (2017) clearly state that while sustainable consumption aims include decreasing fashion consumption in general and disrupting the desire for new designs and trends, many CFC companies aim to allow consumers to continue to experience the ever-changing fashions cycles and trends. This is a complicated aspect as McNeill and Venter (2019) state that sustainable consumption is less motivating in terms of fashion consumption than personal expression and exploration. CFC models may therefore provide a more realistic option for changing consumer habits than traditional slow fashion, allowing for more self-expression.

2.2   Theoretical Approach

The theoretical approach of this research will be grounded in the assertion that one of the most damaging aspect of a garment's life cycle is the short use phase. It can therefore be understood that by prolonging the use phase of a garment, a more sustainable life cycle will be achieved. CFC models can only impact the use (and potentially end-) phase of the life cycle of a garment. Based on this, it is necessary that this research is considering aspects that lead to more sustainable consumption. While there are clear and serious environmental and social problems caused by fast fashion, previous research has also highlighted that the use phase of a garment can be extended to decrease the items' environmental impact. This is a change that can be undertaken by both fast fashion companies as well as companies that circulate fast fashion garments, by implementing CFC models. This theoretical basis, then, is imperative to understanding the role played by actors within the garment industry specifically concerned with the use (and end-) phase of the life cycle of an item and gives weight to research focused on these stages

Moreover, an important aspect of CFC research is grounding the research in the two defined models of CFC. The vast majority of research undertaken concerning CFC includes these two models, B2C and P2P, as part of the theoretical approach as this provides clarity and a basis from which further research can take place. This research will build upon this and include the two models of CFC as a fundamental aspect of the theoretical approach. The theoretical discussion leading to the defining of these two models, clarified by Iran and Schrader (2017), provides an important understanding of CFC in general which is necessary for research being undertaken on this topic. This theoretical discussion primarily explores

the differences in ownership of the items being rented and the impacts this has on who receives compensation as a result of an item being rented. The model put forward by Joyner and Park (2017), which has been expanded upon as part of this research, includes the two CFC models and the theoretical discussion surrounding them as an integral aspect of the basis of their model. The same has been done with this research and the formation of the model used.

3

Data

3.1   Source Material

The data for this thesis is predominantly sourced from a number of CFC companies. A google search was undertaken using the key words: rental, subscription, fashion, and clothing. Google was used as the search engine for data collection as this is the predominant method used by consumers to find companies offering CFC services. These companies, all of them using the internet as a cornerstone of their operation, rely on their online presence to gain users. The user experience is an important aspect of this study and the few companies mentioned in previous research did not provide an adequate amount of data or an adequate overview of the differences within and between these two CFC models.

This search resulted in 15 unique CFC companies on the first five pages of google results. There were also a large number of articles and blog-posts about CFC companies in these first five pages of google results, which provided a further 22 CFC companies. As Google search algorithms and company advertising strategies certainly influence where (and if) in the search a company will show up, blog posts were also used as an important source for identifying companies. While there are certainly more than 37 CFC companies, at this point the data gathered was not providing any further insights or understanding of the business models. It was therefore decided to cap the amount of companies used in this study at 37.

Of these 37 companies, 27 were B2C companies and 10 were P2P companies. Stating this search in English will have undoubtedly influenced the results, however, it is still worth noting that 10 of the companies found are based in Europe, 20 are based in North America, 6 are based in Oceania, and 1 is based in Asia.

Initially this research was to be untaken only including European based companies due to EU directive 2014/95/EU requiring and offering guidelines on non-financial reporting for companies. This includes publishing reports on policies implemented relating to: environmental protection, social responsibility and treatment of employees, respect for human rights, anti-corruption and bribery, and diversity on company boards

(in terms of age, gender, educational and professional background). This directive however, only applies to companies with 500 or more employees. It therefore does not apply to majority of organisations included in this research. Because of this, this research includes companies from all over the world as there is no standard that small companies must abide by in non-financial reporting. While this broad coverage of companies around the world does not cover all regions, it does provide enough scope to ensure a deep understanding of the models can be gained. The companies used in this research are outlined in appendix A.

The data consists of the companies' self-reported sustainability work and results, as well as company processes, in the form of internal presentations that were shared with the author by the company, public sustainability reports, public information on the company's website, and other internal documents shared with the author by the company. Data was gathered for all 37 companies, with missing information on a topic (or a company unable to provide information on it) taken to mean the company does not undertake the activity or practice in question.

3.2   Critical discussion of the source material

All of the data used is the official line given by the company in question concerning the issue examined. The line taken by the company will depend on a number of factors, such as their target demographic as well as if they are aiming to be certified by a particular industry actor or watchdog. This may result in certain aspects of their organisational activities being highlighted while others are not mentioned. Ultimately, it may be part of their marketing strategy. For example, companies may highlight their sustainability work, in some cases exaggerating it, in order to attract the growing group of consumers who are demanding more sustainable business practices from companies. For other companies, sustainability may not be mentioned as they are not aiming themselves at this demographic. This must be considered when analysing the data as a company's business model may well suit a certain aspect considered in the analysis, however due to the companies target demographic they do not publically state that particular aspect.

On the other hand, the public aspect of the data gathered could lead to a degree of reliability in that companies should not make claims that they cannot substantiate. Although, of course, companies can claim privacy over certain information making it difficult to substantiate certain claims. Sweeping statements on websites were, in the majority of cases, followed up by internal data provided by the companies throughout the course of this research. A further aspect to consider is that this research is not

concerned with if the companies are putting out the correct information. It is rather considered whether the business models support particular organisational practices. In this sense then, a company stating that they undertake a certain practice, or evidence of this being found by the author, is more important to this research than whether or not they adequately fulfil the practice in question. This study is considering the potential of the two CFC models themselves rather than the actual workings of the companies included.

Furthermore, it was necessary for this study to include data from both B2C and P2P companies to ensure both models of CFC consumption are adequately represented for the comparison. It must be highlighted that there are certainly more B2C companies included in this study. While P2P companies do exist, P2P structures also exist informally on social media platforms and physically within communities (such as monthly flea-markets in a community centre). As this study is only focused on clothing rental CFC companies, these models were not included.

4

Methods

4.1   The Model

Many models used for assessing and understanding the sustainability of companies within the garment industry (and other industries) are designed to encompass all aspects of a garment's life cycle. For this research, the inclusions of many of the indicators, for example relating to manufacturing and production, are not applicable to CFC companies. This thesis has therefore built upon not only sustainability measuring models spanning the entire industry but also a model specific to CFC companies.

The three indicators identified by Joyner Armstrong and Park's (2017) original model (appendix B) are resource efficiency, community, and nature of business. While a valuable starting point, this model did not include an indicator specifically for the environmental impact. Based on previous research then, a fourth indicator, environmental impact, has been added to encompass the aspects of other large-scale sustainability measuring models that are relevant to the use and end phase of a garment. These are the areas of a garment's life cycle where CFC companies will have an environmental impact. Each indicator contains one or more dimensions to further categorise the different aspects within the indicator.

While table 1 provides a useful overview, more detail is provided through the addition of multiple related considerations for each dimension. Joyner Armstrong and Park's (2017) original rubric is drawn upon to form the related considerations, however, these have also been adapted and supplemented based on previous research. More specificity was needed to ensure this create a model that could be used to analyse all aspects of sustainable consumption and whether the two CFC models support them. The following sections will detail the related considerations for each indicator.

Table 1: Overview of the Model

Indicator	Dimension
Consumer-product relationship	
Resource Efficiency	Product life extension via attachment (by individual)
	Material utilisation via use intensity (by collective)
Consumer-consumer relationship	
Community	Sociality
Consumer-organisation relationship	
Nature of Business	Position
	Social capital
Organisation-environment relationship	
Environmental Impact	Use phase
	End phase

4.1.1 Related Considerations for the Resource Efficiency Indicator

The indicator of Resource Efficiency refers to the consumer-product relationship within CFC models and contains two dimensions: product life extension via attachment (by individual) and material utilisation via use intensity (by collective). Within product life extension via attachment (by individual), there are two related considerations. The first related consideration is whether the business model allows for consumers to rent out fashion items that they already own but do not want to get rid of entirely. An aspect of this dimension mentioned in Joyner Armstrong and Park's (2017) rubric is whether a fashion item is symbolic. Symbolism can mean many things; however, research has highlighted that consumers are willing to spend large amounts of money on items for special occasions and once their use for the item is finished, are unwilling to part with the item (Joung 2013). The item may also signify a special event for the owner. In these situations, an attachment is certainly formed between the owner and the fashion item, and this attachment encourages them to rent it out thereby extending the life of the product.

The second related consideration is whether the business model allows for flexible rental of a product. By renting fashion items, consumers are able to try items they might not otherwise commit to and are able to form an attachment to it over an extended period of time (depending on the length of the rental). Mugge et al. (2006) highlights that consumers forming an

emotional attachment to an item may provide a path for a reduction in overall production of fashion items, as well as a reduction in consumption and disposal. Companies that offer consumers flexibility concerning how long they rent an item for are offering a path for an attachment to form. By flexible this thesis is describing rental agreements that do not have a specified end time.

The second dimension of material utilisation via use intensity (by collective) contains three related considerations. The first of which is infrequently used clothing types. Companies that specialise in an infrequently used type of clothing, such as wedding and formal dresses, or items that are used for a short period of time, such as maternity clothes or baby clothes, provide material utilisation by ensuring the clothes are reused rather than thrown away or forgotten about by the original owner of the item. By offering the second related considerations, maintenance of clothing, CFC companies are able to prolong the use phase of clothing allowing it to be reused by more consumers.

The fourth related consideration is that by offering up to date styles of clothing, material utilisation will take place as the clothes are circulated by the company. That is not to say CFC are aiming for the intense turnover of new styles seen in fast fashion companies, but rather than by offering consumers options that compete with fast fashion companies in terms of style, the items are more likely to be used by more consumers.

Table 2: Detailed Model of the Resource Efficiency Indicator

Indicator	Dimension	Related consideration
Consumer-product relationship		
Resource Efficiency	Product life extension via attachment (by individual)	Users can rent out items they already own
		Flexible rental period
	Material utilisation via use intensity (by collective)	Infrequently used clothing types
		Maintenance of clothing
		Up to date styles offered

4.1.2 Related Considerations for the Community Indicator

The indicator Community refers to the consumer-consumer relationship exhibited in CFC models and contains one dimension – Sociality. The related considerations for this dimension are whether the CFC model provides the opportunity of an online community by using the service or a physical community by using the service. Previous research has highlighted in chapter three draws attention to the important role played by community and a sense of belonging when engaging with innovative consumption models (Thorpe 2015, p.68). As CFC is certainly not the norm by any means, the opportunity for either an online or physical community is an important aspect to consider in this analysis.

Table 3: Detailed Model of the Community Indicator

Indicator	Dimension	Related consideration
Consumer-consumer relationship		
Community	Sociality	Online community created by using the service
		Physical community created by using the service

4.1.3 Related Considerations for the Nature of Business Indicator

The third indicator, Nature of Business, refers to the consumer-organisation relationship within CFC models. It contains two dimensions: position and social capital. The dimension position considers the position of the company within society. Its two related considerations are whether the company has a market niche and whether the company is aiming to achieve a societal goal through its actions as a business. A market niche may encourage certain consumers to gravitate towards this form of consumption if they feel particularly represented or have a specific need met. The niche may be that they offer an infrequently used type of clothing, but it may also be for example a specialisation in luxury clothing or plus-size clothing. The same is true for companies that are clearly working to bring about societal change – consumers may feel more inclined to support a new form of consumption if it is aligned with a goal they support.

The second dimension, social capital, contains two related considerations. The first one is if the model allows for knowledge to be shared. When discussing sustainability, particularly in businesses practises, the societal aspect cannot be left out. The second related consideration is user empowerment. Does the CFC model provide an opportunity for its users to be empowered through its use? Again, the human aspect of sustainability was highlighted in previous research as lacking from the discussion (Binet et al. 2019).

Table 4: Detailed Model of the Nature of Business Indicator

Indicator	Dimension	Related consideration
Consumer-organisation relationship		
Nature of Business	Position	Market niche
		Societal goal
	Social capital	Knowledge shared
		User empowerment

4.1.4   Related Considerations for the Environmental Indicator

The final indicator, Environmental Impact is considering the organisation-environment relationship and has two dimensions: use phase and end phase. The first related consideration of the first dimension is non-polluting cleaning methods. This is looking at whether companies using this model are able to use environmentally friendly cleaning methods. The second related consideration of this dimension is resource efficient cleaning methods. This refers to both water and/or electricity. Many efficient cleaning systems now emphasise their efficiency in both aspects. A separation of water and electricity was therefore not necessary. The third related consideration is low- or zero-emission transportation of items. As discussed in chapter three, resource efficiency via product life extension and material utilisation may well be accomplished, however, the benefits of this can easily offset by unsustainable transportation of the item. The final related consideration is environmentally friendly packaging. This refers to packaging that is made from renewable or recycled materials and packaging that can easily be recycled or reused.

The second dimension, end phase, has one related consideration which is 'sustainable disposal'. This related consideration is concerned with how companies dispose of clothing that has reached the end of its technical lifespan, referred to in the life cycle of a garment as its end phase.

Table 5: Detailed Model of the Environmental Impact Indicator

Indicator	Dimension	Related consideration
Organisation-environment relationship		
Environmental Impact	Use phase	Non-polluting cleaning methods
		Resource efficient cleaning methods
		Low- or zero-emission transportation
		Environmentally friendly packaging
	End phase	Sustainable disposal

4.1.5   Weaknesses of the Model

As this model has been specifically designed to be applied to CFC companies, it does not leave room for an analysis of traditional fashion consumption. Extensive research has been undertaken on fast fashion, as detailed in chapter three, however, this model can only be used to analyse collaborative consumption models. This is certainly something to be aware of when drawing conclusions from this model. All conclusions concerning fast fashion are based on comparing the outcomes of applying this model to CFC companies with previous research undertaken on general consumption patterns of fast fashion consumers. As the model cannot be applied to fast fashion companies, a direct comparison of applying the model to both CFC and fast fashion companies cannot be undertaken.

4.2   Method

The data collected from the different CFC companies is coded in to the different related considerations of each indicator table. The percentage of B2C and P2P companies for which data has been collected for a specific related consideration is calculated. If data has been collected for all related considerations in a dimension, that dimension is considered fulfilled by that CFC model.

5

Empirical Analysis

5.1 Results

The data gathered from both B2C CFC companies and P2P CFC companies is categorised and visually represented in table 6. Whether the dimension can be fulfilled by the CFC business model is represented by either a plus sign (for yes) or a minus sign (for no). If data has been found for the CFC model in question in all of the related considerations of a dimension, that dimension is considered fulfilled. Each indicator is outlined in further detail to include the individual related considerations for each dimension in the following sections.

Table 6: Results for all Indicators

Indicator	Dimension	B2C	P2P
Consumer-product relationship			
Resource Efficiency	Product life extension via attachment (by individual)	+	-
	Material utilisation via use intensity (by collective)	+	+
Consumer-consumer relationship			
Community	Sociality	-	+
Consumer-organisation relationship			
Nature of Business	Position	+	+
	Social capital	-	+
Organisation-environment relationship			
Environmental Impact	Use phase	+	+
	End phase	+	-

5.1.1 Results for the Resource Efficiency Indicator

The data collected shows that all but one of the related considerations for this indicator are able to be fulfilled by both B2C CFC models and P2P CFC models. Therefore, only the B2C model fully fulfils the Resource Efficiency indicator. This is visualised in table 7 below. This section will outline the data relating to each related consideration for both CFC models.

Starting with the first related consideration for the first dimension then, 'users can rent out items they already own'. Of the B2C companies, 4% allowed for users to rent out their own items. This was only seen in the high-end luxury market. All of the P2P companies had this aspect as a fundamental basis of their business. The second related consideration for this dimension 'flexible rental period' was possible for 85% of the B2C companies. It was outlined in the "How it Works" section of the companies' website or in their FAQ section concerning how long an item can be rented for. It was not possible with any of the P2P companies as rental period are pre-agreed to between the lender and the borrower of the item before an agreement is made.

For the second dimension, the first related consideration 'infrequently used clothing type' was an aspect of 37% of B2C companies and 90% of P2P companies. These infrequently used clothing types were baby and children's clothes, maternity clothes, and luxury clothes and accessories. The second related consideration 'maintenance of clothing' was offered by 100% of B2C companies and 40% of P2P companies. Maintenance was referred to by all companies, both B2C and P2P, as every-day wear and tear of items. While offered by all, for 11% of B2C companies this was an option extra that had to be purchased. Heavy damage was not covered by any of the companies and would result in a fee to the consumer. The final related consideration of 'up to date styles offered' was fulfilled by all B2C and P2P companies. All companies included in this study made it clear on their website that they offered stylish and modern clothing.

Table 7: Results for the Resource Efficiency Indicator

Indicator	Dimension	Related consideration	B2C	P2P
Consumer-product relationship				
Resource Efficiency	Product life extension via attachment (by individual)	Users can rent out items they already own	4%	100%
		Flexible rental period	85%	0%
	Material utilisation via use intensity (by collective)	Infrequently used clothing type	37%	90%
		Maintenance of clothing	100%	40%
		Up to date styles offered	100%	100%

5.1.2   Results for the Community Indicator

The indicator of Community was not fully fulfilled by the B2C CFC model but was fully fulfilled by the P2P model. This can be seen in table 8 below. This section will detail which of the models fulfilled which of the related considerations.

The first related consideration 'online community created by using the service' was fulfilled by 100% of the P2P companies and 22% of the B2C companies. All of the P2P companies encouraged consumers to review their peer involved in the transaction to encourage trust within the platform. The B2C companies focused more on their community within social media channels, actively encouraging consumers to engage with a particular hashtag. The second related consideration 'physical community created by using the service' was fulfilled by 30% of the P2P companies and none of the B2C companies. Two of the P2P companies encouraged transactions to take place in person, contributing to a physical community in the local area, and one relied on dry-cleaners to act as hubs for their company.

Table 8: Results for the Community Indicator

Indicator	Dimension	Related consideration	B2C	P2P
Consumer-consumer relationship				
Community	Sociality	Online community created by using the service	22%	100%
		Physical community created by using the service	0%	30%

5.1.3   Results for the Nature of Business Indicator

The Nature of Business indicator was fulfilled in both dimensions by the P2P model but only in the 'position' dimension by the B2C model. This is shown in table 9 below. This section will layout the data from both the B2C companies and P2P companies in relation to each related consideration.

The first dimension, Position, contains two related considerations. The first related consideration 'market niche' is fulfilled by 59% of B2C companies and 100% of P2P companies. The market niches identified were luxury/event clothing, second-hand clothing, sustainability focused companies, no-fee companies, children's and baby clothes, men's clothes, second-hand clothes, plus-size clothes, and maternity clothes. The second related consideration in this dimension 'societal goal' is evident in 26% of B2C companies and 40% of P2P companies. The societal goals identified were reducing the environmental impact of consuming fashion and female empowerment. While hard to quantify, if data concerning either of these aspects was readily available on the front page of the website of the company, it was taken as a positive result for that related consideration. If, for example, sustainability is mentioned in the FAQ section of a company, this company was not taken to be actively promoting an environmental societal goal.

The second dimension, Social Capital, contains two related considerations. 'Knowledge shared', the first related consideration, is fulfilled by 11% of B2C companies and 20% of P2P companies. Knowledge shared by the companies was, in all case, related to the environmental impact of the garment industry and personal environmental impact of consumer choices. The second related consideration 'user empowerment' is present in none of the B2C companies and all of the P2P companies. Whether explicitly stated as user empowerment or not, all P2P companies provided a way for user to monetise their wardrobe

and earn and income from items they already own, thus financially empowering them with a new source of income.

Table 9: Results for the Nature of Business Indicator

Indicator	Dimension	Related consideration	B2C	P2P
Consumer-organisation relationship				
Nature of Business	Position	Market niche	59%	100%
		Societal goal	26%	40%
	Social capital	Knowledge shared	11%	20%
		User empowerment	0%	100%

5.1.4 Results for the Environmental Impact Indicator

The final indicator, Environmental Impact, was fully fulfilled by the B2C model and only fulfilled in the 'use phase' dimension by the P2P model. This can be seen below in table 10. This section will take each related consideration in turn and layout the data for the B2C and P2P companies.

This indicator only has two dimensions, the first being use phase. The first related consideration is 'non-polluting cleaning methods'. According to the data, 22% of B2C companies state that they use environmentally safe cleaning chemicals/systems, as do 20% of P2P companies. Similarly, 22% of B2C companies also state that they use resource efficient cleaning methods, as do 10% of P2P company. This refers to low-energy machines requiring less electricity and less water. The third related consideration of 'low- or zero-emission transportation' is true for 7% B2C companies and 20% of P2P companies if the consumer is living in a certain area. The B2C companies use electric vehicles and the P2P companies use bike couriers if both the renter and the consumer live within a certain radius in the same city. The final related consideration of this dimension, 'environmentally friendly packaging', is used by 22% of B2C companies and 10% of P2P company. This refers to fully recycled, and recyclable, cardboard or bioplastic packaging. There was also an emphasis on reusing the same packaging for multiple consumers.

The second dimension, end phase, has one related considered – 'sustainable disposal'. This is specified by 22% of B2C companies and no P2P companies. The B2C companies that have an environmentally friendly end phase for the clothing they rotate all donate the textiles to be recycled in to other products.

Table 10: Results for the Environmental Impact Indicator

Indicator	Dimension	Related consideration	B2C	P2P
Organisation-environment relationship				
Environmental impact	Use phase	Non-polluting cleaning methods	22%	20%
		Resource efficient cleaning methods	22%	10%
		Low- or zero-emission transportation	7%	20%
		Environmentally friendly packaging	22%	10%
	End phase	Sustainable disposal	22%	0%

5.2   Discussion

The results of this research detailed in the previous sections show that none of the indicators are fully fulfilled by either the B2C or P2P model used by CFC companies. The following section will discuss the results of this research for each indicator in turn, starting with the first indicator – Resource Efficiency.

The need for increased resource efficiency is made overtly clear considering the impacts of an overly short use phase of a clothing item as highlighted in section 2.1.1. The assertion that CFC companies are able to extend the use of garments through the specific models of the companies therefore holds true based on this research. Both B2B and P2P companies were found to contribute to an increase in resource efficiency. This extension of the use phase of a clothing item is a direct result of how the company is structured. If a company has measures in place to, for example, keep the item in good condition and allows consumers to use the item for as long as they want, the company is building in systems to ensure the use phase is adequately extended and reaching as close to the real technical lifespan of an item as possible. Data gathered from Hack Your Closet, one of the B2C CFC companies used in this research, illustrates this. They state that they rotate each item of clothing to at least 10 customers, who each use the items 3-4 times before returning it (on average). When considered in relation to the research in section 2.1.1 stating that for a third of women, an item is considered old after 3 uses, this leads to an enormous extension of the use phase of a garment.

An interesting result of this research is that only 4% of B2C companies included in this study provided the option of allowing the user to rent out their own clothes. This certainly begs the question as to how B2C companies source their clothes. However, it also shows very clearly that the ownership of the clothing that is being rotated by the B2C companies predominantly

remains with them. There are certainly benefits to having a few well established sources of their clothing this from a logistical perspective. Although, as 4% of B2C companies in the study are able to include this aspect in their business model, the model clearly allows for this despite it not being a widely-spread practise.

As mentioned in section 5.1.1, none of the P2P companies included in this research offered flexible rental periods for the garments. The reason for this was that consumers directly handle the renting out of their items on P2P CFC platforms and the period is agreed upon before the renter and lender agree to the process. However, it should be noted that 20% of P2P companies offered services whereby the renter can outsource the handling of the renting of their item to the company. This may provide an avenue for flexible rental periods within P2P companies in the future.

Moreover, 37% of B2C companies offered an infrequently used type of clothing. This is of note as it shows the majority of B2C companies are increasing resource efficiency through the increased use phase of every-day clothing for the majority of people. Rather than providing a service that is only needed every now and then, or for a relatively short period such as certain months in a pregnancy, most B2C companies are positioning themselves to be part of a daily wardrobe. In comparison, 90% of P2P companies offered infrequently used clothing which perhaps makes sense considering the majority of P2P companies are based on users renting out garments that they do not have a regular use for.

Finally, it was noted as a consumer concern in section 2.1.5 that CFC companies might not offer the same creative and up to date style options as those seen from traditional fast fashion companies. While up to date style is, of course, subjective, all of the companies included in this research explicitly mention that the clothes they offer are in line with current trends. All of the companies included in this study emphasised the ability that their services provided for users to find clothes that fit their unique style.

The second indicator, Community, was able to highlight whether an online or physical community was created through either the B2C or P2P CFC model. The need for CFC companies to promote a community aspect has been detailed as being extremely important for the consumer in section 2.1.5. Previous research has found that consumers are more likely to use the services of a company with an unfamiliar business model if they will be part of a community of users. This is particularly important as large actors in the garment industry, particular fast fashion companies, use social media to create communities. The P2P model lends itself to naturally creating an online community as consumers are directly communicating and dealing with their peers in order to rent out and lend clothes. All of the P2P companies included in this research emphasised the role of community in the process and encouraged users to join and be a part of their particular community, often centred around having the same type of style interest or concern for the environment. Of the B2C companies

in this study, 22% purported a similar message of creating a community online, however they predominantly relied on engagement on social media using specific hashtags. Interestingly, one B2C company Front Row includes a feature whereby members are able to vote on which new items they want the company to invest in and therefore be available for the consumers to rent. This collaborative feature was not found in any other companies in this study.

The physical community aspect was certainly far less common. No B2C companies had a structure where this was actively supported. This is perhaps due to the unique aspect of these companies being that they are completely online, appealing to many millennials' interest in online services. It is worth noting that 19% of B2C companies did have physical stores as well as online services which may well provide an alley way for a physical community to be promoted in the future. The physical communities supported by the P2P companies came about as a result companies encouraging users to conduct their transactions in person. Through meeting peers with similar styles in your area, the platforms promote the formation of physical style-based communities as users rent from and lend to those in close proximity to themselves. One P2P company, Wardrobe, has uniquely based their renting and lending around pre-existing dry-cleaners in New York City. The dry-cleaners act as hubs around the city where clothes are dropped off to be cleaned and then collected by new users. These hubs ground the physical presence of this platform at local, usually independently owned dry-cleaning stores throughout New York City.

The third indicator, Nature of Business, contains two dimensions: 'position' and 'social capital'. 'Position' refers to whether companies using either of the CFC models have positioned themselves as catering to a specific market niche, and if they are working towards a particular societal goal. This research found both B2C companies and P2P companies that fulfilled both of these criteria, however to varying degrees. A market niche was addressed by 59% of B2C companies and 100% of P2P companies. While clearly conducive with both models, this further shows that this is currently common practise for CFC companies. On the other hand, only 26% of B2C companies and 40% of P2P companies aimed to address a societal goal. While also possible with both models, it is evidently less common for CFC companies to use their platform to further a societal goal. Despite both models offering a more sustainable consumption model than fast fashion, it is not common practise to emphasise that as part of a societal goal, or to emphasise any other goal for that matter.

Addressing a market niche and/or a societal goal allows a CFC company to attract users to their platform or service appealing to a specific interest or need. As many consumers are still unfamiliar with CFC in general, it is important for the growth of both B2C and P2P companies to be able to position themselves uniquely within the garment industry in order to attract users away from traditional companies. It is also important to acknowledge the growing demand from consumers for more sustainable (both environmentally and socially) consumption options within the garment industry. What is deemed a market niche now, such

as being environmentally sustainable, may not be in the future as more address this market and push the large actors to do the same.

'Social capital', the second dimension, consists of knowledge shared and user empowerment. While data was found on both B2C and P2P companies sharing knowledge, showing that both models support this practise, only 11% of B2C companies and 20% of P2P companies were actively sharing knowledge. From a sustainability perspective, the building of social capital is vital in bringing about a transition to a more sustainable society. Consumers need to have the information concerning the impacts of their consumptions patterns readily available and both B2C and P2P companies were able to provide that. In all case, the knowledge shared was concerning the environmental and social impact of the garment industry. It was, however, still a very small amount of companies from both models actually doing this. Concerning user empowerment, only P2P companies were found to be empowering their users. Users, or more specifically those renting out garments via P2P platforms, were empowered through the ability to monetise their wardrobe. All of these platforms were aimed at women renting out expensive items in order to make a residual income from the garment. The clothes were recognised as investments that could be capitalised upon.

The final indicator, Environmental Impact, considered only the environmental impacts of the running of the companies. This pertains only to the use and end phase of clothing. It does not include data on any of the environmental impacts of the clothes before they reach the company (all earlier phases of the garment life cycle). During the use phase of clothes, washing accounts for an enormous amount of the environmental impact through both energy consumption and polluting chemicals. Both B2C and P2P companies provided non-polluting and energy efficient cleaning solutions. Although it must be noted that the number of companies doing this are very low: 22% of B2C and 20% of P2P companies employ non-polluting cleaning methods, and 22% of B2C and 10% of P2P companies employ resource efficient cleaning methods. Many encouraged consumers to not wash the items before returning them. It is certainly a more efficient use of resources to collect clothes and wash them en masse, as opposed to consumers washing the clothes in machines that may not be entirely full. One important consideration here is that the garments rented by most P2P companies are done so directly by the garment owner. They are therefore responsible for ensuring it is cleaned for the next user. While many platforms offer guidance on environmentally friendly ways to clean clothing, it is ultimately up to the discretion of the user.

The final two related considerations for this dimension are 'low- or zero-emission transportation' and 'environmentally friendly packaging'. As noted in section 2.1.1, the transportation of goods plays a significant role in their environmental impact and, although it has been concluded that in most cases, online services delivering clothing have a smaller

environmental impact than that brick and mortar stores, how the clothes are transported is still an important consideration. The data shows the both B2C companies and P2P companies were able to offer low- or zero-emission transportation. However, for the P2P companies that did offer this, it was only available in certain locations. Of the B2C companies, 7% transported goods with low- or zero-emission transportation and 20% of P2P companies did in specific locations. The majority of both types of companies used or promoted the use of the national postal service of the country they operated in. There is certainly an argument to be made for using a larger service in order to ensure the lowest environmental impact, and many postal services are exploring low emission options. A detailed consideration was however, outside the scope of this research. Similarly, to the aspect of cleaning garments, for many P2P companies, how garments are transported is up to the direction of the renter. While P2P companies offer advice on how to ship garments, the decision ultimately lies with the garment owner. There is therefore much more personal responsibility involved in this model.

Packaging is potentially the most tangible aspect of the environmental impact of the garment industry for most consumers. It is perhaps not surprising then that both B2C companies and P2P companies are able to offer environmentally friendly packaging, with 22% of B2C companies and 10% of P2P companies doing so. Those that do highlighted the fact clearly on their website along with claims concerning sustainability. Again though, for most of the P2P platforms, the packaging is chosen by the renter of the garment.

Finally, the disposal of garments that have reached the end of their technical use phase was able to be done in a sustainable way (via textile recycling) by B2C companies, but there was no data on this from any P2P companies. This is perhaps to be expected as the P2P platforms do not own their inventory so the owner is still ultimately responsible for how it is disposed of. Moreover, while the B2C model supports this practise, only 22% of B2C companies in this study actually do it. As discussed in section 2.1.1, the end phase of clothing has an enormous environmental impact. As B2C companies maintain ownership of the garments they rotate, they are responsible for how they are disposed of.

It is evident that while the two CFC models analysed in the study are able to include a number of practices that support sustainable consumption, the degree to which these are included by CFC companies overall varies greatly between B2C and P2P companies. These results have also shown that while it may be possible for one of the models to support a certain practise, as data has been collected on one company doing so, that is certainly not the whole picture. The use of the percentages of companies employing both models that include different practices provides a more rounded pictures of CFC companies overall. The common and uncommon practices of these companies is made starkly clear.

Finally, there was data collected that did not fit in to the model developed for this thesis. This data does, however, contribute to an understanding of CFC models and provides a path by

which the model may be expanded. As mentioned in section 3.1, the word 'subscription' was used as a key word when searching for companies to include in this study. A key feature of many of these companies is that users subscribe and pay a monthly fee for the clothes rented. The companies either function completely with this model, or offer the possibility of a subscription fee that allows a certain number of items to be rented per specified time period. All of the companies that offered this option were B2C companies, with 85% offering some kind of subscription option.

Another aspect not included in this model was data collected on the ownership structure of the companies included in this study. It is worth noting that 15% of the B2C companies included in this study are owned by larger fast fashion umbrella companies. CFC companies with this structure certainly put it forward as a positive attribute in the communication, with all of them offering the option of buying the clothes that were most enjoyed throughout the renting process at a discounted price.

6

Conclusion

6.1 Research Aims

This research aimed to understand how two differing CFC models, B2C and P2P, allow for sustainable consumption within the garment industry. The garment industry is one of the most damaging global systems when considering its environmental and social impacts. Life cycle analyses have proven incredibly useful in understanding exactly where the environmental impacts lie, leading to many private sector innovations addressing the issues caused by the production of garments. More recently, with the advent of the sharing economy, the private sector is seeing innovation based on CFC which is being championed as a sustainable consumption option for the clothes that have already been made. This research has clearly shown how the two current models of CFC allow for sustainable consumption practices by drawing on data from current CFC businesses around the world.

Drawing on previous research, a model was developed in order to undertake this comparison and to provide future research with a tool that can be used to undertake more studies in to collaborative consumption. The model that was developed is based in research concerning industry and company-wide sustainability measuring as well as research in to CFC. This model is visualised in its entirety in appendix C. The model allowed for conclusions to be drawn about how the two types of CFC companies are able to contribute to sustainable consumption within the garment industry. B2C and P2P companies differ fundamentally in their structure and organisation and this model has successfully pinpointed the impacts of these differences for the facilitation of sustainable consumption. The conclusions drawn can be used to compare CFC models in general to the current norms of the garment industry, particularly those of fast fashion.

To address RQ1 then, it is evident that the concept of CFC as a whole offers many options for sustainable consumption and broadly speaking, both B2C and P2P companies are able to provide the same structures that facilitate sustainable consumption. However, they do differ in a number of areas. B2C companies are able to provide flexible rental periods to users, allowing for attachments to be formed with items that are rented. P2P companies are currently unable to provide this. P2P companies are able to promote the formation of physical communities and currently B2C companies are not. P2P companies are more equipped to

empower the users of their platform, while no B2C companies currently do this. Finally, B2C companies are able to offer environmentally friend end phase processes of the items they rotate, while P2P companies currently cannot. These differences clearly show how the structures of the two models are able to support different activities that, in turn, lead to more sustainable consumption patterns from consumers. B2C companies are therefore better at ensuring flexibility for consumers and ensuring environmentally friendly practices are in place for the end phase of a garment. P2P companies on the other hand allow for physical communities to be formed through the use of their service and users to be empowered.

RQ2 is concerned with how CFC models compare to fast fashion in terms of sustainable consumption. While traditional consumption models, such as fast fashion companies, cannot be included in the model as a number of areas are not applicable, data from previous research can act as a point of comparison. In section 2.1, it was highlighted that 151,300 tons of the 0.8 to 1 million tons of textiles sent to landfill every year in the UK could be directly reused. This research has shown that CFC models facilitate the extension of the use phase of clothing thus minimising the amount of usable textiles sent to landfill. Similarly, previous research has found that one third of women consider clothing old after having used in just over three times. While it may not be possible to change this fact, CFC companies offer an alternative to throwing away clothes once they are considered old. By rotating clothing items between users, B2C CFC companies ensure that many users are able to experience an item up until the point that they consider it old. At that point, they able to exchange it. P2P companies allow users to rent out items that they may already consider old to peers who do not. Furthermore, P2P companies to a great extent, and to a smaller extent B2C companies, allow consumers to rent garments that they may use infrequently. This ensures that the demand for the production of these items decreases, while the item's utilisation is maximised.

Furthermore, CFC companies including the structure of cleaning clothes in an environmentally way directly decreases the environmental impact of the use phase of clothing, which previous research (specified in section 2.1) has shown to be the second most environmentally damaging phase of the life cycle of a garment. The most damaging phase of the life cycle is the end phase (specified in section 2.1) and B2C CFC companies are currently able to ensure that clothes that have reached the end of their technical lifespan are disposed of in ways that do not contribute to the enormous environmental impact of the garment industry. This further minimises the environmental and social impacts of the garment industry when compared to current consumption patterns. Both CFC models are clearly significantly better in terms of sustainable consumption when compared to current consumption patterns within the garment sector, and specifically the fast fashion sector.

6.2   Practical Implications

This research provides a deep understanding of two different types of CFC business models and how they facilitate sustainable consumption. This knowledge can be used to further develop CFC in order to extend its facilitation of sustainable consumption, as well as provide an insight for current CFC companies as to how they can structure their organisation to facilitate sustainable consumption as much as possible. With fast fashion companies such as H&M and URBN including CFC in their businesses, a deep analysis of the differing structures provides actionable insight moving forward. The differences outlined between the impacts of CFC models and current consumption patterns in the garment industry starkly show the important role CFC could play in order the address current climate crisis.

6.3   Future Research

The model that has been developed by this thesis that can be used for future research on CFC companies. It would be useful to understand the CFC climate of a particular country or region and this framework could act a tool with which to understand how the CFC models prevalent in different geographic areas differ. It could be used to consider collaborative consumption models in other industries, such as tool sharing initiatives or the sharing of leisure activity materials within community. The environmental impact aspect of the model will need to be adapted to consider the life cycle impact of the industry in question, however, the model still acts as a useful starting point. More research must be undertaken specifically concerning sustainable business practices, and the models they exercise, in all sectors. The model developed for this thesis provides a framework with which to undertake this research. The conclusions drawn about the differences between the two CFC models currently identified provide an opportunity to explore the areas that the two models are lacking. It would be interesting to consider possible ways (or new models) that are able to incorporate all aspects that the model identifies in order to facilitate sustainable consumption. Finally, as CFC continues to grow, it is necessary to understand how it fits in to the current garment industry. That is to say, how does CFC look when it is being exercised by a fast fashion company compared to a small CFC only start-up. An understanding of how CFC models are being employed by different organisations could be a natural next step for research based on this thesis.

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Appendix A

(Table of companies providing data for this study)

Name of company	Location	CFC model
Amoire	North America	B2C
Bundlee	Europe	B2C
By Rotation	Europe	P2P
Circos	Europe	B2C
Designerex	Oceania	P2P
Express Style Trial	North America	B2C
FashionPass	North America	B2C
FTF Closet	North America	B2C
Front Row	Europe	B2C
Girl Meets Dress (GMD)	Europe	B2C
GlamCorner	Oceania	B2C
Gwynnie Bee	North American	B2C
Hack your closet	Europe	B2C
Haverdash	North America	B2C
Infinite Style by Anne Taylor	North America	B2C
Infinity Loft	North American	B2C
HURR	Europe	P2P
Le Tote	North America	B2C
My List at Bloomingdales	North America	B2C
Nuuly	North America	B2C
NY&C closet	North American	B2C
OnLoan	Europe	B2C
Our Closet	Europe	P2P
Outdress	Oceania	P2P
Parcel22	North America	B2C
Rainey's Closet	North American	B2C

Rent A Dress	Oceania	P2P
Rent the Runway (RTR)	North America	B2C
StyleLend	North America	P2P
Style Theory	Oceania	B2C
The Clothing Rental (TCR)	Asia	B2C
The Devout	Europe	B2C
The Mr. & Ms. Collection	North America	B2C
The Volte	Oceania	P2P
Tulerie	North America	P2P
Vince Unfold	North America	B2C
Wardrobe	North America	P2P

Appendix B

(Joyner Armstrong and Park's (2017) evaluation of collaborative apparel consumption for sustainable consumption aims)

Indicator	Dimension	Related considerations	UNO	RO	Topics for future research
Consumer–product relationship					
Resource efficiency	Product life extension via attachment (by *individual*)	Highly symbolic clothing types	−	+	• Product types poised for R-O • Symbolism as deterrent to clothing CC within UNO models
		Symbolism	−	+	• Access itself as symbolic; other potential types of consumer–
		Time with the item	−	+	product relationships within UNO
		Short term	−	−	• Time as mediator of attachment with CC-acquired goods in UNO
		Long term	+	+	vs. R-O
	Material utilisation via use intensity (by *collective*)	Infrequently used clothing types	+	−	• Product types poised for UNO • User carelessness and repair/maintenance required for product,
		User carelessness; repair/ maintenance	−	−	transport costs/impact, disposal prevention strategies, stock turn
		Transportation requirements	−	−	due to style obsolescence, and product quality as mediator of
		Reduced demand for new product	+	+	resource efficiency gains
		Avoidance of premature disposal	+	+	
		Product quality	−	−	
		Style obsolescence	−	−	
Consumer–consumer relationship					
Community	Sociality	Anonymity/communality	−	−	• Interaction (communality, public access, reduced perceived spatial
		Public/private access	−	−	distance) as conduit of social meaning and values to influence
		Spatial distance	−	−	sustainable apparel behavioural change • Influence of social media features of digital apparel CC platforms that buoy sociality
Consumer–organisation relationship					
Nature of Business	Formal/informal	Business—consumer/ peer–peer transactions	−	−	• RO capacity to foster normative factors supporting sustainability
		For-/non-profit	−	−	via less formal apparel exchanges
	Position	Market niche (e.g. economic, functional, etc.)	−	−	• Political motivations of consumers to adopt apparel CC
		Politics	−	−	• Virtual currency as perceived risk factor for consumers adopting
		Innovation	−	−	apparel CC
	Social capital	Knowledge, skills	−	−	• Association between increasing personal style via style education
		Empowerment	−	−	on CC platforms and sustainable consumption behaviours

UNO: utility-based non-ownership; RO: redistributed ownership.
Note: '−' implies less opportunity to support sustainable consumption and '+' implies more opportunity to support sustainable consumption with current apparel CC schemes.

Appendix C

(An overview of the model developed for this research)

Indicator	Dimension	Related consideration
Consumer-product relationship		
Resource Efficiency	Product life extension via attachment (by individual)	Users can rent out items they already own
		Continued rental of an item
	Material utilisation via use intensity (by collective)	Infrequently used clothing type
		Maintenance of clothing
		Up to date styles offered
Consumer-consumer relationship		
Community	Sociality	Online community created by using the service
		Physical community created by using the service
Consumer-organisation relationship		
Nature of business	Position	Market nice
		Societal goal
	Social capital	Knowledge shared
		User empowerment
Organisation-environmental relationship		
Environmental impact	Use phase	Non-polluting cleaning methods
		Energy efficient cleaning methods
		Low- or zero-emission transport
		Environmentally friendly packaging
	End phase	Sustainable disposal