Datum
2022 02 22

Dnr
2019-021239

Projektnr
49680-1

Energimyndighetens titel på projektet – svenska Transporteffektiviteten vid returer av kläder handlade on-line.	
Energimyndighetens titel på projektet – engelska Transport efficiency for returns of clothes bought online	
Universitet/högskola/företag University of Gothenburg	Avdelning/institution Företagsekonomiska institutionen
Adress Box 100, 40530 Göteborg	
Namn på projektledare Sharon Cullinane	
Namn på ev övriga projektdeltagare Magnus Jansson, Michael Browne, Kevin Cullinane, Patricia van Loon	
Nyckelord: 5-7 st Clothing returns, environment, transport, travel	

Förord

This project has been primarily funded by Energyimyndigheten, with a small amount of internal funding from the University of Gothenburg. It could not have been carried out, however, without the cooperation of Boozt.com who allowed us to survey their existing companies and who funded and organised the distribution of the survey using a professional market research company. The collaboration with Hållbar e-handel has also been very valuable in disseminating results and getting feedback from industry

Innehållsförteckning

Contents

Box 310 • 631 04 Eskilstuna
Telefon 016-544 20 00 • Telefax 016-544 20 99
registrator@energimyndigheten.se
www.energimyndigheten.se
Org.nr 202100-5000

Sammanfattning (Swedish)

Att handla kläder på Internet har för många konsumenter blivit det vanligaste sättet att handla kläder på. Energianvändningen som följer av att handla kläder på Internet jämfört med att att handla kläder i fysiska butiker är en omdiskuterad fråga. I diskussionen bortses ofta ifrån konsekvenserna av de omfattande klädreturerna som internethandeln medför. Mellan 20-80% av de inhandlade kläderna online beroende på klädesplagg, och typ av konsument och geografiskt område, returneras. Klädreturerna leder till en betydande energianvändning. Energi förbrukas dels för att samordnat transportera alla returpaket i lastbilar tillbaka till handlarna, dels när konsumenterna själva transporterar returpaket till det lokala inlämningsstället. Användning av energi behövs också när de returnerade varorna skall sorteras, behandlas, ompaketeras och ibland förstöras. Utmaningen är att minska antalet returner och miljökonsekvenserna av returer.
Projektet gör detta genom att analysera konsumenters attityder till returer, returriktlinjer och motiven bakom kläldreturer samt genom att analysera konsumenters transportmönster vid returer. Projektet avser även undersöka relationen mellan konsumenters personlighetsfaktorer och returer för att undersöka hur returriktlinjer kan utformas för att minimera antalet returer.
För att undersöka dessa frågor har tre omfattande enkätstudier genomförts. Den första, en webbaserad-enkät distribuerad till ett representativt urval av befolkningen. Den andra, en webbaserade enkäten riktad till kunder till en av Sveriges största återförsäljare av kläder på nätet (Boozt). Den tredje enkätstudien omfattade ett representativt urval av befolkningen och syftade till att undersöka deras transportmönster vid returnering av kläder.
Resultatet av vår första webbaserade enkätstudie understryker storlekens betydelse d v s att klädesplagg ofta inte hade rätt storlek. Detta angavs dubbelt så många gånger som det främsta skälet till att returnera kläder som alla övriga orsaker till returer tillsammans. Om klädesplagges storlek bättre kunde överenstämma med verkligheten skulle antalet returner substantiellt kunna minska. I grunden är korrekt klädstorlek ett ansvar som ligger på klädförsäljarna.
Konsumenterna har emellertid också ett ansvar för de omfattande klädreturerna. En betydande andel av enkätdeltagarna uppgav att de handlar utan eftertanke. Många uppgav också att de returnerar kläder på grund av att det är gratis. De flesta respondenter vill emellertid agera på ett miljövänligt sätt och de skulle därför behöva få tydligare information och påminnas om returhanteringens negativa påverkan på miljön.
Statistiska analyser genomfördes också för att undersök om det fanns ett samband mellan konsumenters moraliska värdeorientering och deras returbeteeende. Resultatet av enkätstudien visar att konsumenters altruistiska värdeorientering via omtanke om miljön påverkar benägenheten att returnera kläder.
Resultatet av enkätstudien om transportbeteende visar att den stora majoriteten (88%) returnerar kläder genom att lämna dem till det inlämningsstället. 56% av respondenterna tog bilen under i varje fall en del av resan. Det huvudsakliga skälet till att de tog bilen var att de behövde bilen för andra syften, eller att det var för långt att gå eller cykla. Ett mindre vanligt skäl var att klädpaketet ansågs för skrymligt för att ta med sig och gå eller ha det med sig på cykeln.
Beräkningar av miljökonsekvenserna av returer visar att koldioxidutsläppen är mycket högre när konsumenter tar bilen till återlämningsstället jämfört med varje annat scenario. Ett annat väsentligt resultat är att miljökonsekvenserna vid bilanvädning av att returnera varor på landsbygden är mycket större än i tätbefolkade

områden (1056g versus 57g CO_2). Detta är ett resultat som aktualiserar behovet av fler inlämningsställen för returer på landsbygden.

Summary (English)

Shopping online for clothes has become the norm for many and the energy use from shopping online versus shopping in-store is hotly debated. However, these debates often neglect to take into account product returns. With return rates ranging between 20-80%, depending on clothing type, consumer type and geographical area, the energy use associated with returns is substantial. Energy use is involved in transporting all the returns packages back to the retailer; journeys by commercial vehicles (vans for local journeys and heavy goods vehicles for the longer, trunking, journeys), and also individuals who often take their return to a collection point by car. Energy is also involved in sorting, processing, re-packaging and sometimes disposing of the returned products. The challenge is to reduce the energy use inherent in the whole returns process. The project does this by analysing consumers' attitudes towards returns and returns policies to find out why they make so many returns and by analysing their travel behaviour when making these returns. It also seeks to link personality values to returns to indicate how returns policies need to be devised to minimise them. The methodology used to assess these issues included multiple surveys: A large-scale, digitally distributed survey of the general population, a digitally distributed survey of actual customers who have made a return to one of Sweden's largest online clothing retailers, Boozt, and a digitally distributed large-scale survey of the population concerning their travel behaviour when making returns.

Results of our first large-scale, digitally distributed questionnaire survey really highlights the issue of sizing when ordering online. Sizing issues were stated as the main reason for returning items twice as many times as all the other reasons combined. If sizing could be improved, returns could be substantially reduced, together with their environmental footprint. Fundamentally, sizing issues are a retailer problem. Consumers, however, are not free from blame, with a considerable percentage of respondents to our survey admitting to returning items they ordered on a whim without much thought. Many respondents also reported returning a product because returns were free. For these consumer-related issues, education about the impact of returns would seem to be necessary. This is particularly so because the survey also showed that consumers in general want to act in an environmentally sustainable way.

Analysis was carried out to determine whether there was a link between personal values and consumers' 'responsible returns behaviour' as it this which is key to reducing returns. The results of our surveys showed that e-consumers' self-transcendent values positively influence responsible returns behaviour via environmental concern.

Analysis of the travel survey showed that by far the majority (88%) returned their items of clothing by taking the package to a collection point. 56% of the respondents used a car for at least part of this trip. The main reasons given for using a car is that they needed the car for a different reason during the same trip (i.e. trip chaining), that it was too far to walk or cycle, or less often that the package was too big to walk or cycle. Environmental calculations highlighted the fact that when a consumer drives to

a collection point to return their parcel, the CO_2 is much higher than for all other scenarios. Another significant finding is that the environmental impact of returning a package for a customer living in the countryside is much higher than for a customer living in an urban area (1056g versus 57g $CO_{2)}$ when a car is used. This again has big policy implications (for example, more collection points are required in rural areas). Based on the combined results of our surveys and the wider research carried out within this project, a table of practical measures to reduce the energy use and environmental damage caused by returns is presented.

Inledning/Bakgrund

Over the past two decades there has been a large increase in online shopping and it is expected to grow further in the coming years. In 2016, global online shopping sales were around 1.2 trillion US-dollars and in 2020 it surpassed US$4.2 trillion. It is forecast to increase to US$6.4 trillion by 2024 (Statista.com, 2021). The biggest single physical product category of e-shopping in most countries is clothing (Statista.com, 2021). Global consumer spending on clothing and footwear amounts to around US$2 trillion (Shahbandeh, 2021) and around 50% of global clothing is now bought online (Statista.com, 2021). Clothing, however, also has by far the highest rate of returns, with an average of 20% of all clothing items, increasing to 40-50% of high fashion items bought online being returned (McKinsey, 2021a). These rates compare to return rates of goods bought in physical shops of around 10%.

As outlined in the previous EM project final report (Cullinane et al, 2019a), clothing returns from online shopping in Sweden are high (ranging from 12% for ‘everyday wear’ such as T-shirts, through to 80% for ‘occasion wear’). Return rates are also increasing over time (McKinsey, 2021a). Online shopping in general has continued to increase and has been given considerable additional impetus by the Covid19 pandemic (Statista.com, 2022; McKinsey, 2021a). Online clothing shopping initially fell in Sweden (Postnord, 2020) but there is evidence that it has since recovered (Postnord, 2021). Although there is expected to be some return to shopping in-store once the pandemic has passed, the consensus of opinion (including our own research) seems to suggest that consumer’s online shopping behaviour has fundamentally shifted and will not revert to its pre-pandemic levels. Over the past few years, it is also clear that new ways of shopping online have begun to emerge. Omni-channel shopping, whereby multiple channels are used in the shopping process (for example, buy online, pick up in store (BOPIS) or buy online and return in store (BORIS) has become much more prevalent during the course of this project. The influence of social media on online purchases of clothing has also increased (Cao, Meister and Klante, 2014; Abaid-Ullah et al, 2021; McKinsey, 2021b). New ways of online shopping are also emerging, such as ‘live commerce’ which can be described as a fusion of entertainment and live e-

commerce. Live commerce involves purchasing an item the audience member is watching live whilst watching a digital show. According to McKinsey (2021b), the first 30 minutes of Alibaba's singles day pre-sales campaign in China generated $7.5 billion in transaction value and clothing was the most popular product ordered. Much of this could be described as 'impulse buying', which has been described as a consumer's sudden urge to buy something with diminished regard for its consequences (Aragoncillo & Orus, 2018). Previous research has shown that a common reason for a product being returned is due to a regret of an impulse purchase (Yong-Seo et al., 2016).

Additionally, there has been a large increase in the proportion of online shopping done by smartphone (Postnord, 2021; Statista.com, 2021). It could be surmised that consumers buying goods using their smartphone are also more prone to impulse buying. Sundstrŏm, Hjelm-Lidholm and Radon, (2019) showed that when people are bored, they make impulse purchases on their phone. These, coupled with the notion that it is more difficult to judge material quality and feel and accessory (such as stitching, zip/button) quality on a smartphone, suggest that smartphone purchases are more likely to be returned. Over the duration of this project there has also been a large shift in the level of sophistication in the online offering of many e-tailers, with product tailoring or personalization becoming much more common. This could have a counter-balancing effect on returns as products are more targeted to the requirements of individual consumers.

For the modern consumer, purchasing online has some important advantages: it is available 24 hours a day; it reduces the search and sourcing costs of ordering and it gives the consumer the opportunity to order at home. One major disadvantage is obviously that online shoppers are unable to physically examine products before purchasing them. With less information, the uncertainties for the consumers increase and this is one key reason for returns. Consumers frequently order more than one size or colour, sending back what they do not like. Additionally, fraudulent behaviour (sometimes referred to as de-shopping) is not uncommon. These, combined with the free effortless return policies that most e-tailers have adopted to increase their attractiveness to customers have all contributed to the high returns culture (for a wider review of the impact of online shopping returns on the environment, see Cullinane et al, 2019; Cullinane and Cullinane, 2021; Stock and Mulki, 2009; Mangiaracina et al, 2015 , Frei et al, 2020)

With the increase in online shopping and the change in consumer behaviour related to online shopping, it is clear that returns and their energy use and environmental impacts are set to increase, unless measures are adopted to mitigate or prevent them. There are a number of environmental impacts associated with returns of products bought online (herein referred to simply as returns). Impacts include over-manufacture of products as the visibility of stock is reduced due to the randomness of the returns process; destruction of materials as it is often cheaper to destroy products than process them and put

them back into the supply chain; waste associated with the manufacturing and use of packaging and the energy and environmental impact of the returns management processes and logistics associated with returns (Cullinane et al, 2019). In addition, returns generate transport movements by people in their cars, which impacts negatively on energy use and the environment.

The previous project (nummer 43182-1) presented a framework for the analysis of the impacts of returns on the environment. The results of this project showed that there was a complex jigsaw of factors influencing returns and their energy and environmental impacts involving consumers, retailers and transport operators. It showed that environmental sustainability could be improved through a combination of reducing the number of returns and improving the efficiency of the returns process; both of which would reduce the need for transport. It concluded that further research was thus required on two specific elements of the returns process; namely, *understanding why consumers make so many returns in the first place* and *determining the travel patterns of consumers in making their returns*. By improving our knowledge on the first of these elements, solutions could be suggested to companies on how best to minimize returns and maximize the efficiency of the returns process and thus how to minimize the logistics and energy use associated with returns. By improving our understanding of the second element, calculations could be made of the energy and environmental impact of consumer's travel in the returns process and solutions suggested to logistics companies and public policy makers as to how to implement measures to reduce it.

The two major gaps in knowledge identified above have been addressed in this project. As described in the 'implementation' section of this report, this has been tackled by a series of three targeted, digitally distributed questionnaire surveys, designed by the research team in collaboration with our industrial partners and carried out by professional market research companies. The first two questionnaires concerned consumer order and returns behaviour whilst the third concerned consumer travel behaviour. The questionnaires gathered basic statistics on consumer returns but in addition sets of Likert-scale questions were included to determine their attitudes to returns and returns policies as well as their attitudes towards the environment and the extent to which the two were connected. Crucially, the questionnaires also gathered data on personality traits and personal values using standard psychology profile questions. The purpose of the psychology profiling was to try and link returns behaviour to particular personal values in order to segment consumers, thereby enabling targeted information to be used to reduce returns and their energy and environmental impacts.

The success of this project has been due in part to our very fruitful partnership with Boozt, one of Sweden's largest online clothing retailers. This collaboration occurred as a result of them becoming aware of our work through the numerous media interviews we have conducted on this topic. As a company they have a high return rate which they realized was hampering

their sustainability efforts. With their collaboration we were able to survey a sample of their customers – actual customers who had made at least one return over the past 2 years. We worked very hard to overcome all the GDPR issues involved in doing this and eventually, to ensure it was done correctly, Boozt funded the use of a professional market research company to distribute the survey and collect the information. They also funded 10 prizes to encourage participation in the survey. As a direct result of our research, Boozt themselves have focused very specifically on reducing their returns and have increased their staff working on reducing the environmental impact of their returns.

In addition to the above, in order to be as relevant as possible to industry and to maximise the possibilities of influencing their operations with respect to increasing the sustainability of returns, a collaboration has been forged with the trade association Hållbar e-handel who approached us to establish a 'returns' stream of their organization. This has also occurred through our collaboration with Boozt, who are one of the key players in this organization. Our collaboration with this organisation has enabled us to both collect information from their members and to disseminate the results of our surveys. A survey was also conducted of their members to determine their attitudes to returns.

The project has been running for 2 years and follows on from a previously project funded by Energimyndigheten. During the current project we also received a small amount of funding (SEK 100k) to include in our research the impact of Covid19 on returns and attitudes towards returns. The Centre for Retailing at GU paid for Magnus Jansson to present a paper at the 17th Nordic Retailing and Wholesaling conference held at Umeå. Due to the delay in some of our activities because of Covid19, some of the results have not yet been fully analysed or written up, although reports on all the basic results of the surveys have been completed and disseminated.
One development that has take place during the course of this project has been the increasing use of locker/box consumer systems (such as those by Instabox, Budbee, Amazon and others) which are placed in various locations where footfall is large (for example in supermarkets, train stations etc.). These can be used for collection by consumers of goods bought online but can also be used for returns. We have not had the opportunity to research the impact of these boxes on energy use. The results of our travel survey indicate that they reduce the distance travelled by car to make a return – a positive development – but the logistics/returns management processes behind the scenes in terms of what happens to the returns once they are picked up from the lockers, is important and requires research. It is possible, for instance, that these returns are then sent on the long journeys for inspection and processing that we have previously identified, before being resold.

The project has received, and continues to receive, a great deal of media attention both in Sweden and overseas (including Canada, Finland, Norway

and Denmark) (see table of media interest in Appendix 1). Television appearance have been made on documentaries for SVT2, TV2 (Norway), TV2 (Finland) and radio broadcasts for CBC Canada. Numerous newspaper and other media events have covered our research. Indeed, the results of our previous research on the often long journeys made by returns prompted, over the past 2 years, Swedish, Norwegian and Finnish television to track returns using tracking devices attached to returns that they made specifically for the purpose of discovering where the returns would travel. All three found our results to be confirmed and made documentary films of their evidence. In addition to these media events, Sharon Cullinane participated in a panel discussion organized and broadcast by the New York Times around COP 26 in Edinburgh and a panel discussion broadcast around the 2021 Almedalen event. Sharon Cullinane and Michael Browne also did a webinar set up by Handelshőgskolan which attracted over 100 participants. Sharon Cullinane also did a breakfast webinar hosted by the Centre for Retailing at GU which also attracted over 120 participants and a webinar hosted by Oslo Metropolitan University on textile waste which attracted over 100 participants. Several major podcasts have also been made. These media events have led to an increasing focus on the environmental impacts of returns by both retailers and hopefully, consumers. We are also aware of several new research projects on returns and their environmental impacts which have started up in the Nordic region as a direct result of our projects.

The project has also received considerable attention from start-up companies seeking more information about returns and consumers behaviour towards them in order to improve the relevance of their returns-related service offerings to the clothing retail industry (also shown in Appendix 1). All of these companies are seeking ways of reducing the energy use involved in the returns process. They range from several looking at ways of improving the sizing problem, through peer-to-peer returns to education ideas to increase consumer's perception of the problem. Several of these companies have established as a DIRECT result of our research whilst others have just required advice. This has been a particularly fulfilling aspect of this research.

Genomförande

The project consisted of 6 work packages which can be summarised as:

1. Literature review on returns and their environmental implications
2. Attitude survey on returns and returns policies
3. Quasi experimental design based on real data
4. Environmental measurement of travel patterns in relation to returns
5. Development of company policies
6. Project administration

In this section, the work completed in each work package will be described. The work packages were not carried out sequentially and there was quite a degree of fluidity between the packages. This occurred partly as a consequence of the Covid pandemic impacting on the timing of some of our activities and partly as a result of the positive dynamics of the group. The Covid pandemic had a huge impact on the timing of our surveys as we initially delayed the travel survey in particular because travel was not at all 'normal' during the pandemic and we hoped that it would resume normality during the course of the project. This did not happen completely, but the travel survey was carried out in November 2021 at a time when travel was the most normal it had been since the start of the project. The project team worked hard to concentrate on activities that could be carried out at particular times.

Work package 1 – literature review - was completed in the first few months of the project and continued throughout the project. Topics covered included reverse logistics, returns management, shopping behaviour, returns behaviour, company policies in relation to returns, environmental impacts of returns, the psychology of shopping behaviour in general and returns in particular, travel patterns in relation to online shopping and returns. We concentrated on the more social science aspects rather than the more narrowly focused modelling literature as this was more relevant to our project. We reviewed the academic literature, consultancy reports and company literature. Product returns is a very new, dynamic and innovative subject area so much of the information comes from non-traditional sources. It is a matter of pride that the project attracted so much media attention as this was a 'new' subject of importance with considerable environmental importance.
Team members involved: Sharon Cullinane, Magnus Jansson, Michael Browne, Patricia van loon

Work package 2 – attitude survey on returns and returns policies. Following extensive survey design discussions and based on the results and findings of the previous EM project, a questionnaire survey of 3600 adults in Sweden was distributed digitally (in Swedish) to a citizens panel by a professional market research company (LORE) between Sept 6th and Oct 13th 2020. Responses were received from 2045 people, representing a response rate of 57%. There was an equal gender balance of respondents and a representative range of ages. The survey asked people about their online purchasing and returns behaviour and included a set of questions enabling a standard psychological profile of the respondents to be generated. Analysis of the results using SPSS enabled a link to be made between returns behaviour and personality traits and profiles. A report of the results was written and subsequently disseminated widely. The travel pattern element of the survey was not included due to issues alluded to above. The large-scale travel survey was carried out separately in October 2021 (see WP4).
Team members involved: Sharon Cullinane, Magnus Jansson, Kevin Cullinane and Michael Browne.

Work package 3 - quasi-experimental design. In 2021, following a long negotiation period, we worked together with a team from one of Sweden's largest online clothing e-tailers, Boozt, on a questionnaire survey of a sample of Boozt's Swedish customers. Questions concerned their returns behaviour and the psychological profile of the customers. The important difference between this and prior surveys identified in the literature review and carried out by us, is that the current survey scrutinised the attitudes and purchase and returns behaviour of **actual customers** from Boozt's customer database.
The survey took place in September and October 2021. The questionnaire was distributed digitally (in Swedish) by an external company (Norstat) due to the need to conform to the considerable GDPR issues involved in the use of customer data. The survey was administered digitally to 40000 customers who had made at least one return over the 2 years 2019-2021. In order to encourage participation in the survey, lottery-based prizes in the form of Boozt gift vouchers were provided by Boozt. In total, 740 valid responses were received. Although this represents a very low response rate and there is no way of confirming the representativeness of the responses received (either in terms of Boozt customers or the wider population), it is, nevertheless, a substantial database of responses.
The survey was (and continues to be) analysed using SPSS. A preliminary report of the findings was sent to Boozt in December 2021 and was approved (in terms of the level of anonymity of the company and its personnel) in January 2021.
Team members involved: Sharon Cullinane, Magnus Jansson, Kevin Cullinane and Michael Browne.

Work package 4 - environmental measurement of travel patterns in relation to returns. Again following a considerable amount of discussion within the team, a questionnaire survey of 4000 adults in Sweden was distributed digitally (in Swedish) to a citizens panel by a professional market research company (LORE). The survey was carried out between Monday 27th September and Monday 18th October 2021. The survey was started by 2035 respondents and was completed by 1810 respondents. The results were analysed using SPSS. Calculations of the environmental footprint of the different methods of returns were made using Sweden's Network for transport Measures (NTM) emissions data. Again, because of the delay caused by Covid-19 in administering the survey, the results have not yet been fully analysed. A preliminary report has been drafted.
Team members involved: Sharon Cullinane, Magnus Jansson, Michael Browne and Patricia van loon.

Work package 5 - development of company policies. As a direct result of our research and the wide dissemination of the results in the Nordic media, we were approached by the organisation Hållbar e-handel, an organisation with 123 company members in Sweden, to form a 'returns' stream of the organisation. This idea was promoted by the CEO of Boozt and the leaders of the returns stream are the sustainability manager of Boozt and Sharon

Cullinane. This initiative has afforded us unprecedented levels of engagement with industry. Following some discussion with members, the vision of the working group is to improve the environmental sustainability of clothing returns by:

- Investigating current return practices across the online fashion industry
- Exploring traceability of returns in the reverse logistics process
- Researching innovative packaging solutions
- Setting guidelines and developing a code of best practices for responsible returns handling
- Sharing knowledge across peers and consumers

A survey of members attitudes to returns withing their business was undertaken and a report submitted to all members. Many meetings, conferences and discussion groups have taken place to disseminate and discuss the results with members and non-members. Best practice guidelines are currently being drawn up. Because this is a bottom-up iniative, buy-in to the guidelines and the principles of improving the environmental sustainability of returns is expected to be high.
Team members: Sharon Cullinane

Work package 6 -project administration and leadership. The administration of the project has been carried out effectively throughout the project despite the considerable hurdles posed by Covid-19. Activities have been re-jigged and rescheduled to suit the prevailing conditions. Overall, the project aims have been met and we have exceeded the scope of the project because of the engagement with industry and the media.
Team members: Sharon Cullinane

Resultat

This project has focused on the issue of the returns of clothing bought online in Sweden and the challenges that these present to the environment, largely but not confined to, their energy use. We have taken a multi-pronged approach to this is in order to triangulate the results and enable a deeper understanding of the issue as a whole. Thus, we have considered the consumer and their attitudes to returns, returns policies and the environment as well as analysing their travel patterns in relation to returns. These are the two major 'areas of research' identified in the application. In addition, we have also considered further the issue of the responsibility and actions of retailers. This builds upon the results of our previous Energimyndigheten project.
The results of our research have been discussed in many and various forums, as set out in the Introduction to this report. This has led us to visualising the

overall framework within which returns should be considered, shown in figure 1.

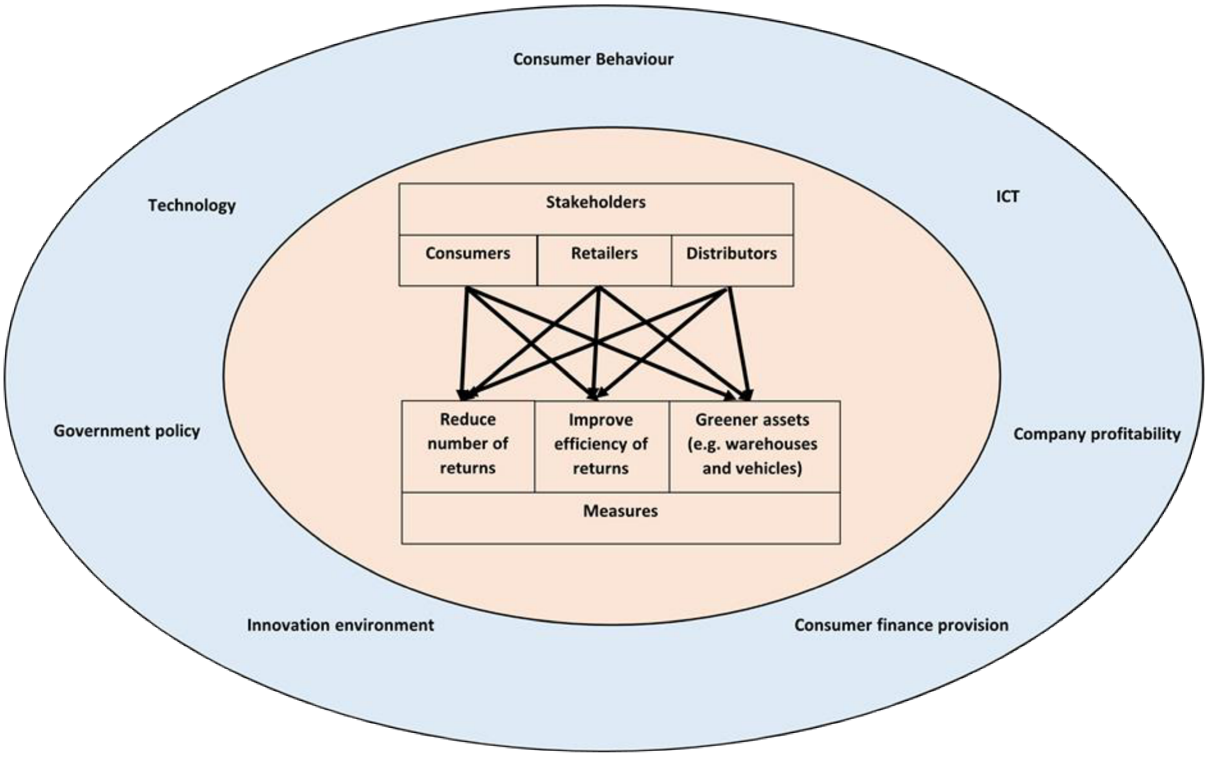

Figure 1. Returns framework

The external blue ring highlights the important overall influencing factors affecting returns, with consumer behaviour at the top.
As described in the 'Implementation' section of this report, we have carried out a series of surveys to delve into consumer attitudes and behaviour as well as their travel patterns in relation to their return behaviour. The results of these surveys have been written up into reports as we have progressed through the project. Results of the different surveys have also been combined in conference papers/webinars that we have presented and in academic papers that have been written or are in the process of being written. These reports and papers can be found in the Appendix section of this report and are outlined below.

Appendix 2. Consumer attitudes towards clothing returns in Sweden: Preliminary results of a large-scale survey.
This presents the results of our first large-scale digitally distributed questionnaire survey of 3600 consumers in a citizen's panel carried out by the professional market research company, LORE.

Appendix 3. Initial analysis of the results of the Boozt customer survey on clothing returns.
This presents the results of our second large-scale survey, this time of actual Boozt customers, carried out in conjunction with Boozt. This was a digitally distributed questionnaire survey of 40000 of Boozt customers who had made

a return within the past 2 years. It was also carried out by a professional market research company.

Appendix 4. The environmental impact of consumer travel in relation to clothing returns.
This presents the results of our third large-scale survey, this time on the travel patterns of consumers in relation to returns. It is based on our digitally distributed questionnaire survey of 4000 citizen's panel consumers and was carried out by the professional market research company, LORE. It presents environmental calculations of different travel pattern types and discusses them in relation to retailers returns policies. This is also a draft journal paper which will be worked on in the coming months.

Appendix 5. Analysis of the Hållbar e-handel survey on returns
This presents the results of the survey of members of Hållbar e-handel. This is a small-scale survey designed by the project team in association with the sustainability manager of Boozt and administered by the Association itself. It builds on the results of a similar survey conducted and reported on in the previous Energimyndighet project.

Appendix 6. E-consumers' purchase and returns behaviour. A review.
This is a draft journal paper presenting a review of the literature on returns policies and attitudes towards them. It incorporates some of the results from our first large-scale survey.

Appendix 7. The psychology of returns.
This is a draft journal paper bringing together the results of the first two surveys and relating them to psychological profiles of consumers. It also discusses the impact of different returns policies on returns, linking these to consumers psychological profiles.
As stated above, the results of our surveys and accompanying research are many and varied and have been disseminated in various forms as the project has progressed. This has enabled feedback to be incorporated into subsequent phases of the research. The following 'discussion' section seeks to tie the results together and to highlight the energy and environmental impacts of various behaviours and policies.

Diskussion

In this project we have sought to triangulate the results from our various surveys to shed some light on how to reduce the energy and environmental impact of the returns of clothing bought online. It is clear that returns pose a threat to the environment in many different ways and that many of these can be encapsulated by the energy required to deal with them. As a general principle, the greater the amount of energy used, the greater the

environmental impacts caused. In this project we have focused principally on the transport (including consumer travel) related effects of returns; other issues such as packaging, the need for unnecessary production, waste and landfill issues etc. have not been specifically addressed. That is not to belittle their importance but to have included them in this project would have been too great a task within the time frame allowed.

Reducing the energy use involved in returns can be done by reducing the number of returns, improving the energy efficiency of the returns process and by improving the energy efficiency of the facilities and assets such as the vehicles (Cullinane et al, 2020). This project has focused mainly on the first of these as it this that underpins the other two (with no returns, no returns system or assets would be required). In addition to the energy used in the commercial transportation of returns is the energy used by the consumers when making the returns in terms of vehicle use. This is a totally under-researched area but is extremely important. Research (see for example, Browne et al., 2005; van Loon et al., 2015) has shown that the energy used by consumers in a car transporting a package far exceeds the energy used by a commercial vehicle transporting a marginal package. Any policy therefore which switches responsibility for returns onto the consumer will result in greater energy use and likely, vice-versa.

The first of our surveys highlighted the problem of sizing when ordering online. Sizing issues were stated by respondents as the main reason for returning items, with 72% making their last return because the item didn't fit; more than twice as many as all the other reasons combined. A further 7% made their last return because they had bought more than 1 item of the same garment but in a different size (so called 'bracketing'). There is no standard internationally agreed-upon sizing standard, which makes it very difficult to assess size from a website. At a much more local level, clothes bought from a single retailer can often differ in their sizing. If sizing could be improved, returns could be substantially reduced. Fundamentally, sizing issues are a retailer problem and retailers need to find a way to overcome them. Digital solutions such as the use of avatars, digital dressing rooms and even simple sizing guides can assist in this. Many companies now make use of some element of digital guidance.

To be of use, however, digital sizing solutions require consumers to heed the guidance and use the digital systems provided. The results of our survey of Boozt customers indicate that the respondents enjoy shopping for the pleasure of it. For some, shopping (particularly for discretionary goods such as fashion items) has become a hobby which is enjoyed for itself rather than a means to another end (it can be described as hedonistic). Shopping gives some people a buzz. This could mean that it is the shopping activity itself which is more important than acquiring the clothes, with the inevitable consequence that return rates will be high, particularly if the process of making the return is easy and the financial penalties of making a return are low. In our first survey, the results showed that a considerable minority of consumers engaged in impulse buying and returning. Thirty percent of respondents admitted to returning an item they had ordered online 'on a whim without much thought'. A further

15% stated that they had returned an item which they had only ordered 'because I was bored'. In the Boozt survey of actual customers, on a 5 point Likert scale of agreement, with Strongly Agree being given a score of 5 and Strongly Disagree a score of 1, the statement 'I always plan my purchases' received an overall average score of 3.6 (indicating quite a strong level of agreement), whereas the statement 'My shopping is impulsive' received a score of 1.9 (indicating a weak disagreement level). The statement 'I often buy things without thinking' received a score of 1.7; again a weak disagreement level. It is difficult to make a direct comparison between the results because of the way the questions differed between the surveys. One possible explanation for a possible lower level of impulse buying from the Boozt customers is that Boozt customers are loyal customers who are familiar with the Boozt offering. This, however, is pure circumspection and cannot be proved from the results.

As stated in the Introduction section, the increasing ease with which online orders can now be made is likely to have a positive impact on impulse buying (in the sense that impulse buying is likely to increase). Ease of ordering/buying is also affected by finance provision. Many online retailers are offering finance facilities (usually through dedicated finance companies such as Klarna or Qliro) to 'buy now, pay later' and/or to spread the payment over several time periods/tranches. We did not cover this explicitly in our survey as it is a more recent phenomena, but it needs to be considered in future research. As retailers fight for custom in a very competitive environment, they need to make ordering as easy as possible, in all senses, including finance. This type of finance-led option seems, therefore, likely to increase in the future as companies become even more finely tuned to customer requirements.

The extent to which various types of retailers' returns policies are tied up with the volume of returns was also highlighted in our survey. Twenty seven percent of the respondents to our first survey said that they had made a return of an item that they had ordered 'to get over the threshold for free delivery'. A policy designed by retailers to encourage purchases and increase profitability could be having the opposite effect to what it was designed to do. There is an academic debate as to whether customers who order a lot but return a lot are profitable customers. A review of this topic is covered in one of our research papers (Jansson et al, 2022a, draft) which also considers evidence of this behaviour in our survey. This issue is discussed later in this section.

Another key retailer policy is 'free returns'. Most (but not all) retailers have a policy of free returns. It is a legal requirement in the EU that consumers can return their goods bought online for a refund for any reason whatsoever within 14 days of purchase. Many companies offer much longer refund periods. This legal requirement, however, does not cover the cost of returning the item. It is this which is covered under the 'free returns' banner. Some companies will only cover the costs of returns if the product is faulty or there are other retailer/distributor responsible issues, such as the wrong item being delivered. Some retailers (including Boozt and Asos) have implemented a ban on 'serial returners' who return practically everything they buy. The majority of companies, however, offer free returns. In our survey, 46% of respondents

admitted to ordering and returning a garment because returns were free. This issue is addressed in the Jansson et al, (2022b) paper.

For the consumer behaviour-related issues discussed above, education about the impact of returns would seem to be necessary. This is especially so because the results of the Boozt survey in particular, showed that consumers in general want to act in an environmentally sustainable way. Again using a 5 point Likert scale of agreement, with 'Strongly Agree' receiving a score of 5 and 'Strongly Disagree' a score of 1, the statement 'I am concerned about the environment' received an average score of 4.2 and the statement 'Every citizen must take responsibility for the environment' received a score of 4.4; both very high on the agreement scale. It is our contention that most consumers have no appreciation that returns have an energy or environmental impact on society, although the results of the Boozt customer survey did indicate that those who had a more responsible attitude to the environment also made fewer returns. It is the responsibility of retailers, perhaps in conjunction with the media, to educate consumers in this relationship.

A key element of this project was to analyse the psychological profile of consumers who make returns along with their attitudes to returns policies. To this end, the respondents' personal self-transcendent values, were measured in accordance with Schwartz Value Survey (Schwartz, 1999, Schwartz, 1992). Personality dimensions were measured using the abbreviated version (BFI-10) of the Big Five Factor Model of personality traits (BFI-44). The BFI-10 reduces the number of items in the BFI-44 from 44 items to 10 items while still capturing 70 % of the variance in BFI-44 (Ramstedt & John, 2007). The BFI-10 has been found to have significant levels of validity and acceptable retest reliability (.75) (Ramstedt & John, 2007).

An important part of the analysis carried out in this project was to determine whether there was a link between personal values and consumers' 'responsible returns behaviour' as it this which is key to reducing returns. Responsible returns behaviour could be defined as 'online shopping behaviour that takes the environmental consequences of returns into consideration. Where customers only order items which they intend to keep and are concerned not to return ordered items unless absolutely necessary'. The results of our surveys showed that e-consumers' self-transcendent values positively influence responsible returns behaviour via environmental concern. The effect of self-transcendent values is fully mediated onto responsible returns behaviour via environmental concern. This result substantiates the proposed structural model derived from Schwartz' norm-activation theory (Schwartz, 1977; Schwartz & Howard, 1981). The results confirm that responsible returns behaviour can be regarded mainly as pro-environmental behavior explained by environmental concern, which in turn is influenced by personal altruistic values as they are conceptualized in Schwartz' value theory. Self-transcendent value orientation and environmental concern explains a substantial part of customers' responsible returns behaviour.

Respondents' endorsed self-transcendent values were influenced by the personality traits, 'openness' and 'agreeableness'. The effect of these two personality traits had, moreover, a small but significant effect, mediated by

self-transcendent values and environmental concern, on responsible returns behaviour. Although the contribution to explaining responsible returns behavior was small, it shows the importance of extending social psychological theories aiming at understanding pro-environmental behavior to include personality traits.
The moderating effects of e-consumers' past returns behaviour was shown to be important. That is, consumers who never or infrequently return clothes tend to have a lesser gap between concerns about the environment and actual pro-environmental responsible returns behaviour. The attitudinal - behavioral gap is thus dependent on the difference in strength between environmental concern and responsible returns behaviour and is not due to the relationship between values and environmental concern. This result is in line with previous research by for example Dean (et al., 2012) and Nguyen et al., (2016) showing similar patterns for consumers of eco-friendly products. They argued that the person performing a particular pro-environmental behaviour may be better placed to understand external barriers and the relevance of that behaviour and hence their intentions, are more likely to be habitudinal and transformed into action (Carrington, et al., 2010).
The research contained in this project also shows the strong impact of socio-demographic variables on returns. Gender, age and income have a substantial influence on returns. Frequent returners are mostly younger females with lower income who are also frequent online shoppers.

An implication of the present research is that responsible returns behaviour is, to a large extent, affected by factors that companies and regulators are able to influence. Responsible returns behaviour is not primarily determined by stable personality traits but by values that form e-customers environmental concern. By making e-customers more aware of the environmental consequences of their returns and framing it as a decision with moral attributes, e-customers may be influenced to adopt a more responsible returns behaviour. It should be in the e-retailers own interest to undertake these measures as there are substantial cost reductions to be gained. The decrease in returns will also reduce energy consumption, waste and waste storage capacity which ultimately will transfer to increased corporate profits.
We turn now now to the travel patterns related to returns of goods bought online. There is very little current information on this. For *deliveries* of online products, the highest energy-efficiency in the last mile can be achieved if parcels are delivered to collection points close to the consumer, assuming that a large part of the consumers can then walk to the collection point (Halldorsson and Wehner, 2020). If a car is used, the CO_2 emissions associated with the last mile rise steeply due to the inefficiency of driving to pick up one package (Browne et al., 2005; van Loon et al., 2015). Sweden is a car-dependent country with more trips made by car than by foot, bicycle and public transport combined (Swedish National Travel Survey, 2019[1]). Trips with the main purpose of service and shopping are conducted in 63% of the

[1] Data from the year 2019 is used on purpose to avoid any possible covid-19 trends in the data.

cases by car which corresponds to 88% of the total distance travelled for service and shopping (Swedish National Travel Survey, 2019). The average distance travelled per roundtrip journey in which service and shopping was the main purpose was 34 kilometers (Swedish National Travel Survey, 2019). Specifically for returns, Edwards et al. (2010) showed that the CO_2 emissions are twelve times greater in a dedicated consumer trip to return a package versus collection of the parcel integrated in a parcel delivery round. Bertram and Chi (2018) also argue that pick-up of returns by carriers that integrate pick-ups in their delivery rounds results in the lowest environmental impact possible, mainly because pick-up at consumers' homes does not require any consumer travel. They calculate that pick-up results in 362g CO_2 versus 4455g CO_2 if a customer returns the package to a store (Bertram and Chi, 2018).

The travel survey showed that by far majority (88%) returned their items of clothing by taking the package to a collection point, followed by 9% returning it directly to the retailer's physical shop. A total of 56% of the respondents used a car for (at least part of) the trip they made to return an item of clothing to a collection point, and 58% to return it directly to the physical shop of the online retailer. This percentage is lower than the percentage of car usage found earlier to pick up or return a package to the collection point (71% reported in Liu et al., 2019), which might indicate that people are able to use more sustainable travel modes when returning a package than when picking up a parcel. Naturally, the share of car-based travel increases for less densely populated areas. Consumers living in large city centres use the car in only 22% of all return trips made, while this increases to 46% for smaller city centers, 52% for consumers living in the suburbs of large cities, 56% for larger villages, 67% for smaller villages, 70% for the suburbs of smaller cities, and finally 83% for people living in the countryside. In a similar vein, the distance driven by car to return a parcel increases in less densely populated areas, with consumers living in rural areas driving 3.8 times further to a collection point than someone living in a large city centre. This shows that different return alternatives and return policies based on living locations might be needed in order to reduce the carbon footprint of consumer travel related to returns.

The main reasons given by respondents for using the car is that they needed the car for a different reason during the same trip (i.e. trip chaining), that it was too far to walk or cycle, or less often, that the package was too big to walk or cycle.

The environmental analysis, using data from Trafikverket (2020), showed that returns to a collection point on average resulted in 351g CO_2 (assuming that all non-car-based travel emits 0g CO_2). If a car is used to return a parcel, the trip results on average in 633g CO_2 . Given that both the share of car usage and the trip distance increases significantly for less populated areas, the average CO_2 associated with returning a parcel in the countryside is much higher than for those living in urban areas (1056g versus 57g CO_2 respectively). This implies that returns via collection points in urban areas indeed result in higher energy-efficiency (as argued by Halldorsson and Wehner, 2020) due to people choosing sustainable travel modes or driving only short distances in urban areas, but that this does not hold for the whole of Sweden. We requested data

from Postnord regarding the average CO_2 emissions of collecting a parcel at the consumers' homes (waiting for data), but data from the UK shows that the average CO_2 associated with picking up a parcel at the consumers' homes by a courier results in 362g CO_2 (Bertram and Chi, 2018). Hence, pick-up of parcels at consumers home might be a more sustainable alternative for those consumers living further away from collection points.

Summary of practical suggestions for improving the energy and environmental efficiency of returns.

There is clearly a need for measures that reduce returns of clothing ordered online. It should also be in the retailers' interest to reduce returns as the management of returns is a substantial financial burden for most e-retailers. This report aims to provide some suggestions of measures that should be considered by e-retailers. These are summarized in Table 1.

Table 1. Practical measures to reduce energy use and improve the environmental sustainability of returns

Measure	Reason
Improve the consistency and transparency of clothing sizing across lines within the same company as well as across brands.	By far the majority of clothing returns are made because of sizing issues.
Provide detailed and experiential information about the products for sale online; make website information more accurate and useful.	It is still too difficult for consumer to make an accurate but quick assessment of clothing garments from the information provided on websites.
Frame the 'keep or return' decision as a moral decision with environmental consequences.	Returns are not mainly determined by consumers pro-environmental concerns but responsible returns behaviour is. To frame the decision as a moral and pro-environmental decision could promote consumers with strong self-transcendent values and environmental concerns to be more careful not to over-order and to be more restrictive on what they return.

Provide consumers with alternative returns policies.	Use the omission bias and let the default return policy option be an environmentally friendly policy for example returns with a "climate compensation fee".
Consider whether it is worth having a threshold for free deliveries.	This can increase returns as customers buy to get over the threshold and then return products afterwards.
Provide e-customers with benefits in relation to their returns behaviour.	For example, give discounts in relation not only to how much customers order but also in relation to how much they return. This might incentivize responsible returns behaviour.
Have a return policy that clearly communicates the limits to over-ordering and excessive returns.	It should be very clear that retailers have no tolerance of excessive over-ordering and an unresponsible returns behaviour. Customers who do not follow these rules should be dissuaded or even banned from shopping.
Increase the time limits on free returns.	The effect of leniency does not always give the same effects on sales and returns. Increasing the time limits for free returns increases consumers purchase intentions but reduces returns.
Increase the availability of 'pick-up from home' options for returns.	This should have the impact of reducing the need to use a car in the returns process, thereby reducing energy use.
Increase the number of local collection points, including	This should reduce the need for car transport in the returns process.

unmanned solutions such as lockers/boxes.	

Publikationslista

Journal publication:

Cullinane, S.L. & Cullinane, K.P.B. (2021) Exploring the logistics of online clothing returns in Sweden to reduce their environmental impact, *Journal of Service Science and Management*, 14(1), 72-95.

Journal Publications in progress:
Jansson, M., Cullinane, S.L and Browne, M. (2022a) E-consumers' purchase and returns behavior: What we know, don't know and should know about the impact of returns policies on consumers' purchase and returns behaviour. DRAFT. (see Appendix 6)

Jansson, M., Cullinane, S.L and Browne, M. (2022b). The psychology of returns. DRAFT (see appendix 7)

Van Loon, P., Cullinane, S.L and Browne, M. (2022). The Environmental impact of consumer travel patterns in relation to returns. DRAFT (see Appendix 4)

Conference paper:
Jansson, M., Cullinane, S.L., Browne, M and van Loon, P. (2021) E-consumers' purchase and returns behaviour: What we know and don't know but should know about the impact of returns policies on consumers' purchase and returns behaviour. Paper presented at the 17th Nordic Retail and Wholesale conference (NRWC), session HC206. 9-11th November, Umea

Webinars/Podcasts
Centre For Retail webinar - Reducing the environmental impact of the returns of clothing ordered online: Stage 2. October 22nd 2020
Handelshögskolan webinar – Many (un)happy clothing returns and their impact on the environment. May 5th 2021
Oslo Metropolitan University webinar – Textile waste from returns and unsold clothes. 16th February, 2022
Almedalen – Panel Discussion broadcast/podcast July 5th 2021
https://www.youtube.com/watch?v=2xAOU0bo444,
https://almedalsveckanplay.info/61401

New York Times - Panel discussion broadcast – Netting Zero. Re-imagining Transport, Logistics and E-commerce for a Net Zero World. September 17th 2021
https://www.youtube.com/watch?v=VFlXR_FsIqs
Sődertőrn University podcast https://we.tl/t-7STKVfcOy2. 22nd November 2021

Reports
Cullinane, S., Jansson, M., Browne, M. and van Loon, P. (2021) Consumer attitudes towards clothing returns in Sweden: Preliminary results of a large-scale survey. February. University of Gothenburg. (see Appenndix 2)
Jansson, M., Cullinane, S.L and Browne, M. (2021). Initial analysis of the results of the Boozt customer survey on clothing returns. November. University of Gothenburg. (see Appendix 3)
Cullinane, S.L. (2022). Analysis if the Hållbar e-handel survey. Hållbar e-handel (see Appendix 9)

Referenser, källor

Abaid-Ullah, Z., Jiangnan, Q., Ying, L., Jingguo, W. & Mohsin, S. (2021). The impact of social media celebrities' posts and contextual interactions on impulse buying in social commerce. *Computers in human behavior*, 115.

Aragoncillo, L. & Orus, C. (2018). Impulse buying behaviour: an online-offline comparative and the impact of social media. *Spanish Journal of Marketing - ESIC,* 22(1), pp.42-62.

Bertram, R.F., Chi, T. (2018). A study of companies' business responses to fashion e-commerce's environmental impact. International Journal of Fashion Design, Technology and Education, 11(2), 254-264.

Browne, M., Rizet, C., Anderson, S., Allen, J., Keïta, B. (2005). Life cycle assessment in the supply chain: A review and case study. Transport Reviews, 25(6), 761–782.

Cao, P., Meister, S. & Klante, O. (2014). How Social Media Influence Apparel Purchasing Behavior. *Marketing Review St. Gallen*, 31(6), pp.77-86.

Carrington, M.J., Neville, B.A. & Whitwell, G.J. Why Ethical Consumers Don't Walk Their Talk: Towards a Framework for Understanding the Gap Between the Ethical Purchase Intentions and Actual Buying Behaviour of Ethically Minded Consumers. *J Bus Ethics* **97,** 139–158 (2010). https://doi.org/10.1007/s10551-010-0501-6

Cullinane, S.L. & Cullinane, K.P.B. (2021) Exploring the logistics of online clothing returns in Sweden to reduce their environmental impact, *Journal of Service Science and Management*, 14(1), 72-95.

Cullinane, S.L., Browne, M., Wang, Y and Karlsson, E (2019a). Energy and environmental effects of the reverse logistics of clothing e-tailing in Sweden. Final report to Energimyndigheten. University of Gothenburg**.** DOI 10.13140/RG.2.2.16163.30240

Cullinane, S.L., Browne, M, Karlsson, E and Wang, Y (2019b). Retail clothing returns: A Review of Key Issues. In Wells, P,. Contemporary Operations and Logistics. Palgrave Macmillan. Pp 301-322

Dean, M., Raats, M. M., Shepard, R. (2012). The role of self-identity, past behavior, and their interaction in predicting intention to purchase fresh and processed organic food. *Journal of Applied Social Psychology, 43*(3), 669-688.

Edwards, J., McKinnon, A.C., Cullinane, S. (2010). Comparative analysis of the carbon footprints of conventional and online retailing: a "last mile" perspective. International Journal of Physical Distribution & Logistics Management, 40(1/2), 103-123.

Frei, R; Jack, L. and Brown, S. (2020). Product returns: a growing problem for business, society and environment. International Journal of operations and production management, 40 (10) pp 1613-1621

Jansson, M., Cullinane, S.L and Browne, M. (2022a) E-consumers' purchase and returns behavior: What we know, don't know and should know about the impact of returns policies on consumers' purchase and returns behaviour. DRAFT

Jansson, M., Cullinane, S.L and Browne, M. (2022b). The psychology of returns. DRAFT paper

Halldorsson, A., Wehner, J. (2020). Last-mile logistics fulfilment: a framework for energy efficiency. Research in Transportation Business and Management, https://doi.org/10.1016/j.rtbm.2020.100481

Liu, C., Wang, Q., Susilo, Y.O. (2019). Assessing the impacts of collection-delivery points to individual's activity-travel patterns: a greener last mile alternative? Transportation Research Part E, 121, 84-99.

Mangiaracina, R., Marchet, G., Perotti, S., & Tumino, A. (2015). A review of the environmental implications of B2C e-commerce: A logistics perspective. *International Journal of Physical Distribution and Logistics Management, 45*(6), 565–591.

McKinsey (2021a). Returning to order: Improving returns management for apparel companies

McKinsey (2021b). It's showtime! How live commerce is transforming the shopping experience. JULY

Nguyen, N., Lobo, A., Long, Greenland, S. (2016). Pro-environmental purchase behaviour: The role of consumers' biospheric values, *Journal of Retailing and Consumer Services, 33*, 98-108,

Postnord (2020), E-handel i coronatider. https://www.postnord.se/siteassets/pdf/rapporter/postnord-e-handel-i-corona-tider-20200407.pdf

Postnord (2021) E-commerce in Europe 2021. https://www.postnord.com/siteassets/documents/media/publications/e-commerce-in-europe-2021.pdf

Ramstedt, B., and John, O. (2007). Measuring personality in one minute or less: A 10-item sort version of the Big Five Inventory in English and German, *Journal of Research in Personality, 41*(1), 203-212.

Schwartz, S. H. (1977). Normative influence on altruism. In L. Berkowitz (Ed). *Advances in experimental social psychology*, *10,* 221-279.

Schwartz, S. H. (1992). Universals in the content and structure of values: Theoretical advances and empirical tests in 20 countries. In M. P. Zanna (Ed), *Advances in experimental social psychology, 25*, 1-65.

Schwartz, S. H. (1999). A theory of cultural values and some implication for work. *Applied Psychology: An International Review, 48*(1), 23-47.

Statista.com (2021). E-commerce worldwide – statistics and facts. https://www.statista.

Shabandeh, M (2021). Global Apparel Market – stats and facts. Available at https://www.statista.com/forecasts/821415/value-of-the-global-apparel-market Accessed 22/10/21

Statista. Com (2021a). E-commerce worldwide – statistics and facts. Available at https://www.statista.com/topics/871/online-shopping/ Accessed 27/10/21

Statista. Com (2021b). E-commerce worldwide – statistics and facts. Available at https://www.statista.com/topics/871/online-shopping/ Accessed 27/10/21

Stock, J. R., & Mulki, J. P. (2009). Product returns processing: An examination of practices of manufacturers, wholesalers/distributors, and retailers. *Journal of Business Logistics, 30*(1), 33–62.

Sundström, M., Hjelm-Lidholm, S. & Radon, A. (2019). Clicking the boredom away – Exploring impulse fashion buying behavior online. *Journal of Retailing and Consumer Services,* 47, pp. 150-156.

Swedish National Travel Survey (2019). Available at: https://www.trafa.se/en/travel-survey/travel-survey/ [accessed 8-6-2021].

Trafikanalys (2020). Hur kan e-handelns transporter bli mer hållbara? Redovisning av ett regeringsuppdrag. https://www.trafikverket.se/contentassets/82f91adb04524a76855daa95fa360a47/rapport-2020_2-hur-kan-e-handelns-transporter-bli-mer-hallbara-redovisning-av-ett-regeringsuppdrag.pdf

Trafikverket (2020) Vägtrafikens utsläpp 2020. https://www.trafikverket.se/contentassets/ac3df8a1b07a49f09230c64189ccba4b/pm-vagtrafikens-utslapp-210224.pdf

Van Loon, P., Deketele, L., Dewaele, J., McKinnon, A.C., Rutherford, C. (2015). A comparative analysis of carbon emissions from online retailing of fast moving consumer goods. Journal of Cleaner Production, 106, 478-486.

Yong-Seo, S., Yoon, S. & Vangelova, M. (2016). Shopping plans, buying motivations, and return policies: impacts on product returns and purchase likelihoods. *Marketing Letters*,27(4), pp.645-659.

Bilagor

Administrativ bilaga

Appendix 1. Media enagagement and start-up companies helped

Appendix 2. Consumer attitudes towards clothing returns in Sweden. Preliminary results of a large-scale survey. Report

Appendix 3. Initial analysis of the Boozt customer survey on clothing returns. Report

Appendix 4. Environmental impact of consumer travel in relation to clothing returns. Report and Journal paper in progress

Appendix 5. Analysis of the Hållbar e-Handel survey on returns. Report

Appendix 6. E-consumers purchase and returns behaviour – a review. Journal paper in progress

Appendix 7. The psychology of returns. Journal paper in progress

Appendix 8. Cullinane, S.L. & Cullinane, K.P.B. (2021) Exploring the logistics of online clothing returns in Sweden to reduce their environmental impact, *Journal of Service Science and Management*, 14(1), 72-95.