Henninger, Claudia Elisabeth; Bürklin, Nina; Niinimäki, Kirsi

The clothes swapping phenomenon – when consumers become suppliers

Published in:
JOURNAL OF FASHION MARKETING AND MANAGEMENT

DOI:
10.1108/JFMM-04-2018-0057

Published: 24/05/2019

Document Version
Peer reviewed version

Please cite the original version:

This material is protected by copyright and other intellectual property rights, and duplication or sale of all or part of any of the repository collections is not permitted, except that material may be duplicated by you for your research use or educational purposes in electronic or print form. You must obtain permission for any other use. Electronic or print copies may not be offered, whether for sale or otherwise to anyone who is not an authorised user.
The Clothes Swapping Phenomenon – When Consumers become Suppliers

<table>
<thead>
<tr>
<th>Journal:</th>
<th>Journal of Fashion Marketing and Management</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manuscript ID</td>
<td>JFMM-04-2018-0057.R2</td>
</tr>
<tr>
<td>Manuscript Type:</td>
<td>Original Article</td>
</tr>
<tr>
<td>Keywords:</td>
<td>Swapping, collaborative consumption, Fashion industry, Consumers, Suppliers</td>
</tr>
</tbody>
</table>
The Clothes Swapping Phenomenon – When Consumers become Suppliers

Abstract

Purpose

This paper explores swap-shops, which emerged as part of the collaborative consumption phenomenon, by investigating what the implications are of consumers acting as suppliers and how this affects supply chain management within the context of the fashion industry.

Methods

This study explores the collaborative consumption phenomenon through swap-shops in three countries: the UK, Finland, and Germany. In-depth semi-structured interviews were conducted with swappers, non-swappers, and organisers. To further enhance the data set 6 observations of swap-shop events were conducted. Data were transcribed and analysed using multiple coding cycles and using a grounded research approach.

Findings

Findings indicate that consumers were most concerned with availability/sizing and quality of garments, whilst organisers felt uncertainty was the biggest issue. Data allowed creating a framework that blueprints the swapping supply chain, in which consumers emerge as suppliers. It highlights possible activities in different cycles, whilst further more indicates that consumption cycles can move from monetary (e.g. selling) to non-monetary transactions (e.g. swapping) and vice-versa.

Implications

Swapping as a relatively new fashion supply mode implies a fluidity of market roles. Disruptive business models can blur boundaries between the supply- and demand-side. This indicates that consumers can change ‘roles’ multiple times as they go through the consumption cycle.

Originality

We extended the knowledge on swapping by describing how this phenomenon can activate consumers, and extend and intensify the use of garments and therefore swapping can slow the material throughput in the system. It is the first article to focus solely on swapping within a three country context.

Key words

Swapping, collaborative consumption, fashion industry, supply chain, consumers, suppliers
1. Introduction

Swapping garments and accessories implies a redistribution of ownership, whereby items are exchanged on a ‘like-for-like’ basis without monetary transactions (Johnson et al., 2016; Park & Armstrong, 2017). Research focusing on collaborative consumption and specifically swapping remains limited (Weber et al., 2017). Articles on collaborative consumption predominantly focus on product service systems (PSS) (e.g. renting), which are characterised through a lack of transfer of ownership, yet these articles either fail to explore swapping or compare different collaborative consumption types, predominantly within a single country setting (Lee et al., 2013; Weber et al., 2017; Lang & Armstrong, 2018). Moreover, past research investigated the attitude-behaviour gap of why and when consumers engage in collaborative consumption, yet do not currently explore the implications of when consumers become suppliers (Akbar et al., 2017; Park & Armstrong, 2017), which is addressed in this article.

Collaborative consumption is defined as “people coordinating the acquisition and distribution of a resource for a fee or other compensation” (Belk, 2014: 1597) and incorporates renting, trading, lending, and swapping (Botsman & Rogers, 2010; Lang & Armstrong, 2018). Collaborative consumption is part of the sharing economy (Hamari et al., 2016), which is an emerging economic-technological phenomenon fostered by rapid technological developments and Web 2.0, which enables peer-to-peer sharing on a global scale and allows defining new roles for consumers as suppliers (Heo, 2016; Góssling, 2017). The Office for National Statistics (ONS) (2017) indicates that the sharing economy has facilitated €28bn worth of transactions within Europe alone in 2015 growing twice as fast as originally anticipated across five key sectors (staffing, finance, car sharing, travel, music and video streaming). An explanation for this exponential growth in the sharing economy could be an increased awareness of and concern for the impact that production and consumption have on the natural and social environment (Hamari et al. 2016). The fashion industry is the second most environmentally polluting industry after the oil industry, thus, there has been an outcry for more sustainable practices (Henninger et al., 2017). Waste is a key issue, which has received increased media attention in recent years (Chua, 2015; Simthers, 2017). This indicates that the traditional linear system is ready and in need for disruptive innovations, as currently less than 1% of materials used within the garment manufacturing process are recycled (EMF, 2017; Lang & Armstrong, 2018). Approximately 95% of discarded clothes that end up in landfill could have been reused, e.g. re-worn, recycled, or
mended (Lu & Hamouda, 2014). Collaborative consumption, including swapping, allows consumers not only to share the cost of products (Botsman & Rogers, 2010), but also to redirect unwanted garments into a new supply stream thereby preventing (landfill) waste (Armstrong et al., 2015; Lang & Armstrong, 2018). Current supply chain practices have both negative environmental consequences and economic implications (Choi & Cheng, 2015): it is estimated that annually €400bn are lost due to clothing that is barely worn and rarely recycled (EMF, 2017). This further justifies our research, as it tackles this issue by redirecting unwanted garments into a new (re-looped) supply chain.

The outcry to change the current fashion industry’s landscape is further fostered by the Rana Plaza incident in which thousands of people lost their lives (Parveen, 2014). The year 2018 marks the fifth anniversary of the incident and sees strong support from conscious consumers, who are increasingly aware of the impact the fashion industry has on the social and natural environment, and demand for fashion manufacturers to act in a more conscious and responsible manner and even change the business logic behind fast fashion (Niinimäki & Hassi, 2011; Henninger et al., 2016, 2017). During Fashion Revolution Week (week surrounding April 24th) individuals and organisations are encouraged to promote and participate in events that foster a more sustainable future, such as screenings of documentaries (e.g. The True Cost), ‘make, do, and mend workshops’, and swap-shops (Fashion Revolution, 2018). Our research focuses on the latter (swap-shops) and explores opportunities as well as challenges associated with this ‘new’ supply chain management (SCM).

2. Literature Review

2.1 Collaborative consumption and disruptive innovations in the fashion industry

Swapping is part of the sharing economy and can be characterized as a specific sub-type of collaborative (fashion) consumption (Iran & Schrader, 2017). Although swapping is not new per se, it has gained popularity after Rana Plaza (Swash, 2014), which can be explained through the emergence of conscious consumer behaviour as a driver for alternative forms of consumption, thereby fostering a new lifestyle that seeks to reduce fashion waste (Battle et al., 2018; Lang & Armstrong, 2018). The expected positive environmental effects refer to the increasing use-intensity; as such swapping could partially replace the consumption of new products and/or accessories (Iran & Schrader, 2017). Environmental benefits are not the only underpinning
drivers of indulging in collaborative consumption, others such as monetary benefits, moral responsibility, and engaging in anti-consumption behaviour are also important (e.g. Botsman & Rogers, 2010; Lang & Armstrong, 2018).

[Insert Table 1: Drivers & Barriers]

Table 1 provides an overview of drivers and barriers associated with collaborative consumption, drawing on literature from marketing, management, tourism and transportation. The latter two have seen the emergence of the most prominent examples of disruptive innovations (Airbnb, Uber).

Collaborative consumption implies exchanging goods/services, here, without any monetary transaction, among strangers, which differs from sharing, which predominantly occurs within a close-knit community (Dredge & Gyimóthy, 2015; Park & Armstrong, 2017). Although collaborative consumption has stirred academic interest since the 1970s, thus far, there is no clear-cut definition of what it entails (Felson & Spaeth, 1978; Belk, 2014). Early definitions indicate that events in which multiple people come together and ‘collaboratively’ consume goods/services could be classified as collaborative consumption (Felson & Spaeth, 1978). Yet this definition has been criticised for being too broad, as people visiting the movies or sitting around a table having a meal in a restaurant would fall into the same category. Belk (2007) incorporates a focus on acquisition and distribution into the definition, which provides clearer boundaries as to what can be classified as collaborative practices, whilst Botsman and Rogers (2010) hone in on actual types of collaborative consumption, which include “traditional sharing, bartering, lending, trading, renting, gifting, and swapping” (p. xv). Although this categorisation bears challenges as the types identified imply different forms of ownership (re-distribution, non-ownership, permanent transfer), it provides a starting point for further explorations. Our research defines collaborative consumption, specifically, swapping as the peer-to-peer exchange of goods organised either by individuals or facilitated by a company with the purpose of re-distributing ownership from one owner to another without any monetary exchange for the garment and/or accessory (Belk, 2014; Iran & Schrader, 2017; Mair & Reischauer, 2017). Whilst a fee may have to be paid in order to access the event, which usually covers overheads of the event organisers, this money paid is not seen as a monetary transaction to accessing the swapped goods.
Technology and digital platforms have fostered the collaborative consumption phenomenon, by allowing for peer-to-peer sharing to emerge, whereby individuals exchange their idle capacities and re-vamp their wardrobe by gaining new garments and/or accessories (Park & Armstrong, 2017). This relatively new consumption behaviour has further led to the development of new business models that actively facilitate new supply and consumption opportunities such as swapping events, which can best be described as disruptive innovations. Disruptive innovations can have a negative impact on the economy at large, seeing as consumers would be diverted from purchasing new garments on the high street and encouraged to simply exchange unwanted garments for new ones at swapping events, thereby providing alternative benefits and supply to current market offerings (Christensen & Raynor, 2003). Disruptive innovations are often described as inferior compared to established and more traditional products/services, as the emphasis may not necessarily be on quality and range of additional services, but rather heavily focused on attractive pricing and convenience (Markides, 2006). If disruptive innovations are perceived to be providing more benefits and better value, consumers will actively engage with and become more acceptant of them, whilst these innovations can further develop and overcome initial drawbacks. A question that emerges here is what the implications are for the supply chain, in terms of being able to offer garments that can be swapped. Thus, we propose the following research question:

RQ1a: What are challenges and opportunities of consumers becoming suppliers from an organisational perspective?

In order to foster more responsible economic systems, such as a circular economy through collaborative consumption, research and innovation are needed at all levels including social, technological, and commercial factors (Stahel, 2016). Within the fashion industry, disruptive innovations are only slowly evolving, with the most prominent examples being MossBros (UK), Rent the Runway (USA), and Lena the Fashion Library (Netherlands). However, unlike the focus of this paper, these organisations utilise a rental model, which implies a non-ownership transfer, with garments being returned to the company after they have been used. Contrary to rental providers, swap-shops solely rely on individuals to participate in the events and provide garments that can be swapped. A key question that emerges is how individuals can be encouraged to supply garments for swap-shops. Thus, we propose:
RQ1b: What are challenges and opportunities of consumers becoming suppliers from a consumer perspective?

2.2 Supply chain management (SCM) and the case of swapping

SCM combines key business processes “from end-user through original suppliers, that provides products, services, and information that add value for customers and other stakeholders” (Lambert et al., 2006, p.2). It implies that an organisation sources all of its raw materials carefully, creates the actual product, and sells these on to the end-consumer. The emergence of technology implies that consumers are no longer place bound and can shop anywhere at any time; consequently, production has increased and supply chains become more complex (Danneels, 2004) and lack transparency (Kang & Hustvedt, 2014). The latter aspect can lead to a communication break down and problems between the company and its stakeholders (Lamming et al., 2001). This development is notable within the fashion industry, which is associated with highly complex supply chains stretching across multiple tiers of suppliers that are (in)directly contracted by the company (Emmelhainz & Adams, 1999).

Stakeholder pressure to create more socially and environmentaly responsible products has further enhanced this complexity and seen the emergence of sustainable supply chain management (SSCM), which is defined as “the management of material, information and capital flows […] while taking goals from all three dimensions of sustainable development, i.e. economic, environmental and social, into account” (Seuring & Müller, 2008, p. 1700). Retailers have started to carefully analyse their supply chain to ensure safer working conditions, whilst at the same time reduce waste, which is not only expensive, but also damaging for the planet (Vachon & Klassen, 2008). Studies on SSCM are limited and predominantly investigate environmental performance or green product development, with a majority of research conducted in traditional organisations (Ashby et al., 2012; Joy et al., 2012; Henninger et al., 2015). To our knowledge there are no current studies focusing on what the implications are of disruptive innovations (e.g. swap-shops) on SCM; neither is it known how swap-shop supply chains look.

Swapping events almost seem to be working on the principle of reverse logistics, which is defined as “the process of moving product from its point of consumption through channel members to the point of origin to recapture value or ensure proper disposal” (Schatteman, 2003, p. 267). Yet, rather than looping garments/accessories back to the ‘origin’, they are diverted to
swapping events, which could be seen as ‘take-back schemes’. Thus, swapping fits with
government initiatives such as the Waste & Resources Action Plan (WRAP, 2012), as clothes
can be diverted from landfill into alternative supply chains. Thus, we investigate:

**RQ2**: How can this ‘new’ supply chain be characterized?

### 3. Methodology

This research is part of a large-scale project that investigates collaborative consumption within
the UK (Manchester), Finland (Helsinki), and Germany (Munich). An interpretivist approach
was utilised (Schaefer & Crane, 2005) to explore the impact of swapping on SCM and the
implications of consumers becoming suppliers.

The three European countries were chosen purposively as they have a longstanding history
within the textile/garment manufacturing industry, host key fashion weeks, and the three cities
organise regular swapping events (Europeana, 2017).

- The UK government drives a sustainable fashion agenda (Parliament, 2018);
  - *Manchester* was significant during the Industrial Revolution and remains a
    major fashion hub, with companies such as Boohoo and PrettyLittleThings
    having established their headquarters here (Murphy, 2013; Drapers, 2015).
- Finland is known for its design, innovation, and empowerment of sustainable
  fashion (Kolehmainen & Veinola, 2014; Damarwala, 2017);
  - *Helsinki* drives sustainable fashion. In 2013 it launched Pre Helsinki, an
    event dedicated to overcome major challenges faced by the fashion industry,
    by bringing together the global and local fashion scene (Chun et al., 2017;
    Korva, 2018).
- Germany was first to introduce an eco-label (Blue Angel) and is one of the EU
  leaders for recycling (Europa, 2017);
  - *Munich* was named the unofficial fashion capital until 2003 and has brought
    forward renowned designers including Phillip Plein and Rudolf Moshammer,
    (FashionUnited, 2012). The city fosters a vibrant and diverse fashion scene
    (Wirtschaft München, 2017).

Past research on collaborative consumption has predominantly focused on single countries
(Armstrong et al., 2015; Iran & Schrader, 2017; Hu et al., 2018), yet failed to draw a cross-
cultural comparison, which could provide insights into best practices, opportunities, and barriers
to engaging in collaborative consumption.

Consumer interviews were conducted at swapping events, which attract on average 50 people
within a 3hour timeframe. Interviews were conducted in the original countries and all interviews
conducted in their native language were translated into English and back to ensure that the
meaning remained unchanged. Interviews were recorded and transcribed verbatim. In order to
enhance open communication throughout the interview process, all participants were guaranteed
anonymity. Ethical approval and swap-shop organisers’ permissions were gained prior to
conducting the research. Swap-shop visitors were aware of the researchers’ presence and
approached randomly. Participation was on a voluntary basis and informed consent was
obtained. Non-swappers were recruited based on recommendations provided by interviewees.
For this paper a total of 52 interviews were conducted (UK: 21, Germany: 16, Finland: 15),
which provided enough data to reach saturation. Interviews were conducted either in public
spaces, or at the swap-shop event, with participants being aged between 18 to 65 and
predominantly female (Table 2). Whilst the latter aspect could be seen as a limitation, O’Cass
(2004) indicates that females are more involved in fashion. Kim and Lennon (2010) and
Burgkolter and Kluge (2011) further insist female fashion consumers are a rapidly growing
market segment, with females being more likely than males to search for garments and
information.

[Insert Table 2: Data collection summary]

Prior to conducting any primary research a loose interview protocol was designed, which
allowed for new topic areas to emerge (Easterby-Smith et al., 2012). Interviewees were able to
further elaborate on their experiences and issues they have encountered when participating
and/or facilitating swapping events, or elaborate on their reasons for non-participation (Table 3).

[Insert Table 3: Sample Questions]

Swap-shop observations were undertaken by each of the individual researchers and loosely
written down to reflect, as accurately as possible, the running of the events, as well as any
remarks the researchers may have had. Both the interview data and the observations followed the
same analysis process. Each researcher coded parts of the data sets individually using NVivo11,
which allowed for an initial framework to emerge. In-depth discussions surrounding the themes
took place after a priori codes were established and an initial coding structure was agreed. Data
sets were carefully coded and re-coded in accordance with the established coding framework and
reviewed by the first author to ensure consistency. NVivo11 further supported an intercoder agreement and thus, provides rigor to the data analysis (Pan et al., 2007). Multiple coding cycles were conducted iteratively, following Easterby-Smith et al.’s (2012) seven step guide of familiarization, reflection, conceptualization, cataloguing, re-coding, linking, and re-evaluation. Codes were split into themes and patterns that naturally emerged from the data sets. Data collection was completed once a theoretical saturation was achieved (Charmaz, 2006). Any discrepancies were carefully reviewed, discussed, and re-coded.

4. Findings & Discussion

4.1 Challenges and opportunities - swapping

Initial key themes that emerged are availability/sizing (UK, Finland, Germany) and quality (UK, Germany). Availability is a multi-faceted theme linking to not only general availability of garments/accessories on the rails and sizing, but also to swapping events. Observations highlight that there seems to be an underlying status aspect, which has an influence on where events are organised. In the UK and Finland swap-shops take place in vibrant parts of the city that were described as “hipster, trendy...cool” (UKIs7) and populated by fashion conscious people (FIOrg1). All swapping events researched and organised are within close vicinity to the city centre and easily accessible. Contrarily, in Germany swapping events took place in slightly poorer areas that are known to have a higher percentage of unemployment (DEOrg2, DEIs5). Moreover, events in Germany were organised in religious venues (e.g. rectory, community centres), rather than in neutral spaces. The actual area of where events take place can have an impact on the clothing supply, as consumers could be discouraged from going to religious venues or less ‘desirable’ areas. This was also reflected by interviewees stating “there’s just such a big uncertainty of whether you actually find something, as there is not huge amounts available” (DEIs3), which referred to both garments hanging on rails or sitting on tables, and different sizes available. DEOrg1 further pointed out that garments can be damaged and not fit for purpose as some attendees use the swaps to get garments for free and simply replace the ones that cannot be used anymore. Contrarily, in the UK and Finland swap-shops are seen as “exciting and a bit more of an experience that I’m gonna be more hands-on and rummaging through to see, and also it’s a bit more hit and miss if they’re gonna have my size” (UKIs6). This suggests that swapping is similar to treasure hunting, in which consumers take an active role, searching
through items in the hope of finding garments that not only suite their taste, but also their sizing needs. UKIs2 states that the reason for her attending UKOrg1’s swap-shops is that she finds likeminded people and good quality garments. She also noticed another regular participant, who mends and re-designs garments and happens to be her size. This encouraged her to be very selective with the items she provides for the clothes swap, as she feels she wants to match her experience for others.

Facilitators do not organise garments and accessories according to size “we want people to come in...if they see there’s just one or two items on the stand in their size... they wouldn’t” (UKOrg2). In order to overcome the sizing challenge organisers tend to categorise items according to ‘good brands’ (e.g. items from high street retailers) and ‘very good brands’ (e.g. items from high-end and designer fashion houses). UKOrg3 insists that this approach meant that people were less embarrassed about bringing in clothes, for fear of their clothes being “not good enough” (UKIs7), “too big or too small” (FIIs12), “unwanted” (UKIs11), or “just not acceptable to someone’s taste...” (UKIs7). This implies that social acceptance by peers plays a key role in determining which items are selected for swaps. From an organisational viewpoint it was emphasised that “you do judge stuff, but if it’s good or very good... or high street stuff versus everything else – people don’t feel as judged... they say ‘ah ok, yeah I guess you need to make a difference somehow’” (UKOrg2). From our findings it emerged that ‘embarrassment’ was not an issue anymore, with anyone discussing this topic highlighting that the new system works well and reassures them that all garments are put into the swap and are displayed (UKIs1; UKIs6; UKOrg1a). The only exceptions are items that are soiled and/or of extreme poor quality – which is discussed later. The aspect of encouraging people to bring clothes and making them feel at ease is important, especially when investigating consumers as suppliers, other than in a traditional setting, where garments are ordered on demand, it is vital to make individuals feel comfortable in order to not only ensure sufficient stock, but also keep garments out of landfill and extend their useful life thereby addressing key issues raised in the literature review (e.g. Lu & Hamouda, 2014; EMF, 2017; Lang & Armstrong, 2017). This further suggests that there is a reliance on making these swap-shops inclusive, as otherwise the facilitators may end up with a majority of garments in one size and thus, cannot cater for all consumer needs. Henninger and Oates (2018) allure to similar issues in SCM, highlighting that micro-organisations, which seek to produce upcycled garments and, thus, also re-loop fashion items, are often faced with ‘raw
material’ shortages, as it is never guaranteed that micro-organisations will receive the same and/or similar items. Although the authors do not offer a solution to this challenge, they imply that communication is vital, as these issues need to be carefully broadcasted to the audience in order to avoid disappointment (e.g. lack of available sizes, quality) (Lamming et al., 2001).

**Quality** was a further key theme. DEOrg1 states “although we explicitly ask our swappers to only bring clothes that can be worn again... sadly people bring in a lot of clothing that actually can’t be worn anymore, cos they’re dirty, have holes in them, or are soiled”. This was further confirmed through the observations in the UK and Germany, whereby people bring in bags of damaged/soiled clothes/accessories (UKObs1,2; DEObs1). Interestingly this issue has not emerged in Finland. Participants indicate that all garments that are brought to swap-shops remain of good quality, with the reasons for bringing the items to swaps being that they no longer fit, were unwanted presents, or worn for a one-off occasion (FIIs2, 4, 8). To explain, FIIs2 describes the garments she brought in as “mostly unused... maybe used once or maybe twice so they were just cluttering my closet so I brought one dress and three tops... They’re in good condition, but you are not using them, you don’t want to throw because they are still in good condition”. FIIs4 further insists: “I think it’s a good thing (swap-shops), like I said earlier I feel happy for those pants, because if those clothes stay in your closet for that long and in the end you just throw it away, why? How about you just swap it and then you get something new and others can get something new and then we are both happy”.

This implies that data from the UK and Germany concur with Richard and Cleveland’s (2016) findings, who see quality as an issue. Although their research was not conducted in the fashion industry, but rather in the hotel business, parallels can be drawn in terms of expected standards from traditional business models (e.g. hotels or fashion retailers) versus disruptive innovations (e.g. Airbnb or swap-shops), which are currently not regulated. The Finnish data reinforce Park and Armstrong’s research (2017) highlighting that issues of quality are of lesser concern in Finland.

Data highlight different attitudes towards swapping, whilst in Germany ‘dumping’ of unwanted garments can be observed, it seemed that the Finnish swap-shops are different, in that participants only brought in items that they genuinely felt were of good quality and something others could use (FIIs2, 4). The UK almost acts as a hybrid in which dumping and conscious considerations can be observed. Facilitators further insisted that any items that could not be
swapped, due to out-of-season styles, could still be taken apart and the fabrics used as raw materials (FIOrg1, UKOrg1b). Contrarily to Park and Armstrong (2017) who focused on renting, quality has a slightly different meaning in our research. Park and Armstrong (2017) highlighted that product quality is positively related to the trust relationship between the organisation and the consumer. In our research this relationship (organisation – consumer) does not exist per se seeing as the organisations (facilitators) do not have an influence on what is being swapped, but rather it is a peer-to-peer relationship. To explain, the quality and type of clothes brought to these swap-shops depends on the individual swappers and their attitudes towards these swaps, which can be influenced by the way facilitators communicate about swappable items and the areas that these swaps are held in.

In terms of opportunities of swap-shops participants agree that overcoming the fast fashion phenomenon is necessary. Data suggest that idealism and environmental sustainability (Akbar et al., 2016) are the main drivers, as it allows “taking a stance and simply not engaging in this system anymore” (DEIs3). Participants insist that recent reports on fashion waste have shocked them and made them realise that something needs to change (UKIs5). This suggests that the attitude-behaviour gap may be closing in that people are increasingly acting upon their talk, rather than only talking the talk. Yet UKOrg1a insists “it’s still a long road ahead... especially seeing as we cannot cater for literally everyone... we just don’t know who comes in, what we get, and how the event is going”. This clearly shows that a vicious circle emerges, as availability/sizing and quality determine whether people participate in swap-shop and return in the future. Negative experiences lead to abandoning collaborative consumption events and returning to ‘non-alternatives’, such as fast fashion houses.

4.2 Selection of swappable items – consumers as suppliers

A key challenge that emerged from the data set is understanding how participants select, which items to swap. Exploring this issue enables organisers to shed light on their key challenges: availability/sizing and quality. Although we found slight differences in the clothing selection process, which have been alluded to in the previous section, overall the process seemed to be rather similar.

[Insert Figure 1: Swapping supply chain]
Figure 1 emerged from our data when asking participants what happens to any of their unwanted garments. Prior to ending up in swap-shops, garments are produced and predominantly sold through retailers (e.g. fast fashion, high-end) whereby a transfer of ownership takes place. Once garments are acquired and a consumer decides that they are no longer fit for purpose as “some of these things are just lying around... they don’t reflect my personal taste in fashion anymore” (DEIs12), various options are available: consumer waste (binning the item), engaging in take-back schemes (e.g. H&M), upcycling or recycling garments, give them to friends and family as hand-me-downs, charity donations, resell items on websites (e.g. eBay), or swap-shops. DEOrg1 highlights that “a lot of them (swappers) come in because they want to get rid of their clothes, but don’t want to simply throw them in a (used textiles) container”. Similar reasons were stated by UKOrg3, yet they found that the “wanting to get rid” of garments implied that some swappers “took suitcases full of stuff... which is why we now have a limit... people can only bring 10 items... we didn’t know what to do with all the stuff we got”. It is noteworthy to highlight that whilst swap-shop organisers ideally would like to have a large assortment that is inclusive in terms of availability/sizing and quality of garments, there is also a risk of ending up with too many clothes, as any item that cannot be swapped after three times are either recycled or given to charity (UKOrg2).

The second layer of the consumption cycle (Figure 1) shows that garments that are upcycled/recycled, given away to family and friends, donated to charity, sold or swapped can be re-acquired by another person, when the same cycle starts off until the actual material of the garment in question can no longer be used and is discarded off for its end-of-life. This is based on interview data investigating where participants get their garments from other than purchasing them from fashion retailers. DEOrg2 indicates “it’s a good thing (swaps), because resources are used more often”, due to the quality of items brought in not all of them can be swapped and/or may be swapped a second time. This can either be due to people not taking care of their items or due to the fact that the fast fashion industry and its fast moving fashion cycles have also meant that corners have been cut and the quality of garments suffered (NPC, 2016). UK participants made a distinction between bringing items to charities and swap-shops: “if I had loads of stuff, I’d take the less good stuff to the charity shop, but I don't donate that much... if I go and donate piles of clothes, which I don't mind, because I'm not bothered about getting money out... but then I'm going to have to buy a couple of items of clothes, then it's still £15, and for me it just makes
more commercial sense to swap them” (UKIs5). Financial gains particularly emerged within the Germany data set. DEIs1 states “especially in big cities... there are a few people who explicitly look for branded clothes, so that they can re-sell them” (DEIs1), which is further supported by DEIs14: “in the end you want to be successful and I could imagine that you can make money relatively easily”. It remains noteworthy that, in this case, the transition from consumption cycle $n_1$ to cycle $n_2$ comprises a shift from non-monetary transactions (swapping) back to traditional transactions (selling).

‘Fashionability’ and the ability to express their (participants’) individuality was a further concern. Our data indicate that swap-shop participants are not only driven by conscious fashion consumption, but also by the ‘retro trend’. This implies that individuals participate in these swap-shops in order to gain classic and/or traditional pieces of clothing that are seen to be retro and whilst trendy and preppy, do not go in and out of fashion easily. FIIIs7 indicates that a reason for her to go to these swaps is that “you can always find weird stuff that you can’t find in the stores because it’s from a few years ago or it’s from different places”. Both DEIs10 and UKIs19 further insist that the vintage aspect is key “because that’s something special” (DEIs10) and “because vintage is quite in at the minute... I really like the 1960s and that’s my style, so I really like shopping for stuff that’s quite vintage, and it’s hard to find that in the high street. But also again, it can be cheaper and you feel like you’re doing something good anyway” (UKOs19).

From these quotes it becomes apparent that being ‘on trend’ does not simply mean purchasing the newest high street creations, but rather engaging in the ‘vintage trend’. As such, it could be argued that swap-shops are also trend-led, yet focus more on garments that have previously peaked in fashion cycles and are thus classified as ‘vintage’ or ‘retro’ or simply as items that are no longer wanted. An issue that emerged here is that garments of the former category are easily swapped and re-used, whilst those falling into the latter category may stay in the swaps for longer times or are not swapped at all (UKOrg2) and thus, need to be discarded due to a lack of available storage space (UKOrg3, FIOrg1).

Table 4 summarises key findings linking to RQ1a,b thereby outlining the challenges and opportunities of consumers become suppliers from an organisational and a consumer perspective. It becomes apparent that availability/sizing is a challenge for both organisers and consumers across all countries, whilst uncertainty of stock only emerges as an issue for organisers. Table 4 highlights that organisers in the UK and Germany face similar issues, whilst those in Finland
seem to have less problems with aspects such as quality, people wanting to financial gain through selling garments or leaving too many clothes at the swap. An explanation could be the fact that consumers attending these swaps insist that firsthand garments are expensive, as such it seems to be more of a treat, whilst swaps enable them to indulge in gaining new fashion items. As such, participants emphasised that they take greater care when choosing items to swap. Whilst the three countries show similarities, it seems that the UK and Finland perceive swap-shops more positively, with the UK honing in on the trendiness of the event and Finland on the sustainable aspect. In Germany the ‘modern outlook of a flea market’ taints the events slightly and makes them status dependent.

4.3 Characterization of swapping as alternative supply chains
As indicated in our findings, contrarily to traditional supply chains, swapping inherits aspects of uncertainty. Within traditional supply chains volumes are logistically planned, which differs from swapping supply chains, where people provide unpredictable resources (Lambert et al., 2006; Henninger & Oates, 2018). Thus, swap-shop organisers are dependent on their participants in terms of bringing resources, but also “when people bring in one piece they shouldn’t be leaving with twenty pieces, but that’s rather a moral thing” (DEOrg2). Although “it’s not a direct 1:1-swap...” (DEOrg1), some facilitators have now enforced a 10-item rule in order to make sure that the distribution is fairer and the quality of items swapped increases (UKOrg3). Moreover, as alluded to earlier, swapping a relatively ‘new’ mode of supply implies a fluidity of market roles. Whilst stakeholders have previously been defined as being part of either the supply- or demand-side, these boundaries are increasingly blurred within these disruptive innovations. Whilst a consumer can be a buyer when s/he makes a purchase, s/he switches roles when being involved in swap-shops in order to dispose of their clothes.

[Insert Figure 2: Swapping supply chain]

Figure 2 highlights key areas when consumers can change from being consumers to becoming suppliers along the consumption cycle, which implies that at the event s/he simultaneously can be a supplier and consumer (UKObs2, DEObs1, FIObs1). While measures for success on the high street are based on economic indicators, the newly-developed fluidity requires a shift in perceptions to defining success as a garment going through multiple consumption cycles before
being discarded of for the final time. Thus, stock should relate to natural, cultural, human, and manufactured resources and growth should not be limited to capital, but to the rise in quality and quantity of all stocks (Stahel, 2016).

5. Conclusion & implications
This article explored challenges and opportunities of consumers becoming suppliers from both an organisational and consumer perspective. Our data suggest that uncertainty is a key issue from an organisational perspective, as it cannot be guaranteed that consumers bring in similar items for each swap. This again links to the consumer experience, as availability/sizing and quality can be a key concern of why individuals engage (or not). We found a fluid relationship of market roles, whereby participants can be both suppliers and consumers at the same time, with Finnish and UK consumers especially taking care of which garments they bring to the swaps. The data set indicate that there was a feeling of pride when others picked up their garments and took them away from the swaps. This fluidity of consumers being consumers and suppliers at the same time is a key characteristic of these swap-shops and provides a unique opportunity of taking ownership of what is supplied. An opportunity for consumers becoming suppliers is to create a sense of responsibility and ownership of their fashion consumption, thereby creating a community that is inclusive and counteracting on the impact the fashion industry has on the natural environment. As highlighted in the introduction disruptive innovations may not become mainstream phenomena, here this can be explained due to the fact that consumers are becoming suppliers: the resource dependency and thus associated uncertainty implies that a constant flow of garments cannot be guaranteed. Therefore, this business model works on a small scale, yet not for the mass and/or mainstream market.

A limitation of this study is the fact that the majority of participants were female. Although representative of the swaps, future research could focus on male participants and investigate whether findings may differ. A further suggestion is that facilitators organise more specialist swaps, for example, luxury fashion, designer handbags, high street and high-end fashion, and ‘anything goes’, as this could attract potentially more individuals. Furthermore, communication strategies need to be carefully implemented to promote swap-shop events to consumers and thereby closing the attitude-behaviour gap. As such, organisers can hone in on consumers’ perceived benefits of swap-shops of being trendy and allow for treasure hunt. In order to
overcome the availability/sizing issue it would be beneficial to make events more inclusive by organising swaps in trendy locations (e.g. UK) with a focus on a broader target audience.
References:


### Table 1: Drivers and barriers to collaborative consumption

<table>
<thead>
<tr>
<th>Drivers</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time efficient &amp; convenience</td>
<td>Park &amp; Armstrong, 2017; Ranzini et al., 2017</td>
</tr>
<tr>
<td>Sharing ethos</td>
<td>Akbar et al., 2016</td>
</tr>
<tr>
<td>Sense of community</td>
<td>Park &amp; Armstrong, 2017</td>
</tr>
<tr>
<td>Quality</td>
<td>Akbar et al., 2016</td>
</tr>
<tr>
<td>Innovativeness</td>
<td>Park &amp; Armstrong, 2017</td>
</tr>
<tr>
<td>Functional utility of sharing</td>
<td>Akbar &amp; Cracau, 2015; Park &amp; Armstrong, 2017</td>
</tr>
<tr>
<td>Satisfaction with sharing</td>
<td>Akbar &amp; Cracau, 2015; Park &amp; Armstrong, 2017</td>
</tr>
<tr>
<td>Idealism</td>
<td>Akbar et al., 2016</td>
</tr>
<tr>
<td>Sharing knowledge</td>
<td>Park &amp; Armstrong, 2017</td>
</tr>
<tr>
<td>Environmental sustainability</td>
<td>Park &amp; Armstrong, 2017</td>
</tr>
<tr>
<td>Anti-consumption</td>
<td>Park &amp; Armstrong, 2017</td>
</tr>
<tr>
<td>Anti-industry</td>
<td>Park &amp; Armstrong, 2017</td>
</tr>
<tr>
<td>Frugality</td>
<td>Park &amp; Armstrong, 2017</td>
</tr>
<tr>
<td>Symbolism</td>
<td>Guttentag et al., 2017</td>
</tr>
<tr>
<td>Authenticity</td>
<td>Guttentag et al., 2017</td>
</tr>
<tr>
<td>Novelty</td>
<td>Guttentag et al., 2017</td>
</tr>
<tr>
<td>Reciprocity</td>
<td>Ranzini et al., 2017</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Barriers</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lack of accessibility</td>
<td>Akbar et al., 2016</td>
</tr>
<tr>
<td>Difficult to find</td>
<td>Ranzini et al., 2017</td>
</tr>
<tr>
<td>Personal boundaries</td>
<td>Ranzini et al., 2017</td>
</tr>
<tr>
<td>Quality concerns</td>
<td>Richard &amp; Cleveland, 2016</td>
</tr>
<tr>
<td>Consistency of experience</td>
<td>Richard &amp; Cleveland, 2016</td>
</tr>
<tr>
<td>Lack of trust</td>
<td>Tussyadiah 2015</td>
</tr>
</tbody>
</table>

### Table 2: Data collection summary

<table>
<thead>
<tr>
<th>Country</th>
<th>Abbreviations</th>
<th>Additional Information</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Organisations - Collaborative Consumption Event Organisers</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>UK</td>
<td>UKOrg1a</td>
<td>Group, managerial interview, owner and manager; company facilitates swaps on a monthly basis</td>
<td>1:29:50</td>
</tr>
<tr>
<td></td>
<td>UKOrg1b</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>UKOrg2</td>
<td>Expert, organises swaps</td>
<td>32:17</td>
</tr>
<tr>
<td></td>
<td>UKOrg3</td>
<td>Expert, organises swaps</td>
<td>28:04</td>
</tr>
<tr>
<td>DE (Germany)</td>
<td>DEOrg1</td>
<td>Expert, organises swaps</td>
<td>18:58</td>
</tr>
<tr>
<td></td>
<td>DEOrg2</td>
<td>Expert, organises swaps</td>
<td>24:41</td>
</tr>
<tr>
<td>FI (Finland)</td>
<td>FIOrg1</td>
<td>Expert, organises swaps</td>
<td>12:51</td>
</tr>
<tr>
<td></td>
<td>FIOrg2</td>
<td>Individual organising swap</td>
<td>15:13</td>
</tr>
</tbody>
</table>

**Interview - Collaborative Consumption Participants**
<table>
<thead>
<tr>
<th>UK</th>
<th>UKIs1</th>
<th>Young professional, swaps at monthly organised events</th>
<th>15:34</th>
</tr>
</thead>
<tbody>
<tr>
<td>UK</td>
<td>UKIs2</td>
<td>Young professional, swaps at monthly organised events</td>
<td>32:28</td>
</tr>
<tr>
<td>UK</td>
<td>UKIs3</td>
<td>Activist, consumer, swaps, at monthly organised events</td>
<td>21:55</td>
</tr>
<tr>
<td>UK</td>
<td>UKIs4</td>
<td>Young professional, swaps occasionally</td>
<td>5:33</td>
</tr>
<tr>
<td>UK</td>
<td>UKIs5</td>
<td>Young professional, swaps twice a year</td>
<td>5:29</td>
</tr>
<tr>
<td>UK</td>
<td>UKIs6</td>
<td>Young professional, swaps when needed</td>
<td>9:22</td>
</tr>
<tr>
<td>UK</td>
<td>UKIs7</td>
<td>Young professional, swaps</td>
<td>38:26</td>
</tr>
<tr>
<td></td>
<td>UKIs8</td>
<td>Young professional, swaps at monthly organised events</td>
<td>5:24</td>
</tr>
<tr>
<td>DE</td>
<td>DEIs1</td>
<td>Student, consumer, actively swaps; doesn’t buy any new clothes</td>
<td>29:13</td>
</tr>
<tr>
<td>DE</td>
<td>DEIs2</td>
<td>Young professional, consumer, swaps</td>
<td>14:40</td>
</tr>
<tr>
<td>DE</td>
<td>DEIs3</td>
<td>Higher education, consumer, swaps</td>
<td>26:11</td>
</tr>
<tr>
<td>DE</td>
<td>DEIs4</td>
<td>MSc student, young professional, consumer, swaps</td>
<td>20:11</td>
</tr>
<tr>
<td>DE</td>
<td>DEIs5</td>
<td>Consumer, swaps</td>
<td>24:16</td>
</tr>
<tr>
<td>DE</td>
<td>DEIs6</td>
<td>Young professional, consumer, swaps</td>
<td>15:25</td>
</tr>
<tr>
<td>DE</td>
<td>DEIs7</td>
<td>Young professional, consumer, swaps</td>
<td>15:25</td>
</tr>
<tr>
<td>FI</td>
<td>FIIs1</td>
<td></td>
<td>15:00</td>
</tr>
<tr>
<td></td>
<td>FIIs2</td>
<td></td>
<td>18:57</td>
</tr>
<tr>
<td></td>
<td>FIIs3</td>
<td></td>
<td>17:48</td>
</tr>
<tr>
<td></td>
<td>FIIs4</td>
<td></td>
<td>12:31</td>
</tr>
<tr>
<td></td>
<td>FIIs5</td>
<td></td>
<td>10:58</td>
</tr>
<tr>
<td></td>
<td>FIIs6</td>
<td></td>
<td>15:21</td>
</tr>
<tr>
<td></td>
<td>FIIs7</td>
<td></td>
<td>23:14</td>
</tr>
<tr>
<td></td>
<td>FIIs8</td>
<td></td>
<td>31:07</td>
</tr>
<tr>
<td></td>
<td>FIIs9</td>
<td></td>
<td>15:30</td>
</tr>
<tr>
<td></td>
<td>FIIs10</td>
<td></td>
<td>18:42</td>
</tr>
<tr>
<td></td>
<td>FIIs11</td>
<td></td>
<td>12:53</td>
</tr>
<tr>
<td></td>
<td>FIIs12</td>
<td></td>
<td>14:02</td>
</tr>
</tbody>
</table>

**Interview – Collaborative Consumption Non-Participants**

<table>
<thead>
<tr>
<th>UK</th>
<th>UKIs10</th>
<th>Academic, publications in sustainable fashion</th>
<th>17:45</th>
</tr>
</thead>
<tbody>
<tr>
<td>UK</td>
<td>UKIs11</td>
<td>Higher education, researches ABC</td>
<td>17:40</td>
</tr>
<tr>
<td>UK</td>
<td>UKIs12</td>
<td>Higher education, textile technology expert</td>
<td>12:43</td>
</tr>
<tr>
<td>UKIs13</td>
<td>Private sector, individual non-swapper, no interest in swapping</td>
<td>18:14</td>
<td></td>
</tr>
<tr>
<td>----------------------</td>
<td>---------------------------------------------------------------</td>
<td>-------</td>
<td></td>
</tr>
<tr>
<td>UKIs14</td>
<td>Private sector, research area focused on access based consumption</td>
<td>24:49</td>
<td></td>
</tr>
<tr>
<td>UKIs15</td>
<td>Higher education, non-swapper, non-secondhand</td>
<td>28:25</td>
<td></td>
</tr>
<tr>
<td>UKIs16</td>
<td>Private sector, secondhand consumer, non-swapper</td>
<td>14:17</td>
<td></td>
</tr>
<tr>
<td>UKIs17</td>
<td>Secondhand consumer, non-swapper</td>
<td>13:59</td>
<td></td>
</tr>
<tr>
<td>UKIs18</td>
<td>Private sector, secondhand luxury consumer</td>
<td>17:32</td>
<td></td>
</tr>
<tr>
<td>UKIs19</td>
<td>Freelancer, active secondhand consumer, open to swapping</td>
<td>16:43</td>
<td></td>
</tr>
<tr>
<td>DEIs8</td>
<td>Private sector, slight interest in swapping</td>
<td>06:22</td>
<td></td>
</tr>
<tr>
<td>DEIs9</td>
<td>BSc student, non-secondhand, but interested; swapped a lot for his small child</td>
<td>17:36</td>
<td></td>
</tr>
<tr>
<td>DEIs10</td>
<td>Young professional, secondhand consumer, non-swapper</td>
<td>11:15</td>
<td></td>
</tr>
<tr>
<td>DEIs11</td>
<td>Young professional, non-secondhand; slight interest, but problems with size</td>
<td>09:43</td>
<td></td>
</tr>
<tr>
<td>DEIs12</td>
<td>BSc student, secondhand consumer</td>
<td>15:07</td>
<td></td>
</tr>
<tr>
<td>DEIs13</td>
<td>Young professional, consumes sometimes secondhand</td>
<td>04:30</td>
<td></td>
</tr>
<tr>
<td>DEIs14</td>
<td>BSc student, almost no secondhand shopping</td>
<td>16:21</td>
<td></td>
</tr>
<tr>
<td>FI</td>
<td>First time swap – inclined</td>
<td>04:43</td>
<td></td>
</tr>
</tbody>
</table>

**Observations**

<table>
<thead>
<tr>
<th>UK</th>
<th>UKObs1</th>
<th>Observation of consumer behaviour in the swap shops. Blue printing swap shop layout, observation of swapping paths</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>UKObs2</td>
<td>- 3 swaps have been observed and notes written up from these field observations</td>
</tr>
<tr>
<td></td>
<td>UKObs3</td>
<td></td>
</tr>
<tr>
<td>DE</td>
<td>DEObs1</td>
<td>Observation of consumer behaviour during swapping event.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>One swap has been observed and notes written up from these field observation.</td>
</tr>
<tr>
<td>FI</td>
<td>FEObs1</td>
<td>Observation of consumer behaviour during swapping event.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>One swap has been observed and notes written up from these field observation.</td>
</tr>
</tbody>
</table>
Table 3: Sample Questions

<table>
<thead>
<tr>
<th>Theme</th>
<th>Sustainability</th>
<th>Supply Management</th>
<th>Swapping: Opportunities/challenges</th>
</tr>
</thead>
</table>
| Sample Question | - What does sustainability mean to you?  
- Why participate in swap shops?  
- Why facilitate swap shops?  
- Can you describe your normal shopping journey when purchasing clothes? | - Where do you get garments for the swap shops?  
- What garments are you taking to a swap shop?  
- What do you expect from swap shops? | - Describe a typical swapping experience  
- What are things you like about swapping?  
- What are aspects you dislike about swapping |
| Rational    | - Provides a general overview in how far consumers and organizations are aware of sustainable issues in the fashion industry  
- Highlights motivations for engagement | - Focuses on garment supply for swapping events  
- Allows to understand challenges in supply chain management | - Focuses on opportunities and challenges of consumers acting as suppliers |

Table 4: Summary of Findings when consumers become suppliers

<table>
<thead>
<tr>
<th></th>
<th>Organisational Perspective</th>
<th>Consumer Perspective</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>UK</td>
<td>Germany</td>
</tr>
<tr>
<td>Challenges</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Uncertainty of clothing supply</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Availability/sizing</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Quality</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Location</td>
<td></td>
<td>✔</td>
</tr>
<tr>
<td>Dumping</td>
<td>✔*</td>
<td>✔</td>
</tr>
<tr>
<td>Financial gain</td>
<td></td>
<td>✔</td>
</tr>
<tr>
<td>Swapability of clothes (too many items)</td>
<td>✔</td>
<td>✔</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Opportunities</th>
<th>Organisational Perspective</th>
<th>Consumer Perspective</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>UK</td>
<td>Germany</td>
</tr>
<tr>
<td>Rating system</td>
<td>✔</td>
<td></td>
</tr>
<tr>
<td>Financial gain</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Treasure hunt</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Trend-led (retro style)</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Fashionability</td>
<td></td>
<td>✔</td>
</tr>
<tr>
<td>Environmental consciousness</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Pride of sharing clothes with other</td>
<td></td>
<td>✔</td>
</tr>
</tbody>
</table>

* No longer issue since introducing a 10 item limit
Figure 1: Swapping supply chain
Version A: general overview
Production (manufacturer)

Consumption cycle $n_1$

Purchase (monetary)

Consumer waste

Take-back (to manufacturer)

Upcycling / recycling

Give away (friends, family)

Donation

Swapping (formal, informal)

Selling

Transfer of ownership

Consumption cycle $n_2$

Non-ownership

Renting & Lending (manufacturer, ABC models)

Production (manufacturer)

Acquisition (non-monetary)

Take-back (to manufacturer)

Upcycling / recycling

Give away (friends, family)

Donation

Swapping (formal, informal)

Selling

Decreasing probability of all options (due to quality issues)

Final End-of-life

Fibres

Repurposing

Upcycling

Acquisition

Consumption cycle $n_3$

Final End-of-life
Figure 2: Swapping supply chain
Version B: consumer-supplier interchange
Production (manufacturer)

Transfer of ownership

Purchase (monetary)

Consumption cycle $n_1$

Non-ownership

Renting & Lending (manufacturer, ABC models)

Consumption cycle $n_2$

Consumption cycle $n_x$

Final End-of-life

Consumer waste

Transfer of ownership

Take-back (to manufacturer)

Upcycling / recycling

Give away (friends, family)

Donation

Swapping (formal, informal)

Selling

Acquisition (non-monetary)

Non-ownership

Transfer of ownership

Take-back (to manufacturer)

Upcycling / recycling

Give away (friends, family)

Donation

Swapping (formal, informal)

Selling

Decreasing probability of all options (due to quality issues)

Fibres

Repurposing Upcycling

Upcycling Repurposing Fibres

Non-ownership

Transfer of ownership

Take-back (to manufacturer)

Upcycling / recycling

Give away (friends, family)

Donation

Swapping (formal, informal)

Selling

Acquisition (non-monetary)

Decreasing probability of all options (due to quality issues)