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How circular are circular business models? The case of the fashion industry

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Abstract

In recent years, we have seen an increase in circular business models (e.g., swapping and renting) emerging within the fashion industry. These 'new' business models are seen as a response to the criticism the fashion industry has received regarding being unsustainable. Namely, polluting the environment, exploiting workers and consumers and prioritising profits. Although an emerging body of research focuses on circular business models, more is needed on how circular these models actually are and what the sustainability (environmental, social, economic) implications may be. This is addressed within this research by drawing on an interdisciplinary outlook. This article will provide an overview of the current state of circular business models in the fashion industry and offer insights into their true circularity and sustainability.

Keywords: circular business models; fashion industry; sustainability; interdisciplinary research; circularity

1. Introduction

The fashion industry is truly globalised, with supply chains spanning countries and continents [1, 2]. Most fashion retailers and companies have developed their supply chains over time, with production locations often moving into lower labour-cost countries in an attempt to stay competitive. With increased pressure on pricing, fashion companies now do not only have to deal with 'first tier' suppliers but often with second-, third- or n-th-tier suppliers, all in an attempt to produce garments cheaper and faster. This way of production is aligned with the linear economy, often referred to as 'make-take-dispose', and characterised by sourcing raw materials, creating the garment, and selling it to consumers, who, after wear, discard the product [3, 4].

Over the past thirty years, with the advent of lean retailing, the fashion industry has become increasingly efficient at churning out garments in a linear fashion. Consumers have come to expect new fashion lines weekly and increasingly daily, with the fashion industry moving from fast fashion to ultra-fast fashion [5, 6]. Although the fast fashion phenomenon was set up with accessibility in mind, making designer-inspired garments at a fraction of a designer price tag [6], it has since escalated into a model that prioritises speed and profit at the expense of quality, sustainability and ethical labour practices. To explain, the fashion industry has been heavily criticised for being unsustainable, as it fosters not only overconsumption due to the aforementioned, fast moving fashion cycles, but also overproduction of often very cheaply made garments that are (prematurely) discarded, thereby ending up in landfill [7].

The overconsumption and overproduction of garments comes at a high environmental cost, with the European Parliament [8] outlining that "textile production is estimated to be responsible for about 20% of global clean water pollution from dyeing and finishing products" and approximately 10% of the global carbon emissions, which is more than international flights and maritime shipping combined produce. Thus, it is not surprising that the fashion industry is seen to cause the fourth

largest pressure on the environment and climate, following closely behind food, housing, and mobility [9].

Against this bleak backdrop however there is hope that sustainability, portrayed through a Venn diagram as the intersection between environmental, social, and economic aspects, has increasingly been discussed within the industry [10]. In the past decade, the circular economy has emerged as a buzzword in the fashion industry, often seen as a solution to the problem of overconsumption and production [11]. The circular economy is defined through an open- and closed-loop system, whereby the ultimate goal is to (ideally) eliminate waste and thus, make use of resources in an effective and efficient manner [4, 11, 12].

Closed-loop cycles imply that here, fashion garments would be collected after having fulfilled their initial life and be returned to the raw materials stream, to create new fashion items [12]. By contrast, in open-loop systems raw materials can be used across industries [12]. An example from the fashion industry could be the creation of orange fibre, whereby orange peels that are seen as waste materials from the food industry are utilised as a new resource to create fibres that can be made into textiles and ultimately fashion items [13].

Although the circular economy can be defined through open- and closed-loops, this definition can also be seen as being limited, as the focus is solely on resource efficiency and end-of-life treatment. Yet, the circular economy encompasses more, as it can be described as

> "an economic system that is based on business models which replace the 'end-of-life' concept with reducing, alternatively reusing, recycling and recovering materials in production/distribution and consumption processes, thus operating at the micro level (products, companies, consumers) meso level (eco-industrial parks) and macro level (city, region, nation and beyond), with the aim to accomplish sustainable development, which implies creating environmental quality, economic prosperity and social equity, to the benefit of current and future generations" [59, 224-225].

This definition of the circular economy is broader in scope and acknowledges that an interplay between the micro, meso, and macro level is essential in order to ensure a transition from a linear to a circular economy in which buy-in from stakeholders is guaranteed.

In this context, a range of business model innovations aligned with the circular economy have disrupted the fashion industry [14, 15], in an attempt to make the industry more sustainable. Yet key questions that remain unaddressed include:

- How circular are these business models?
- What are the environmental, social, and economic impacts of these models?

Circular business models within the fashion literature are often portrayed as 'end-of-life solutions' rather than as tools that can help reshape global supply chains and embed sustainability *across* the industry. As a result, consumers are often frustrated, with the media outlining that sustainable fashion is a myth [16] or posing the question of "can fashion ever be sustainable?" [17]. With other outlets highlighting that "'Sustainable fashion' (still) doesn't exist because the industry is inherently unsustainable" [18]. These aspects will be discussed in the following sections.

2. Circular Business Models

2.1 General overview of circular business models

The fashion industry has seen a multitude of business model innovations emerge in recent years [14, 15], often referred to as collaborative consumption modes, which include, but are not limited to rental and/or leasing models, swap shops, or secondhand platforms (online and offline) [14, 19, 20]. Although collaborative consumption models are similar in nature, in that the goal is to pool resources and make these accessible to a wider range of individuals, they differ significantly in terms of how these can be accessed [21]. Rental and/or leasing models predominantly operate based on paying monthly fees (subscriptions), which allows individuals to make use (access) of garments for a set amount of time, before these are sent back [21, 22].

Rent the Runway is one of the prime examples, having successfully managed to create an annual turnover of over US$298.2 million in 2023 [23]. Similarly, department stores, such as Harrods have started collaborations with online rental platforms (e.g., My Wardrobe HQ, The HURR), to attract a new consumer base interested in reducing the impact that their consumption practices have on the natural environment [24]. Although rental models exist online and offline, they are most often operated without a physical store [25, 26]. Technological advancements have allowed online rental service providers to create interactive spaces that attract a wide range of consumers efficiently while at the same time collecting consumer data that allows personalisation of platform offerings [19, 27].

Within the rental model, ownership remains with the lender rather than transferred to the individual borrowing the item [21]. But, within swapping practices ownership is transferred between individuals [28]. Swap shops can be between in-groups (individuals who know each other) or out-groups (strangers). For the latter, these are often organised by third party providers and are predominantly non-permanent and/or in a pop-up format. Although swapping in itself is 'free', third-party organisers often charge an access fee in order to cover the cost for the swap shop space, overheads and staff time [28, 29]. Secondhand consumption follows in line with swap shops in that ownership is transferred.

Research [6, 29, 30] in the field of circular business models has investigated the opportunities and/or challenges of these collaborative consumption initiatives [30, 31], including consumer motivations for engaging in these practices [32, 33]. More recently, we have seen an increase in studies that focus on life cycle assessment (LCA) thereby quantifying the environmental impacts of these business models and practices [34, 35, 36]. Yet, results currently remain inconclusive about whether these circular business models are more environmentally friendly, as it seems to be highly context dependent. In particular, the environmental impact of rental is dependent on several variables, including the type of garment that is rented and how often this is worn [34]. Some research has also claimed that rental is worse than owning garments and/or discarding them after use, due to the high carbon footprint associated with transportation costs of getting the items to and from the consumer [37, 38].

Importantly, most of current academic literature focuses on environmental aspects associated with the circular economy, thereby neglecting the social and economic aspects. These

aspects however are vitally important as they are necessary to encourage and enable positive change in the industry.

2.2 Environmental implications of circular business models

While current research is inconclusive about whether collaborative consumption models are more environmentally friendly, as this seems to be context dependent and also reliant on the units of assessment [34, 35], what is known, and fostered through these collaborative consumption practices, is that actively wearing an item of clothing for nine months longer can reduce the carbon, water and waste footprint by between 20 to 30% each [39]. Similar observations have been made in a report by the Hot or Cool Institute [40], who provided different scenarios on how to reduce the environmental impact of consumption practices.

Collaborative consumption models are not the only business interventions that form part of the circular economy. The recycling of textiles is a further method that aligns with these principles and falls within closed- and open-loops. Over the past decade, closed-loop recycling of used garments has gained interest [41-43]. Although textile recycling is not new *per se*, there are still issues surrounding its feasibility in terms of being able to recycle mixed materials and/or the scaling of these technologies to capture its environmental promise [44, 45]. Moreover, it is currently unclear what the environmental impact of closed-loop textile recycling is on the garment's life cycle.

Within the fashion industry, the most common recycled fibres used in the production of garments is polyester made from polyethylene terephthalate (PET) bottles and thus, falling within an open-loop recycling process. Other commonly used recycled fibres are cotton and wool, yet overall, the demand seems to be relatively low, as recycled fibres still need to be mixed with virgin materials, to ensure performance properties, remain the same [43, 48]. Indeed, at present, the industry is struggling to deal with mixed fibres in garments, with viable commercial solutions needing to be improved.

To gain a better understanding of the environmental impacts, several LCA studies have been performed to quantify the environmental potential of garment recycling [41, 49, 50]. While garment recycling could result in environmental benefits, its magnitude is decisively influenced by the condition of used garments. In other words, the environmental benefits are greater when heavily used garments are recycled than when 'like-new' garments are recycled. Similar to the environmental potential of fashion rental or swapping, there exists preconditions for closed-loop recycling to be environmentally sustainable.

An observation that can be made is that the fashion industry is making (small) steps in the right direction, meaning that they are implementing circular business models and practices, thereby providing choices to consumers who want to reduce their environmental impact. As previously highlighted, collaborations are also emerging between traditional businesses and circular businesses (e.g. rental platforms), yet these still remain niche and underexplored.

Moreover, for fashion businesses that have long and complex supply chains, collaborations may be the only solution to become more circular, as changes in the industry are not only very slow but can often seem impossible. If supply chains are spanning across countries and continents, any change made within this system has ramifications that need to be carefully considered, to avoid unintended consequences. Similarly, the actual impacts of changes need to be quantified, as the fashion industry does not want to be in an even worse situation in terms of being unsustainable than they already are.

2.3 Social implications of circular business models

As mentioned, most current research centres on the environmental impacts of circular business models, with only limited studies focussing their attention on social aspects [51-53]. Even fewer studies focus on cost as a barrier to accessibility. To explain, renting fashion implies paying a subscription fee, which can be higher or lower, depending on the mode of subscription; similarly, swapping events often have an access fee, which allows the organisers to cover their costs [14, 22, 29].

For swap shops additional costs are carried by swap participants in the form of having to take a mode of transportation, potential parking spaces, and if not conveniently located may need to consider food options. Having these additional costs can act as barriers for partaking in these schemes, especially when considering a cost-of-living crisis and those living below the poverty line. This poses a question about who circular business models are targeted to? Could these be described as 'elitist' systems that exclude certain members of society, or are they seen as tools to tackle the issue of overconsumption within certain consumer groups, who are seen to spend too much on (ultra) fast fashion? These questions remain unanswered, especially when considering the viewpoint of those who could be described as living in clothing poverty (unable to afford garments).

Aside from social aspects that could impact on consumers, there are further aspects that need to be considered in terms of employees. As highlighted, the fashion industry is a major global employer encompassing designers, manufacturers, models, marketers and retail employees. The linear economy has created complex supply chains, and as such, making changes can have significant impacts on the livelihoods of individuals dependent on the industry. The magnitude of changes in the sector has been demonstrated during the COVID-19 pandemic [7, 54].

Remodelling supply chains could have similar implications in that livelihoods may be at risk and/or new skills will need to be developed and supported to ensure that the most vulnerable are not suffering any unintended consequences. Currently, however, this is not fully understood, as many global firms have thus far only used circular business models as 'add-on' strategies, through collaborations, rather than actually transforming their supply chains to align with circular practices.

A key aspect that needs to be addressed within the area of social implications and circular business models is unintended consequences that could emerge, such as creating class systems, impacting only vulnerable stakeholders, and/or the job market. It is thus recommended to conduct research across different disciplines to gain stakeholder insights whilst at the same time gaining a better understanding of quantified measures through, for example social life cycle assessments (sLCAs).

2.4 Economic implications of circular business models

The fashion industry is based on a capitalised system [55, 56], in which consumers have been conditioned to want and consume more. Prices and also costs have dropped significantly, partially due to technological progression but cutting costs also comes at a high cost, which has been outlined by documentaries, such as the True Cost movie [10, 57].

Interestingly, not much research focuses explicitly on the economic angle of circular business models, yet finances are vital as companies are unable to survive in a competitive environment. Whilst there is some research emerging that focuses on collaborations, such as those mentioned in a previous section between department stores and rental platforms, overall, the economic implications of changing to more circular business practices remains largely unexplored.

What is known however is that "extending the average life of clothes by just nine months would save £5 billion in resources used to supply, launder and dispose of clothing" [58]. Looking at this figure this could imply that organisations could save money by actively partaking in circular business practices, whilst at the same time responding to the increased pressure to be more sustainable.

A key question that emerges here is how to ensure a balance that allows organisations to survive, whilst at also staying within the planetary boundaries, to ensure that current and future generations can survive and meet their needs.

3. Conclusion

This article set out two questions:

- How circular are circular economy business models?
- What are the environmental, social, and economic impacts of these models?

From this review, it becomes apparent that there is no clear-cut answers as research surrounding circular economy business models in the fashion industry are either heavily geared towards environmental aspects, fragmented when it comes to social impacts, and almost non-existent within the remit of economic implications. Moreover, as was alluded to, currently there are either 'born circular' organisations in the fashion industry that were set up with circular principles in mind, or those organisations that use an 'add-on' strategy to comply with the increasing pressure of becoming more circular and sustainable.

The latter aspect is not meant as a criticism, as it needs to be appreciated that supply chains are complex and thus, changing these may not always be possible in the immediate future. In response to the first question posed above, it could be argued that the circular economy sees a variety of 'loops' emerging that align with some of the principles, with some disruptive business model innovations being able to disrupt practices. It is argued that rather than seeing circular economy business models as a means to an end, they should be seen as a tool that guides change in order to achieve the wider goal of making the fashion industry more sustainable.

In addressing the second question, research currently focuses predominantly on environmental aspects, with research gaps existing surrounding social and economic impacts of circular economy business models. Thus, more research is needed, in order to fully understand what unintended consequences of implementing circular economy business models and practices may have on social aspects, whilst at the same time finding solutions that are economically viable.

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