TAMPEREEN TEKNILLINEN YLIOPISTO
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OVERVIEW OF FASHION INDUSTRY'S PRODUCTION NETWORKS AND POSSIBILITIES OF SHORTER SUPPLY CHAINS

Master of Science Thesis

Examiner: Professor Heikki Mattila
Examiner and topic approved in the faculty meeting of the Faculty of Engineering Sciences on February 4th, 2015.

ABSTRACT

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The fashion industry is one of the most labor-intensive industries in the world – for example: the labor costs of clothing production make up about 60 % of total clothing production costs. Because of this, fashion companies have long since been outsourcing their production activities to countries with lower labor costs in order to achieve cost savings. As a result, today's fashion supply chains can be described as complex and globally dispersed with often long lead times.

Although the production shift to more low-cost countries has enabled fashion companies to reduce their production costs, the long lead times have brought about other problems. These problems are related to demand forecasting. Fashion industry is an industry that is characterized by constantly changing trends, erratic consumer behavior and quick loss of product value. With the development of digital media, all of this has only been accentuated. Yet with the long times, fashion companies struggle to get their forecasts right. Consequently, approximately one third of fashion companies' products do not correspond with the demand and end up being sold with discounted prices or donated to charity. Also, it is often impossible for the fashion companies to reorder their more popular products because the delivery would take too long and because of the capital invested in the yet unsold, unpopular products.

In this study, the fashion industry's traditional production networks are looked into as well as the possibilities of shorter supply chains and a more local production approach. This study is carried out as a literature review and consists of two parts: first, of a general overview of fashion industry's production networks and reasons behind the attractiveness of offshore production and second, of case studies of fashion companies with shorter supply chains. This study is conducted from the perspective of the more high-cost areas of the fashion industry (here: parts of EU and also, US).

TIIVISTELMÄ

TOIVONEN, TARU: Yleiskatsaus muotiteollisuuden tuotantoverkostoihin ja lyhyempien toimitusketjujen tarjoamat mahdollisuudet
Tampereen teknillinen yliopisto
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Avainsanat: Muodin vähittäismyyjä, toimitusketju, paikallinen tuotanto, kysyntä-lähtöisyys.

Muotiteollisuus on yksi maailman työvoimavaltaisimmista teollisuudenaloista. Esimerkiksi: vaatetuotannon työvoimakulut kattavat keskimäärin noin 60 % vaatetuotannon kokonaiskuluista. Tästä johtuen muotiyritykset ovat jo pitkään ulkoistaneet tuotantoaan halvemman työvoimakustannusten maihin kustannussäästöjen toivossa. Nykypäivän muotiteollisuuden toimitusketjuja voidaankin näin ollen kuvailla monimutkaisiksi, maailmanlaajuisesti hajanaisiksi ja pitkät läpimenoajat omaaviksi.

Vaikka tuotannon siirtyminen halvempien työvoimakustannusten maihin on mahdollistanut muotiyrityksille pienemmät tuotantokustannukset, globaaliin tuotantoon liittyvät pitkät läpimenoajat ovat tuoneet mukanaan muita ongelmia. Nämä ongelmat liittyvät kysynnän ennustamiseen. Muotiteollisuus on teollisuudenala, jota leimaa jatkuvasti vaihtuvat trendit, epävakaa ja ennalta-arvaamaton kuluttajakäyttäytyminen sekä nopea tuotteen arvon laskeminen. Digitaalisen median nopean kehityksen myötä kaikki tämä on korostunut entisestään. Pitkistä läpimenoajoista johtuen muotiyritykset joutuvat kuitenkin ponnistelemaan kysyntäennusteidensa kanssa. Sen seurauksena keskimäärin noin yksi kolmasosa muotiyritysten tuotteista ei vastaa kysyntää ja päätyy alennusmyynteihin tai hyväntekeväisyyteen. Tämän lisäksi muotiyritykset eivät myöskään usein voi tilata täydennyksiä suositummista tuotteistaan, sillä toimitukseen menisi liian kauan aikaa ja toisaalta, koska pääoma on edelleen kiinni huonosti myyvissä, kysyntää vastaamattomissa tuotteissa.

Tämän diplomityön tarkoitus on tarkastella muotiteollisuuden perinteisiä tuotantoverkostoja sekä tutkia lyhyempien toimitusketjujen ja paikallisemman tuotannon tarjoamia mahdollisuuksia. Työ on toteutettu kirjallisuuskatsauksena, ja se koostuu kahdesta osasta: yleiskatsauksesta muotiteollisuuden toimitusverkkoihin ja syihin tuotannon ulkoistamiselle sekä kahden lyhyitä toimitusketjuja suosivan case-yrityksen tarkastatelusta. Työ on toteutettu muotiteollisuuden korkeampien kustannusten alueiden (tässä: osa EU:sta/USA) näkökulmasta.

PREFACE

This study has been a long and lonely project that has acquired numerous hours spent at my local library as well as thousands of cups of coffee. Yet it could not have been conducted without some external help for which, I would now like to express my gratitude.

The biggest thanks go to my supervisor, Dr. Heikki Mattila, for his dedication, patience, support and all the great advices that have helped shape this research.

I would also like to thank all my family and friends for their help, understanding and patience throughout this process – you know who you are.

April 2016, Helsinki
Taru Toivonen

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

LIST OF ABBREVATIONS

CM	Cut and make
CMT	Cut, make and trim
GMROI	Gross margin return on investment
POS	Point-of-sale
QR	Quick response
ROCE	Return on capital employed
SKU	Stock-keeping unit
TCL	Textile, clothing and leather
VMI	Vendor-managed inventory
WTO	World trade organization

1 INTRODUCTION

The fashion industry is one of the biggest industries in the world. Characterized by multinational and complex supply chains, seasonal nature and low predictability in terms of consumer demand, it is also a very challenging industry. During the past few decades, the fashion industry has undergone drastic changes and a big portion of production and other jobs have shifted to the developing world. As a result, the European and US clothing industries' employment has concurrently decreased. For example in the US, the number of employees in the country's clothing sector has come down by 83 % within the last 20 years [1]. Respectively in the European Union, the employment in the textile and clothing industry in 2004 was around 2,2 million people and in 2013 only around 1,7 million people – despite the fact that new members have joined the EU during that time frame [2].

Some of these jobs have been lost due to developments in factory automation and general economic downturn, but the trend of settling production offshore to low-cost countries is nevertheless obvious. The World Trade Organization's international trade statistics tell the same story: China's clothing exports have for example grown by almost 400 % from 2000 to 2013 and India's clothing exports have increased by almost 200 % between that time, too (see Table 1.1 for precise numbers) [3].

Table 1.1: *Bangladesh's, China's and India's textile and clothing exports (partner: world) in 2000 and 2013 (adapted from [3]).*

Country	Commodity	Value 2000 [Million US $]	Value 2013 [Million US $]
Bangladesh	Textiles	393	1893
Bangladesh	Clothing	5067	23501
China	Textiles	16135	106578
China	Clothing	36071	177435
India	Textiles	5593	18907
India	Clothing	5965	16843

Although the production shift to low-cost countries has helped textile and clothing companies save in their labor costs, it has also created new challenges in regards to supply chain management and forecasting of demand. Especially in the fashion sector, where adequate forecasting is of vital importance, the longer lead times are a real problem. With conventional sourcing, the total lead times can stretch up to 9 to 10 months. As the long lead times are the main reason for forecasts errors (i.e. incorrectly estimated demand), for example approximately one third of fashion retailers' products

do not correspond with the demand and need to be sold with discounted prices or donated to charity. [4; 5]

To address this issue, fashion companies have implemented different sourcing strategies and operation management styles over the years. For example, the so-called lean systems have gained popularity because of their demand driven and flexible approach. Yet according to research, it seems that fashion companies could, by engaging themselves partly or fully in a more local production and shorter supply chains, better their forecasting and profitability even more. [5; 6]

Although the more local production approach has its advantages, reshoring textile and clothing production back to the Western countries has never really been a major theme in the public discussion – at least not until recently. According to recent research, the wage gap between Western and developing countries is going to get substantially narrower in the coming years. This will have a significant impact on global businesses, as they are forced to reconsider their production strategies. Also, another factor global businesses need to take account of are the constantly rising energy and transportation costs, which, too, make shorter supply chains seem more appealing. [7; 8] Because of these issues plus the overall concern about the working conditions in low-cost countries and the growing need for domestic jobs, reshoring initiatives have emerged both in the U.S. as well as in Europe.

The Reshoring Initiative is an U.S. industry-led endeavor founded in 2010 that aims at bringing production (not just textile and clothing, but manufacturing jobs in general) back to the United States. They state that years of offshoring have caused a huge deficit in the U.S. trade balance. As a result, the unemployment rate has increased substantially and the deficit in the federal budget continues to grow. They argue that by reshoring, both companies as well as the nation could improve their situation: companies could for example tackle production's quality issues easier and respond to changes in demand a lot quicker. Also, the whole nation would benefit from new jobs, which could strengthen the industrial base and help balance out the budget deficit. [9]

Whether or not the Reshoring Initiative will actually succeed in its mission remains to be seen. Nonetheless, the U.S. trade deficit is an actual problem and, according to some standpoints, one of the reasons behind the financial crisis of 2008 [10; 11]. And it is not only the United States that has been overpowered by the Asian imports: the European Union, by the same token, has for example a significant trade deficit with China – as shown in Figure 1.1 [10; 12]. So, from this perspective, it is no wonder that motions similar to the Reshoring Initiative have also arisen in the EU. One example of these motions is the Horizon 2020 -program. It is a European Union funded program that aims at creating growth and new jobs within the EU so that European companies could enhance their position in the global market. [13]

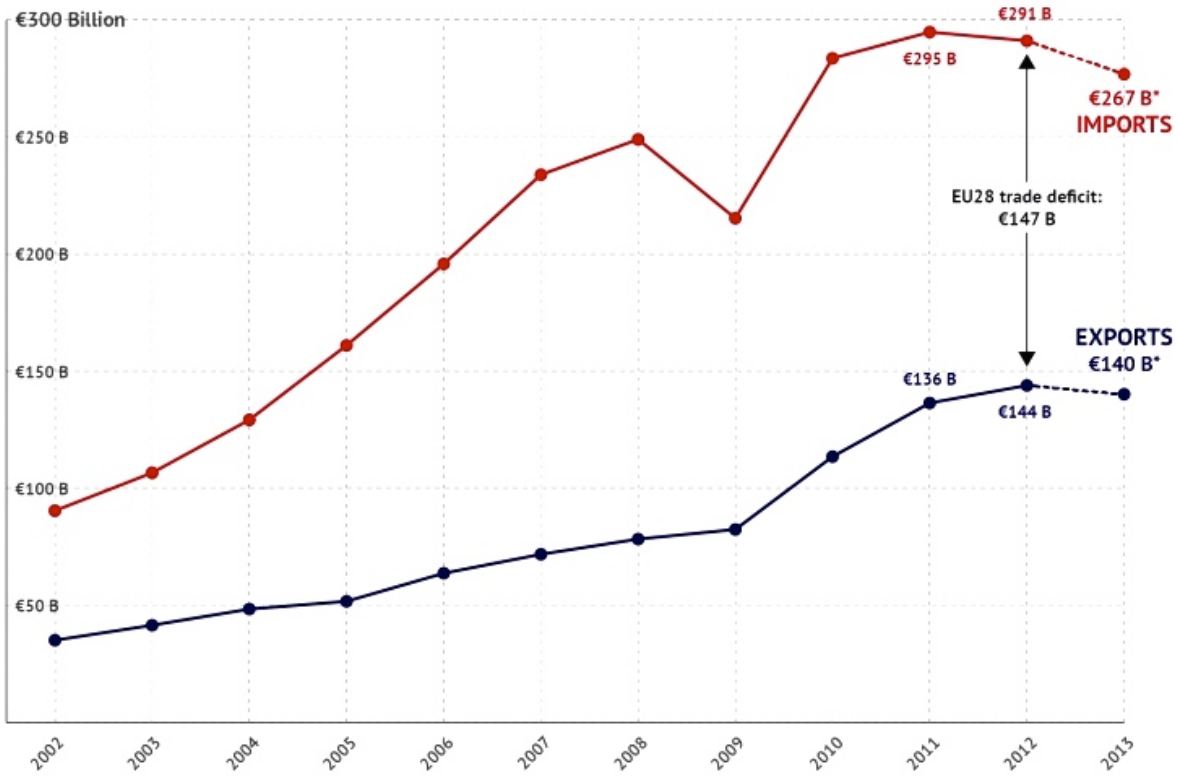


Figure 1.1: *EU's exports and imports [in billion €] to and from China between 2002 and 2013 (*estimate) [12].*

Similarly to the Reshoring Initiative and Horizon 2020 -programs, this study will focus on the aforementioned possible benefits of shorter supply chains for fashion retailers, discuss whether it is something fashion retailers should look into more and examine how fashion companies who already prefer more local production have organized their operations. In addition to this, the troubles related to forecasting of demand with long lead times and the societal and environmental effects of offshoring of production are also briefly discussed in this study in order the get a better understanding of the fashion industry as a whole. The study starts with a literature review regarding fashion industry's current state, characteristics and reasons behind offshoring of production, and then moves on to actual case companies. In the end of this study, the findings are analyzed and results about whether shorter supply chains actually are beneficial for fashion retailers are discussed.

2 STUDY DETAILS

2.1 Research Objectives & Questions

The aim of this study is to give an understanding of fashion industry's production networks and especially, to gain knowledge about whether the benefits of global supply chains and offshore production truly overshadow a more local production approach. In order to achieve this aim, the study has been divided into smaller, more concrete objectives, which are:

- *Provide an overview of fashion industry's current situation in the global market and the main reasons behind the attractiveness of offshore production in low-cost countries.*
- *Understand and analyze the disadvantages that the global supply chains and production entail.*

From these objectives stem then the actual research questions of this study, which are:

RQ1: What are the benefits shorter supply chains could offer for a fashion retailer?

RQ2: What are the factors a fashion retailer considering shorter supply should pay attention to?

2.2 Research Scope & limitations

Textile and clothing industry as a whole is a large and diverse industry with a lot different actors and products. However, the main focus of this study is only on one specific sector of the whole industry – the fashion industry. One of the goals of this study is to get a proper picture of fashion industry as an industry so that the problems and possibilities related to it can be adequately analyzed. The chosen case companies on their part help bring forth a more concrete example of fashion retailers and the shorter supply chains. This study is conducted from the perspective of the more high-cost areas of the fashion industry (here: parts of EU and also, US), which are among the areas that have been affected by the outsourcing of labor to offshore locations.

As this study is conducted mainly as a literature review, the main limitations related to this study are possible misinterpretation of used information and also, lack of existing research and firsthand information. Other limitations include the lack of detailed corporate information about the case companies and due to this, lack of other than vertically integrated fashion retailers in the case companies.

2.3 Study method

There are different types of researches existing and depending on the research and its objectives, different approaches and methods apply. According to Neville [14], researches can be divided into four categories: exploratory, descriptive, analytical and predictive research. The key elements and the main differences between these four categories are described below:

Exploratory research comes in question when only few or no previous studies have been carried out on the given subject. In exploratory research, the goal is to come up with patterns and hypotheses that can be tested and used as a foundation for future research. This kind of research typically involves case studies and reviewing earlier studies related to the subject. [14]

Descriptive research is carried out when different elements and attributes of a given subject need to be looked into and identified. As this kind of research does not go into the reasons behind these elements – it merely recognizes their existence – quantitative research techniques are usually used for data collection and analysis. [14]

Analytical research can be seen as an extension of descriptive research. The goal of analytical research is to find out why and how something takes place. In this kind of research, it is important to acknowledge all the different factors related to the subject in order to be able to make right and plausible conclusions. [14]

Like the name itself suggest, in **predictive research**, future possibilities are discussed and speculated. Existing evidence of cause and effect needs to be analyzed thoroughly before assumptions of the future can be made. [14]

There has been reasonable amount of research about fashion industry's supply chain management. Yet the main focus on the existing research has been more on how to make the long, offshore supply chains as effective as possible and not so much on the benefits of shorter supply chains for fashion retailers. Therefore, there is e.g. not that much statistical data available on this study's topic and other than quantitative measures are needed to consider the possible benefits of the shorter supply chains. In other words, due to the lack of existing research and resources available, this study is rather a general overview of fashion industry's characteristics and possibilities of shorter supply chains, not an extremely detailed report with precise numbers and clear, undeniable conclusions. So, with this in mind, this study clearly falls in the exploratory research category.

As is customary to exploratory research, this study is conducted by reviewing existing literature related to the study subject and using case examples. According to Baumeister

and Leary [15, see 16], there are several reasons for literature reviews. For example, with help of literature reviews, existing theory on a given subject can be challenged and new theory can be developed. In terms of this study, the literature review is used to help paint a big picture of fashion industry as an entity and to identify some of its problems – both among the uses for literature review mentioned by Baumeister and Leary. Also, without the literature review, it would not be possible to make any kind of presumptions or arguments on the study's subject.

The case studies then again are used to, also due to the lack of existing research, form a better understanding of a particular topic within the study's subject – here, fashion industry's shorter supply chains – as well as improve the theory in the literature review by presenting actual, practical examples. Data for case studies can, depending on the case in question, be gathered from multiple different sources. [17] In this study, used data includes existing research and articles focusing on the case companies, the case companies' own public statements and also, financial data about the case companies.

2.4 Study structure & outline

This study starts with an introduction chapter. The purpose of that chapter is to introduce the reader to the subject and highlight some challenges fashion industry is facing in terms of supply chains management. After that, the study details, starting with the research questions, are presented. The questions stem from the challenges mentioned in the introduction chapter. Other study details presented in the second chapter include study structure, scope, method and limitations. Then, to be able to provide plausible answers to the research questions, the study continues to a literature review, which handles the current state and characteristics of fashion industry and its production networks. The purpose of the literature review is to gain a profound understanding of the industry so that the case studies can be properly analyzed. The purpose of the case studies then again is to study if and how shorter supply chains could be implemented in practice. The case studies are discussed after the literature review and after that, an analysis based on both the findings of the literature review as well as the case studies is conducted. Finally, the study ends with a conclusion chapter that sums up the research and its results. A general structure of the study is presented in Figure 2.1.

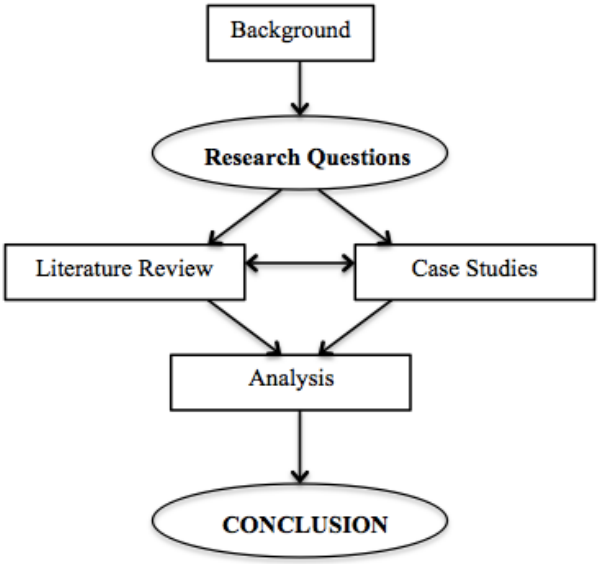


Figure 2.1: *Study structure*

The study structure has been outlined into the following chapters:

Chapter 1 provides background information about the chosen subject and reasons for doing this research.

Chapter 2 presents the research objectives and questions as well as the scope, structure and limitations of the research. The study methodology is also discussed in this chapter.

Chapter 3 studies the current state of fashion industry, its production networks and reasons behind offshore production. Research regarding benefits related to shorter supply chains is also presented within this chapter.

Chapter 4 focuses on two case examples – Zara and American Apparel – and their outtake on fashion retailing.

Chapter 5 analyses the findings from chapter 3 and 4 from the research questions' point of view.

Chapter 6 presents the conclusions of this study.

3 OVERVIEW OF FASHION INDUSTRY'S PRODUCTION NETWORKS

The purpose of this chapter is to get an understanding of how fashion industry's production networks work, what kind of actors they consist of and what are the reasons behind the outsourcing of labor that is very typical in this field of industry. The social and environmental effects of outsourcing into developing countries will briefly be discussed, too. This chapter is based on different researches and statistics that deal with the characteristics of fashion and clothing industry, its supply chains, problems and benefits. It sets up the following chapter that showcases actual case examples and works as a foundation for it.

The chapter starts by defining fashion industry and what it means in terms of this study. After that it moves on to topics mentioned above – fashion industry's current state and characteristics, supply chains, outsourcing of labor and social and environmental effects of outsourcing. At the end of this chapter, researches regarding benefits of shorter supply chains are presented, as well as future scenarios for European and US textile and clothing (and especially fashion) industry.

3.1 Defining fashion industry

Textile and clothing industry is a broad term that entails a lot of different actors and that can be divided into many different subcategories. For example, Tahvanainen and Pajarinen divide textile and clothing industry into five categories that are based on different domains within the industry: textile manufacturing, clothing manufacturing, leather and leather product manufacturing, textile care services and retail [18, p. 7]. The industry could also be divided into different subcategories based on the different activities that occur during a lifespan of a textile and/or clothing product [19]. This kind of division could consist of the following activities:

- Production of natural fibers (e.g. cotton, wool, etc.)
- Manufacture of synthetic fibers (e.g. polyester, acrylic, etc.)
- Preparation of different fibers for production and/or manufacture of yarns
- Knitting and/or weaving of fabrics
- Finishing (e.g. bleaching, coating) of fabrics
- Transformation of fabrics into different products like:
  - Clothing
  - Carpets and other floor covering
  - Home textiles (e.g. bed linen, curtains, etc.)

  - Technical and industrial textiles
- Retail of products [19]

Both of these divisions are adequate as such (although the textile care services are not included in the latter division) and reflect well the diversity within the industry. In order to keep the entirety of this study within reasonable limits, it focuses on one specific sector of the whole textile and clothing industry – the fashion industry.

Fashion is usually understood as the popular style of clothing at a given time, yet even that explanation encases a lot different products as can be seen from Figure 3.1 that presents the fashion pyramid. The basic commodities presented in Figure 3.1 refer to e.g. basic underwear and socks, fashion-basics to e.g. dress shirts, "better" fashion to e.g. moderately priced suits, "bridge" fashion to a little higher-priced ready-to-wear products, designer collections to expensive ready-to-wear products and finally, haute couture to very expensive and custom-made products [20, see 21 p. 3]. As the main focus of this study is to get an understanding of fashion industry's global production networks and reasons behind outsourcing of production (as well as benefits of shorter supply chains), the products in the fashion-basics, "better" and "bridge" fashion as well as the designer collections –categories are the most interesting ones for this study. This is because these categories include products that are (more or less) mass-produced ready-to-wear products, and they are all subjected to different fashion-related fluctuations and unpredictable demand. The basic products are not as severely subjected to different trends compared to the other fashion products and therefore, their supply chain does not need to be as effective, flexible and quick. The haute couture products on the other hand are very expensive custom-made products and their production cannot and does not need to be outsourced.

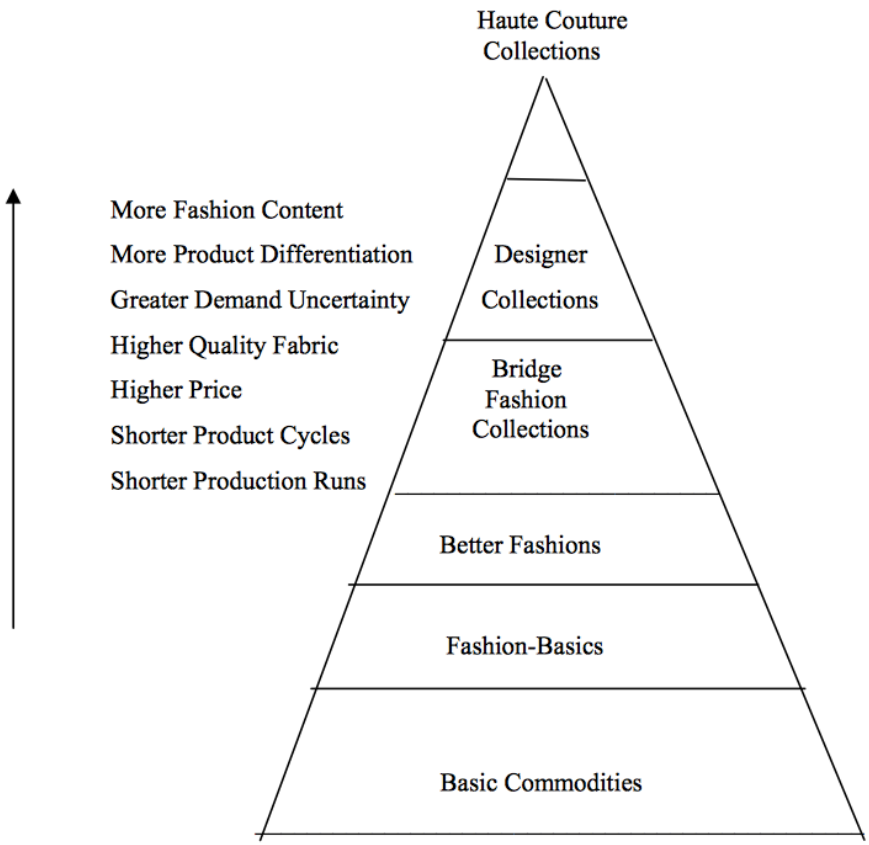


Figure 3.1: *The fashion pyramid [21].*

The fashion industry itself is its own entity, although fashion industry actors are presented in many of the aforementioned subcategories of the whole textile and clothing industry from fabric producers to retailers. It is the more the specific features of the fashion industry that differentiate it from other sectors of the textile and clothing industry – not the actual activities (e.g. fabric or clothing manufacture). Among these features, especially the **difficulty of forecasting demand**, **strong seasonal changes in demand**, **great abundance and variety of products, quick loss of product value** and the **need for quick and flexible production** are emphasized.

As for the many different actors within the fashion industry: particularly interesting in terms of this study are actors that are in charge of the most value-added activities (see Figure 3.2 for value-added stages in the clothing value chain) - like research and development, design and marketing for example. Of course producers are not to be totally neglected, either: how fashion industry actors organize their production and supply chains is, after all, one of the key questions of this whole study. The fact of the matter just is that fashion industry's supply chains are very buyer-driven (a subject that will be more thoroughly discussed in chapter 3.4: Fashion industry's supply chains) which means that it is e.g. the branded retailers and marketers who ultimately control the supply chain. Therefore, in order to get an understanding of how the fashion

industry works in terms of production, we need to focus on the parties that are making decisions about the these issues.

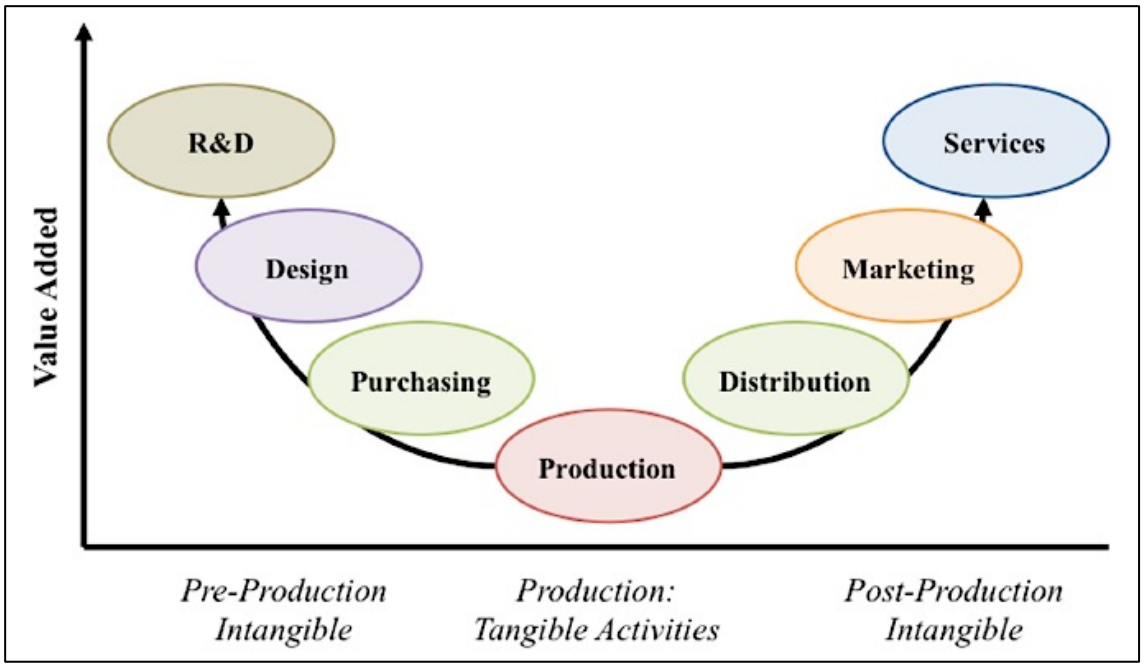


Figure 3.2: *Curve of value-added stages in the global value chain of clothing products (adapted from [22]).*

3.2 Fashion industry's key figures and current state (EU & US)

Before jumping into the specifics of the fashion industry, an overall outline of the European and US clothing industry's key figures and current state is in order.

As already mentioned in the introduction-chapter, the number of fashion companies and workers has decreased over the past years both in the European Union as well as in the USA. The financial crisis of 2008 has, of course, not helped the situation. In the European Union, although the consumption of textile and clothing products has after the crisis started to increase again (see Figure 3.3), it this has not been reflected in the number of companies and employees of the clothing sector. In 2008, there were 143 463 clothing companies operating in the European Union but in 2013, the number had dropped down to 119 895 (see Figure 3.4). In percentages, this is almost a 16 % drop in only five years. The employment has as a result declined similarly, as can be n in Figure 3.5. [2]

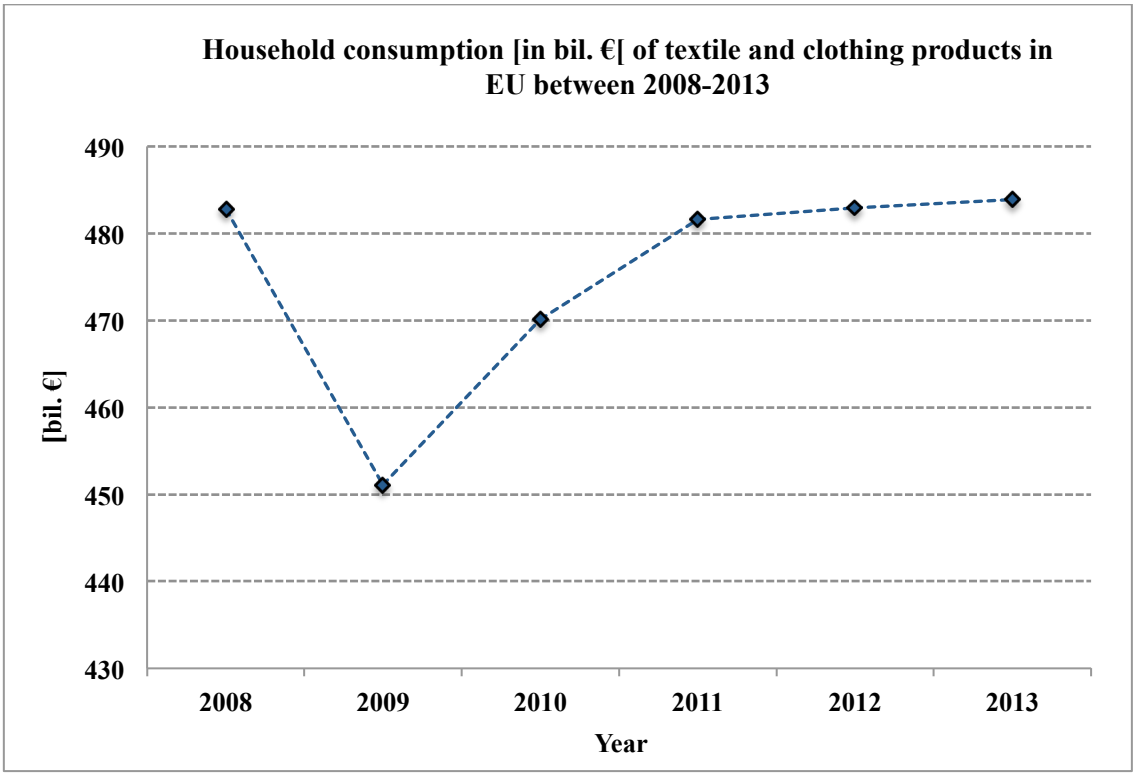


Figure 3.3: *Household consumption [in bil. €] of textile and clothing products in the European Union between 2008 and 2013 (adapted from [2]).*

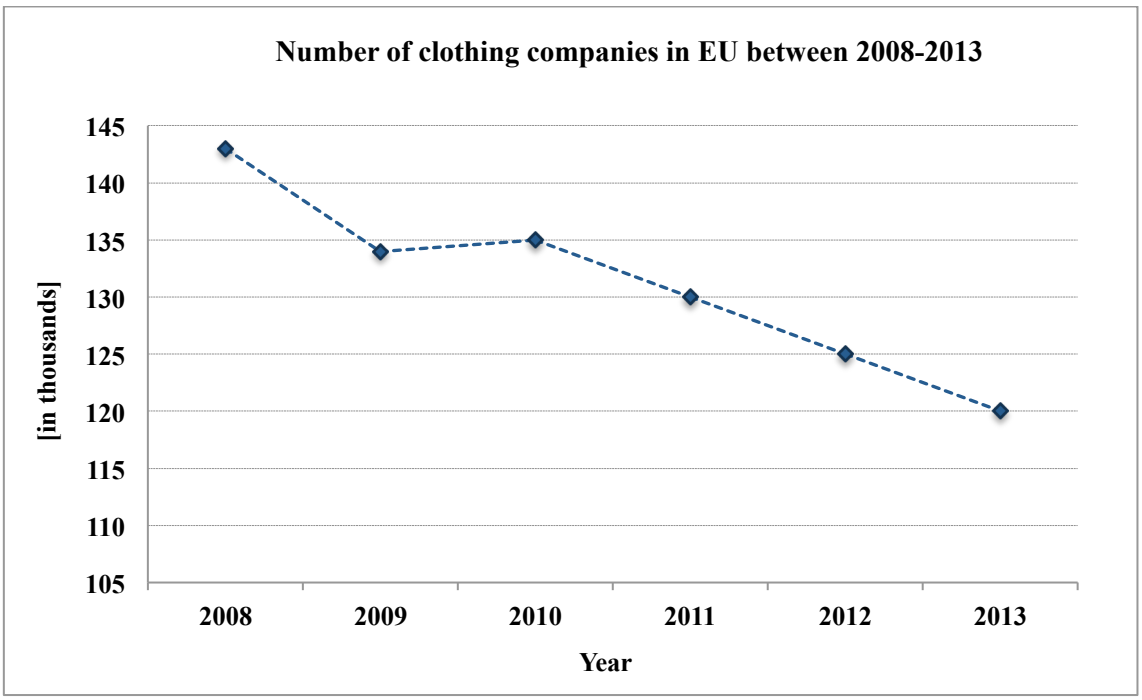


Figure 3.4: *Number of clothing companies in the European Union between 2008 and 2013 (adapted from [2]).*

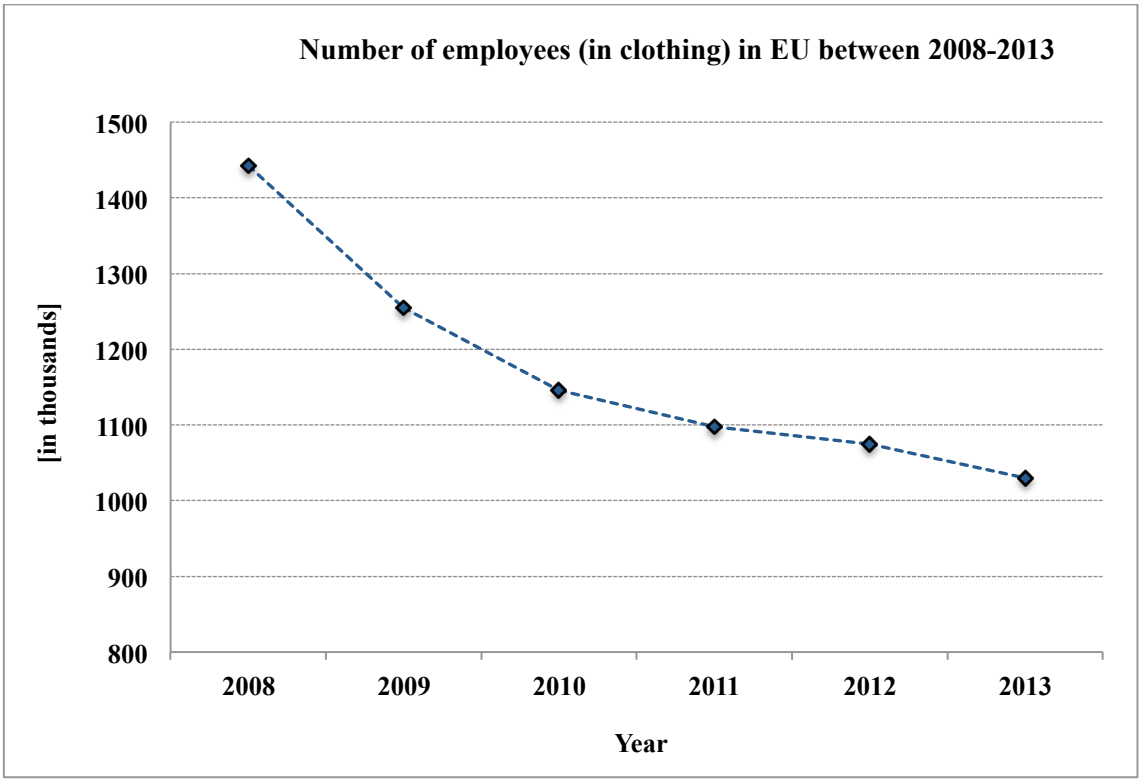


Figure 3.5: *Number of employees in the European Union's clothing sector between 2008 and 2013 (adapted from [2]).*

The financial crisis is of course only one reason behind the decrease of both clothing companies and employees in the European Union. Already well before the crisis, the development was similar due to the trend of outsourcing production into low-cost countries such as China and Bangladesh for example. According to Euratex's statistics, the extra-EU imports and exports of clothing seem to have grown at a very similar rate over the last few years. Yet as the imports e.g. in 2013 were approximately 220 % bigger than the exports, EU's trade deficit in clothing remains at a staggering -46 billion euros (see Figure 3.6). [2]

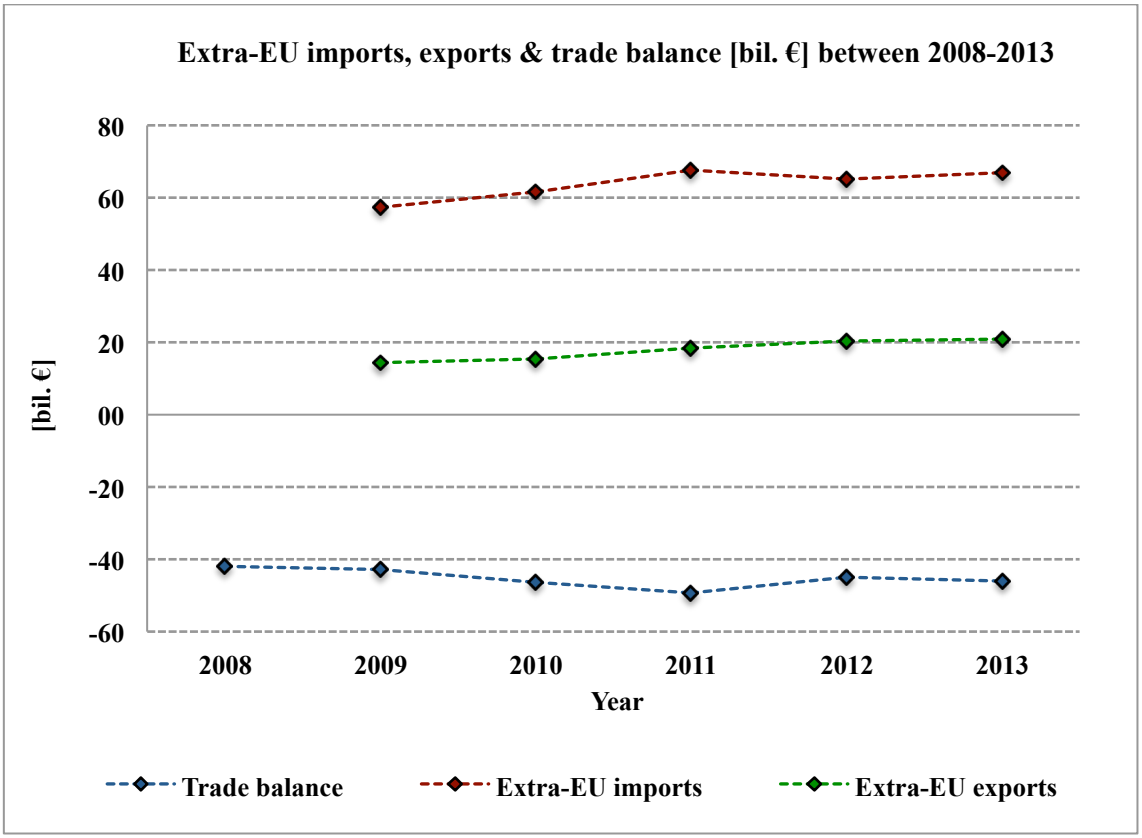


Figure 3.6: *Extra-EU clothing imports, exports and trade balance [in bil. €] between 2008 and 2013 (adapted from [2]).*

The financial crisis can also be seen as a reason for the decrease in the average annual expenditure on clothing and other related products in the US households (see Figure 3.7). Still, like in the EU, the downhill of the US clothing industry started well before the financial crisis with the outsourcing of production to countries with cheaper workforce. As a direct consequence, the US clothing manufacturing base has suffered and employment has decreased tremendously over the past decades as can be seen in Figure 3.8. In 1990, 902 900 people worked in clothing manufacturing in the US but by 2011, the number of employees had dropped down to only 151 800. In other words: in the course of the last two decades, the employment has dropped by 83 percent. [1]

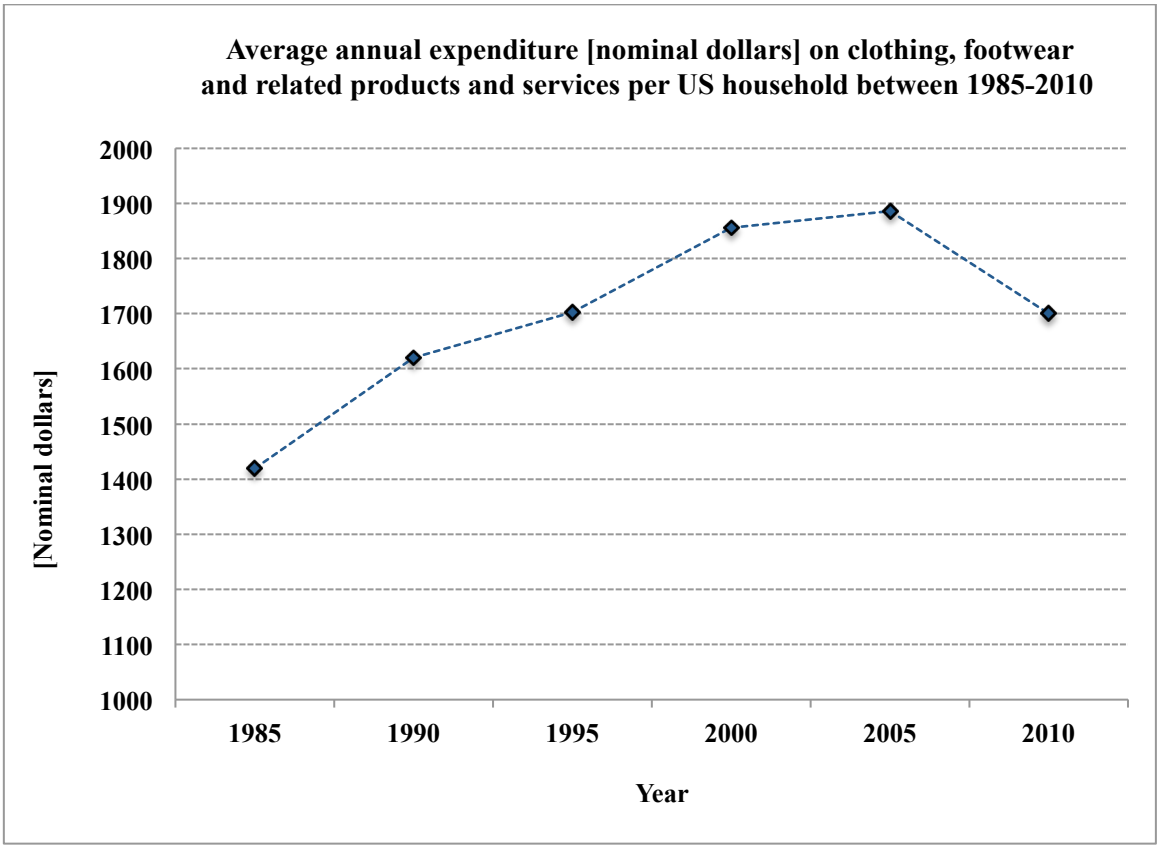


Figure 3.7: *Average annual expenditure on clothing, footwear and related products and services per US household between 1985-2010 (adapted from [1]).*

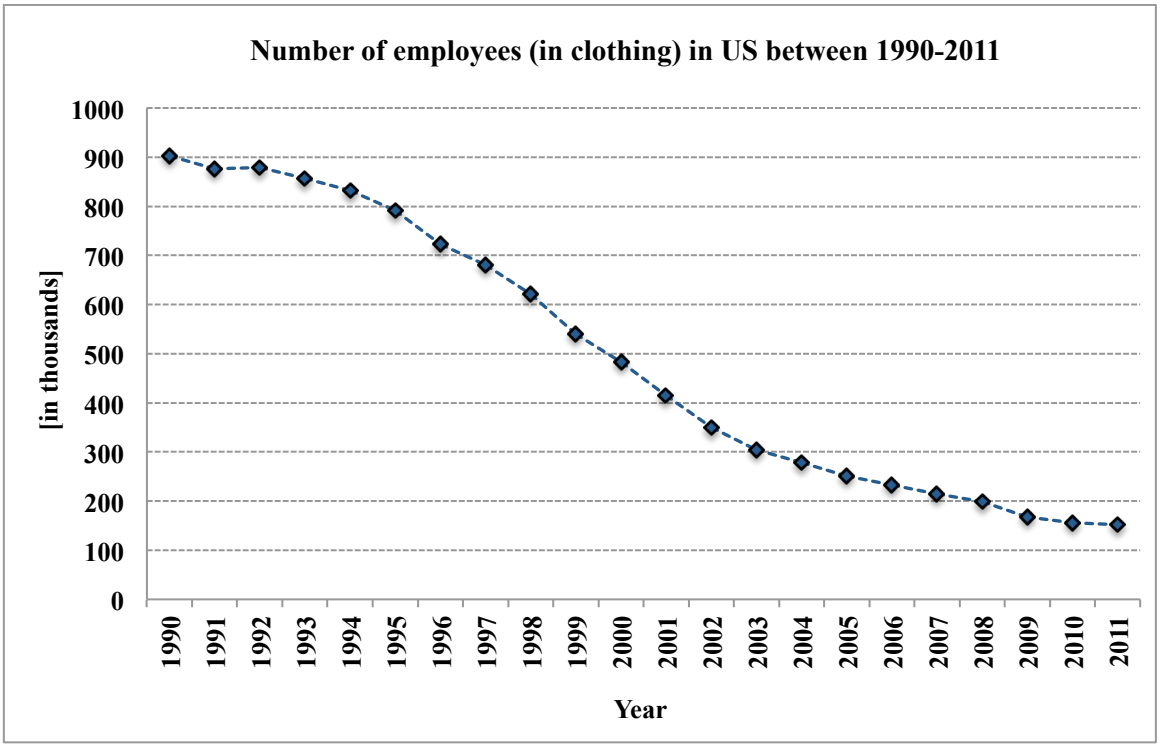


Figure 3.8: *Number of employees in the US clothing sector between 1990 and 2011 (adapted from [1]).*

Considering the 83 percent decrease in employment in the US clothing manufacturing over the past 20 years, it is easy to relate to Figures 3.9 and 3.10 that present the productivity of the country's clothing manufacturing sector (and overall manufacturing sector for comparison). Productivity is a pivotal measure of the efficiency of production and it can be expressed as the ratio of output per input. For example, manufacturing productivity is usually expressed as a ratio of output per an hour of work, and that is also the ratio used in both Figure 3.9 and 3.10. [23; 1]

In Figure 3.9, the productivity of US clothing manufacturing and manufacturing are presented without any adjusting for inflation. It is clear that although the overall manufacturing productivity has increased over the years, it does not apply for the clothing manufacturing. Also, Figure 3.10 has been adjusted for inflation and showcases the real output per hour, making the decline in the clothing manufacturing productivity even more obvious. [1]

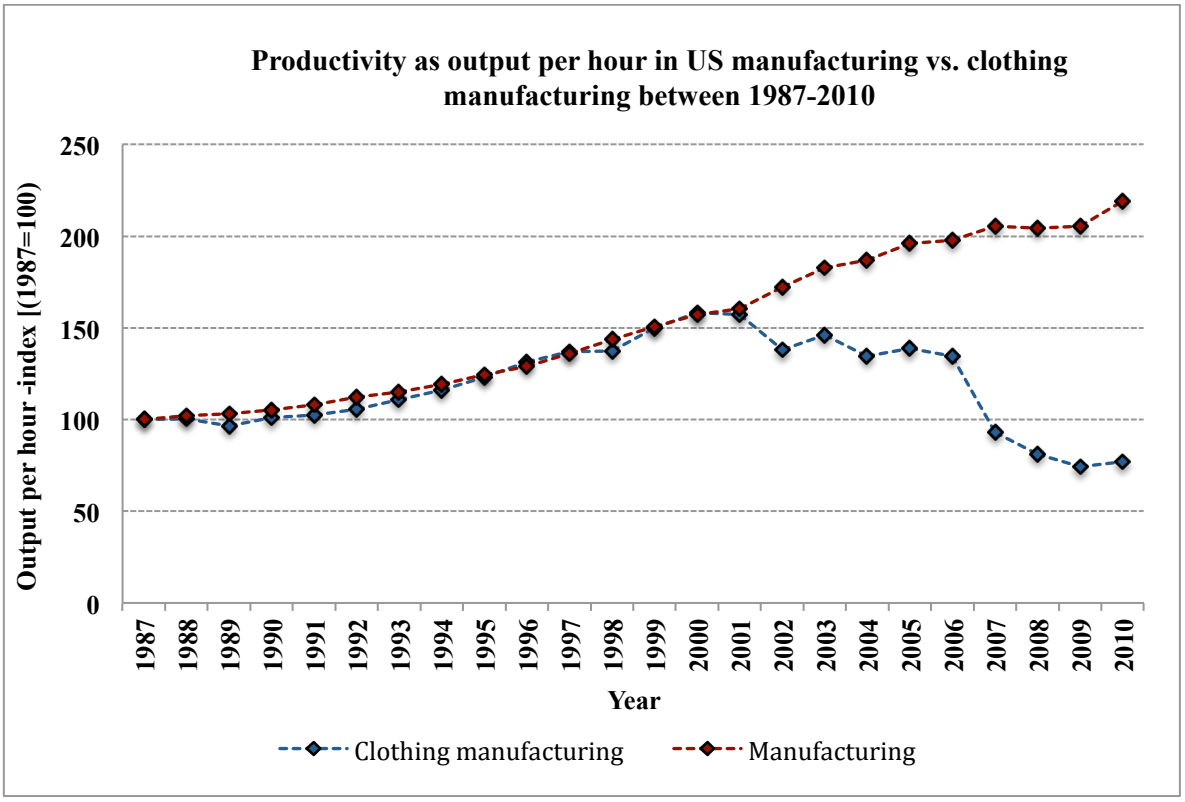


Figure 3.9: *Productivity as output per hour in US manufacturing versus output per hour in US clothing manufacturing between 1987-2010 (adapted from [1]).*

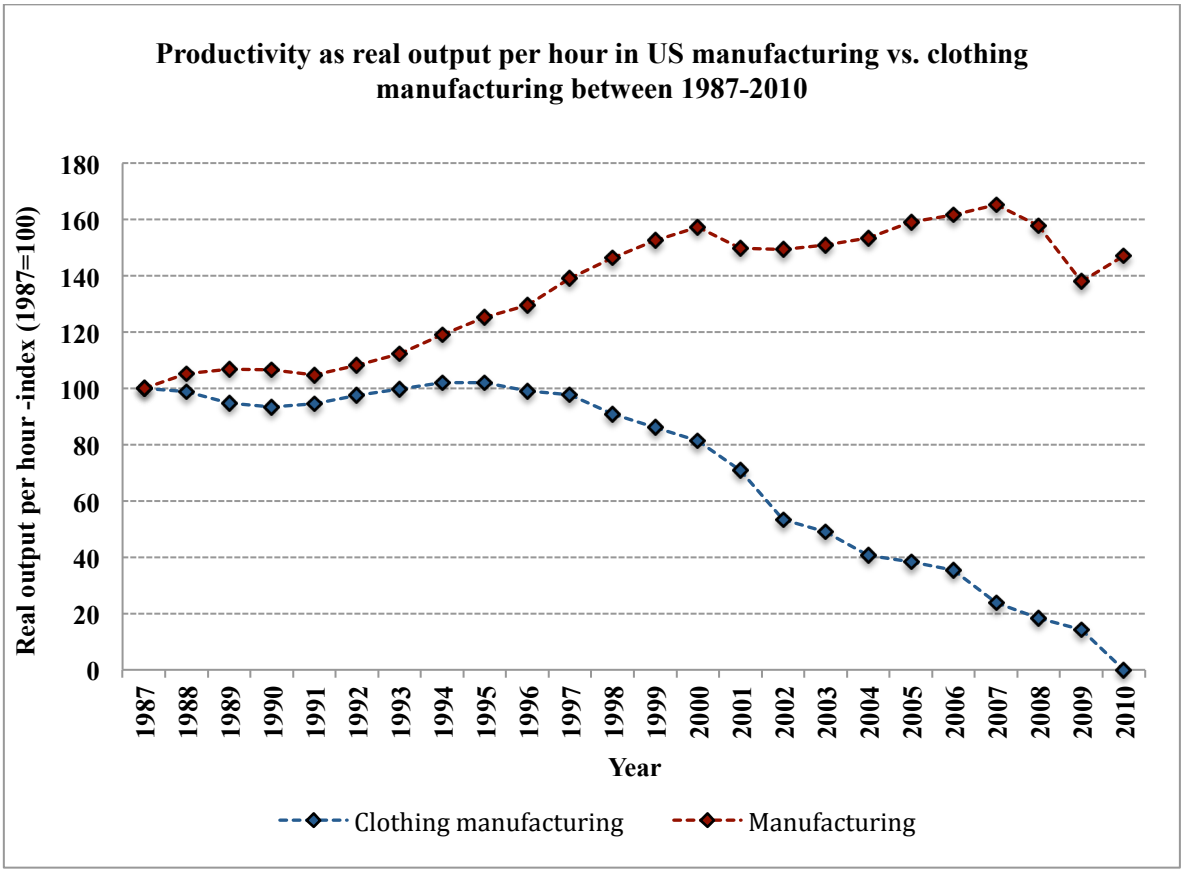


Figure 3.10: *Productivity as real output per hour in US manufacturing versus real output per hour in US clothing manufacturing between 1987-2010 (adapted from [1]).*

Of course a decrease in inputs (here: hours worked) does not obviously mean poorer productivity – it is all about the ratio of output to input. For example, the overall US manufacturing productivity grew despite a decrease in working hours (see Figure 3.11 for reference). Yet clearly this is not the case with US clothing manufacturing. On the contrary –it seems that US clothing manufacturing has not only significantly decreased in size over the past 20 years but also, become considerably less efficient. In this light, it seems understandable that like the EU, US also has a staggering trade deficit in clothing: 78,5 billion dollars in 2014 of which -31,5 billion dollars with China [24].

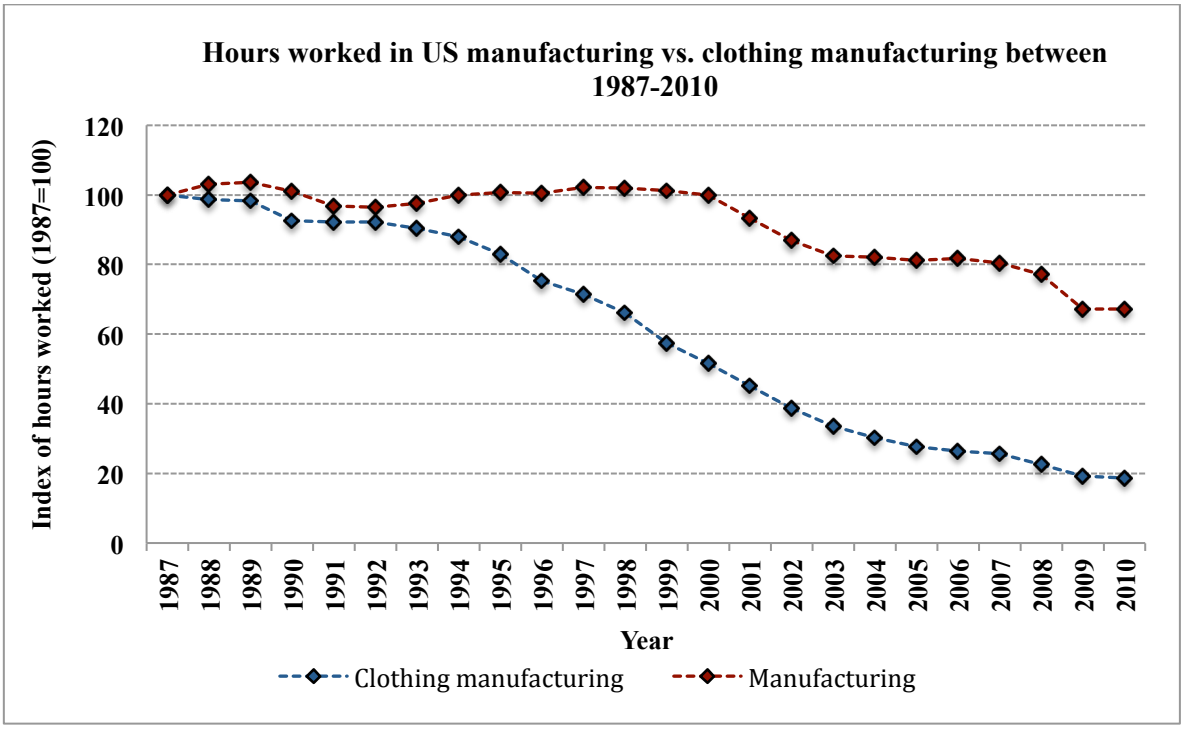


Figure 3.11: Hours worked in US manufacturing versus US clothing manufacturing between 1987-2010 (adapted from [1]).

3.3 Industry characteristics

When talking about the fashion industry, there are some characteristics that differentiate it from other industries. One of the most important characteristics of the fashion industry is the fact that demand of clothing is growing quite slowly and it is not easily predictable. [25; 26] In fact, according to Vogler-Ludwig and Valente, textile, clothing and leather product producers and retailers only have very limited control over the fashion trends as they are rather created on the streets. Therefore, companies actually tend to use so-called fashion scouts to keep themselves up-to-date with the trends. [27, p. 26] (Although Tahvanainen and Pajarinen note, that in some cases a company's brand is so strong that it is able to fight against the mainstream fashion trends [18, p. 15]) In addition to this, products lose their value quickly and become obsolete due to both strong seasonal and fashion-related changes. There are different ranges for men's, women's and children's clothing, sportswear etc. so in other words, the variety of products is extremely abundant. Also, the ranges can change, depending on the type of product, at least every six months but usually even more often. Furthermore, each product range comes in different colors and sizes, so there are a lot of different elements that the companies must keep track of. [25; 28]

All of the above-mentioned highlight well the diversity of fashion industry. It truly is an industry where the difficulty of forecasting demand and the amount of different moving elements get accentuated. According to Tahvanainen and Pajarinen, a new phenomenon regarding the fashion industry is the shift from different seasons into a seasonless era.

This adds up to even more challenges for the fashion companies. Until recently, it was typical for the fashion industry that a year was divided into different fashion events (e.g. fashion weeks) that predicted the upcoming seasons. These events were participated by several actors from the fashion industry and media. However, between these events and the actual introduction of the products to mass media, about six months would pass. During this six-month time, companies would design and develop their collection so that it was suitable for mass production and also, prepare themselves for sales promotion. Nowadays though, the rapid development of digital media has changed and speeded things up. The introduction of the products to mass media has been replaced by a real-time news feed that is sent straight from the fashion week catwalks. This means that consumers now get to witness future trends firsthand, which again means that demand is created without any kind of delay. For fashion companies, this is of course a big challenge and they are forced to reconsider and reinvent their courses of action. Collections need to be designed and manufactured considerably quicker than before, as new products can enter the stores even as often as every three weeks. [18, p.19]

Because of this, succeeding in the industry is indeed very challenging and as Dunford mentions, it is vital for the companies to be adaptable. This can be achieved either passively or actively. Passive adaptability includes strategies that focus on increasing the value of production capital by simply modifying the firm's products and services to keep up with the changes in the demand. Active adaptability on the other hand entails constant launching of new products and features that differentiate the company and its offering from those of the competitors. Therefore, the most active companies are the ones that continuously innovate and come up with new, unique products others cannot compete with. In other words: these companies are able to continuously create small, monopolistic rents, which means that these companies can sell their products with higher prices than what their actual value is because there are no competitors for the products. [25]

Another characteristic that is typical especially for fashion industry is that rather than competing with for example plain volume (which is more customary to economies of scale), companies focus on flexible specialization. In an industry of constant change and unpredictability, companies cannot generate or guarantee profits merely by enhancing their operational efficiency through increased output. On the contrary – profits derive from thorough research, design, sales and marketing. So, to be able to navigate in this kind of environment, companies tend to specialize in certain types of products. That way it is easier for them to organize their production flexible enough, so that it can be accommodated to the constantly changing demand and trends. [25; 29]

With different companies specializing in different things, a situation where many companies can coexist and share the market at the same time is created as a result. It is also typical, if the need be, that similar companies form partnerships or co-operate with

one another. However, majority of the companies in the market usually are small with only a few of them possessing a larger share of the market. According to Euratex, the European Apparel and Textile Confederation, in 2013 there where altogether 119 895 clothing companies operating in the European Union with little over a million employees. Yet as approximately 80 % of these companies are either small or medium-sized, one company only employs about 18 persons on average [2, see 5]. These small companies do not necessarily have the means and resources to fully access the financial markets, which in turn makes it difficult for these companies to grow. Respectively, the few bigger companies are the ones that ultimately control the market. [25; 2; 5]

3.4 Fashion industry's supply chains

A supply chain refers to all the activities, companies and people related to a product throughout its journey from production to the end consumer [26, p. 152]. As for the fashion industry – it has not always been the case that a small number of big players controlled the market: the situation did not come about until power over the production networks shifted from the producers to the buyers. According to Gereffi, global industrial networks can be divided into producer-driven and buyer-driven supply chains (or according to Gereffi: commodity chains), which are presented in Figure 3.12. In producer-driven supply chains, the manufacturers are in charge of the production networks. To be able to execute this, the manufacturers are usually multinational and big in size. This is also part of the reason why producer-driven supply chains are typical in industries that are capital- and technology-intensive – like the automobile or airplane industry for example. In buyer-driven supply chains on the other hand, large retailers and branded marketers and manufacturers are the ones that organize the production networks. The actual production is usually located in developing countries and executed by gradual networks of contractors that specialize in making consumer goods according to the requirements of the foreign buyers. Buyer-driven supply chains are therefore typical in labor-intensive industries such as clothing and footwear industries for example. [29]

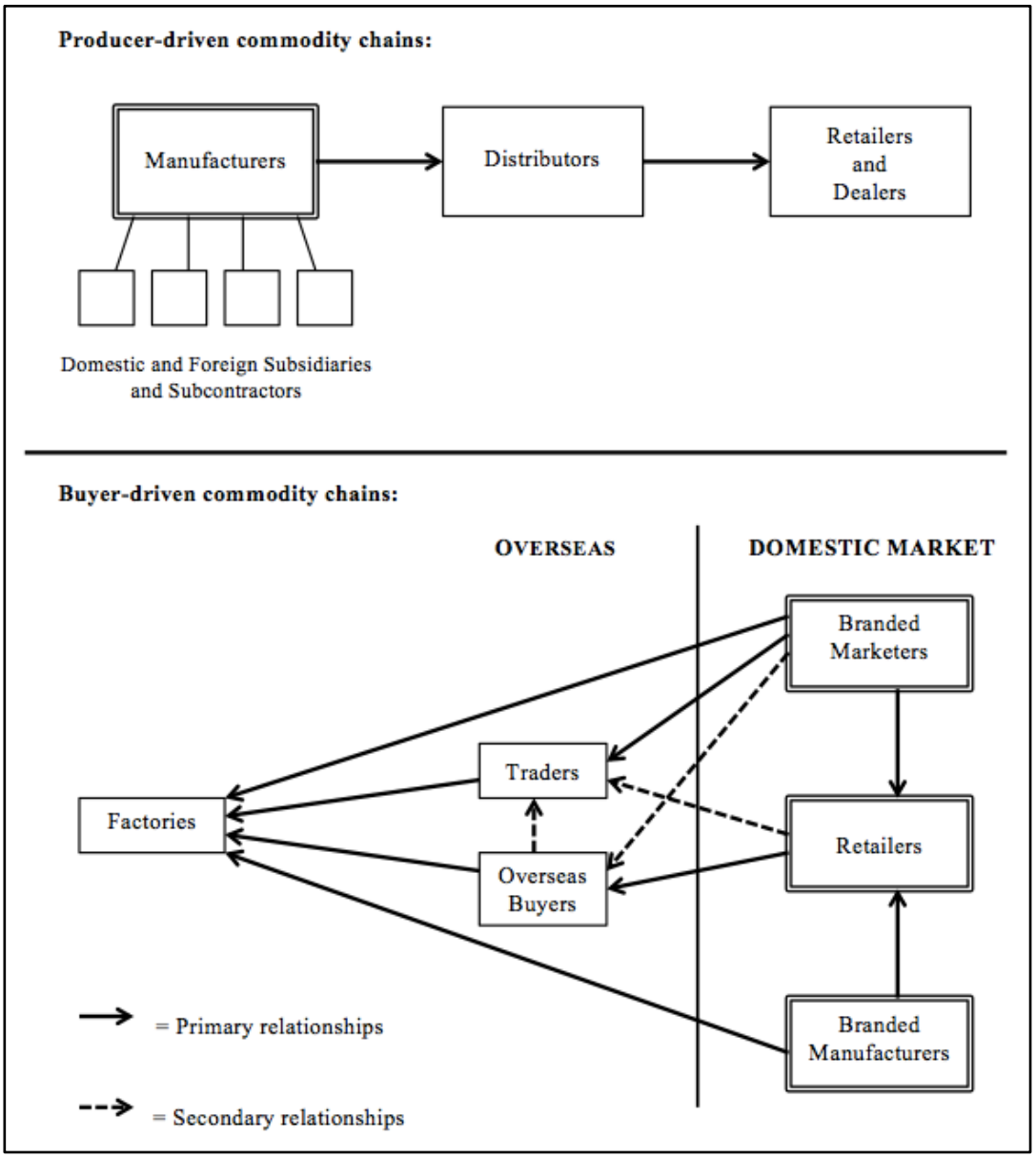


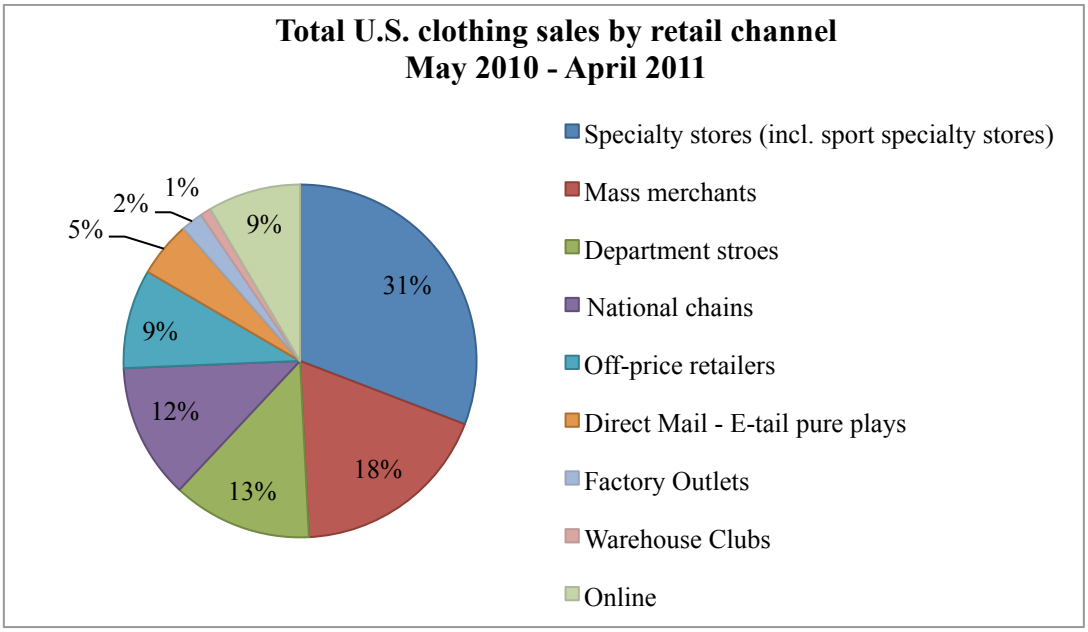
Figure 3.12: *Producer- and buyer-driven commodity chains (adapted, with a minor alteration (US changed to domestic), from [29]).*

As stated earlier, the supply chains of textile and clothing industry have changed over the years. In the past, the supply chain of textile and clothing products was producer-driven and the manufacturing industry was powerful. The producers, who determined the prices and sold their collections to small or medium-sized retailers, controlled the distribution. Today, this no longer applies. The supply chain has become more buyer-driven which has left the distribution sector, and also the final consumers, with more power. The number of small, independent retailers has declined and in turn, specialized chain stores and hyper- and supermarkets have emerged (see an older Table 3.1 regarding the European Union and a more recent Table 3.2 regarding U.S.). The distribution is now controlled by a small number of big players, who are able to put the producers under significant amount of pressure. [25]

Table 3.1: *Clothing sales (in percentages) in EU15 by type of outlet (adapted from [25]).*

EU15			
	1988	**1996**	**2000**
Independent retailers	48 %	41 %	37 %
Specialized chains	18 %	24 %	26 %
Department and variety stores	12 %	13 %	13 %
Hypermarkets and supermarkets	5 %	6 %	7 %
Mail order	7 %	8 %	9 %
Other	10 %	8 %	8 %
Total	**100%**	**100%**	**100%**

Table 3.2: *U.S. clothing sales by retail channel 2010-2011 (adapted from [30]).*



The shift from producer-driven to buyer-driven supply chains has also increased the number of different types of actors in the industry. As a result, today's fashion supply chains can be described as very long and complex, as they combine a lot different parties globally [30, see 26, p. 155]. According to Mattila, the supply chain of fashion products can be divided into production and retail clusters and middlemen, who bring these two clusters together. These are all presented in Figure 3.13. [28]

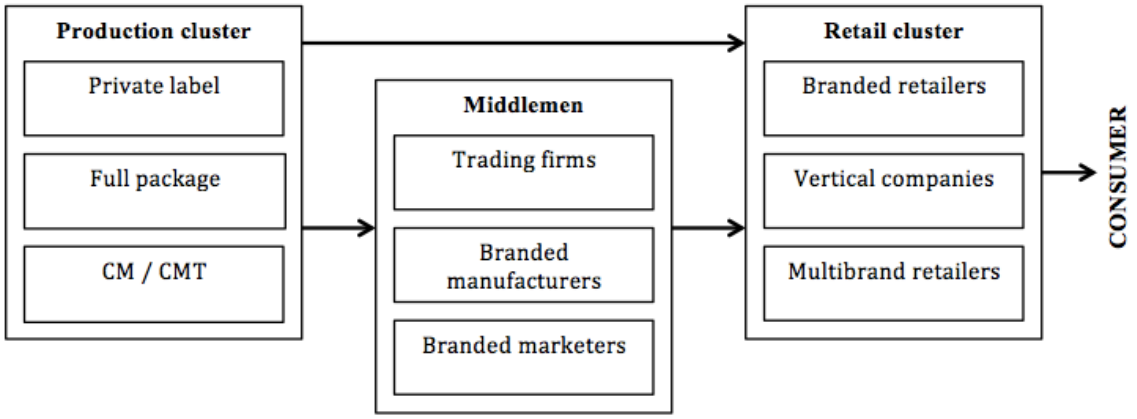


Figure 3.13: *Fashion supply chain clusters [28].*

The **production cluster** can further be divided into three different subcategories: private label, full package and CM / CMT, which stands for cut & make / cut, make & trim –producers. **Private label** producers are producers, who manufacture products for a buying company under the buying company's own brand. **Full package** producers are producers, who manufacture products according to the requirements of the buying company, but not under the buying company's brand. Both the private label and the full package producers need to have adequate technical and material know-how, as they are e.g. responsible for acquiring the material for the products. The **CM / CMT** –producers simply cut and make (and trim) the products for a buying company using material that the buying company has acquired for them. So, if a buying company chooses to use CM / CMT –producers, they must self have enough technical and material understanding to be able to provide the producers with proper material and technical product requirements. [28]

The **middlemen** consist of trading firms, branded manufacturers and branded marketers. They usually do not take part in the actual production nor do they own any production facilities – they simply trade either their own or their customers' brands. **Trading firms** help source products for e.g. branded retailers. In other words: they act as true middlemen and help bring producers and retailers together. With the increasing globalization of the fashion industry, these trading firms are becoming more and more common and also, necessary, in the long fashion supply chains [26, p. 155]. **Branded manufacturers** possess a lot of technical and material know-how, but they consider the actual production a service that can be outsourced and therefore, rather focus on strengthening their brand. They design their own products, which are sold under their own brand to different retailers, but the production is usually carried out by CM / CMT –producers, according to the requirements of the branded manufacturers. **Branded marketers** have also outsourced their production but usually to full package producers, as they do not possess the same kind of technical and material know-how as the branded manufacturers do. Their strengths lie more in their brand, its design and marketing.

They, too, design their own products and sell them under their own brand to different retailers. [28]

In the **retail cluster** there are branded retailers, vertical companies and multibrand retailers. Like branded marketers**, branded retailers** also source their products from suitable producers, but they also sell their own products. They don't usually have the technical know-how for e.g. CM –sourcing, so they rather use full package or private label producers and also, trading firms. **Vertical companies** are companies that own a large part of their own supply chain. In other words: they are retailers, but they also carry out some production and own some production facilities. **Multibrand retailers** buy products from branded manufacturers and marketers and sell them. [28] In terms of this study, it is the retail and the middlemen clusters that are especially looked into, as those are the clusters that hold the most power over the supply chains.

The shift towards buyer-driven supply chains in the fashion industry is also reflected in the power distribution between the three categories that were described above: the retail cluster and the middlemen usually possess the most control over the supply chains, leaving the producers with relatively little or no power. For example: branded retailers, marketers and manufacturers are all in charge of both their design and product development (i.e. most of the value-added activities). They possess a lot of information about the market and strive towards being market-driven. Therefore, they need dependable producers who are able to deliver them products according to their requirements. In order to achieve this, the retailers usually deal with different producers through centralized buying and exert pressure on them in terms of product prices, quality and delivery schedules [32, see 26, p. 155]. They have managed to control and mold consumers' preferences with their strong brands, which has lead to a situation where the retail sector has become powerful and therefore, able to arrange the fashion supply chain so that their profitability is insured. [25; 28; 29]

So today, retailers are not merely clothing manufacturers' customers but rather competitors and employers. Already in 1992, Germany's five largest clothing retailers made up 28 % of the country's economy. Correspondingly in 1994 in the UK, the country's two main clothing retailers had a 25 % share of the market. Or most significantly in the US: in 1995, 68 % of the country's clothing sales were made by its five largest retailers. The situation is still the same today. This is reflected e.g. in Figure 3.14 presenting US consumer's favorite clothing retail chains. Although Figure 3.14 does not offer a full view of US clothing retail – it only showcases consumer preferences of 14 selected clothing retailers – it still acts as a good example of how a few retailers have been able to gain huge market shares. According to Gereffi, the main reason behind the retail sector growing and getting so powerful is the way that it has utilized global sourcing. As final consumers continuously demand more and better value, the buying organizations (e.g. branded retailers etc.) have been forced to take a

more active part in the offshore sourcing. With this more active involvement of the retailing sector, the competition between all the retailers, marketers and manufactures has tightened. Also, the conventional roles of these companies have changed and become less apparent, which is also reflected in the relations of the supply chain. [29]

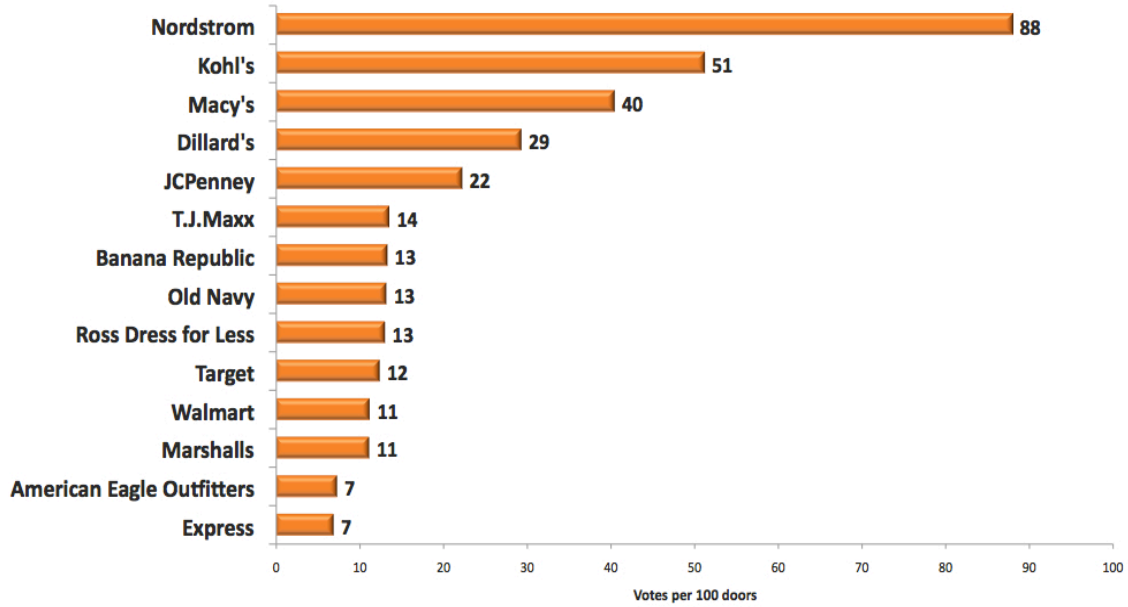


Figure 3.14: *USA's favorite fashion retailers according to Market Force Study [33].*

In order to better their position in the market, many textile, clothing and leather product producers have then shifted their operations into that of a more brand-based company. This means that they now operate through trading rather than the actual production. Vogler-Ludwig and Valente contribute this change to the fashion industry's price structures. As was discussed above, the current market is dominated by wholesale and retail trade, and producers are left with only a small share of the market. Of these two, trading is the more profitable activity and production on the hand, due to globalization and offshoring, internationally very competitive. [27, p. 11]

3.4.1 Issues related to offshore production

Companies outsource parts of their business in order to obtain different kinds of profits and benefits. Of these profits and benefits, better return on capital employed (ROCE) is one of the main reasons behind outsourcing. Cost savings are often aimed at, too. In the case of cost savings, outsourcing production to developing countries can be seen as profitable due to lower unit costs. [34, p. 7]

As for fashion: it is one the most global industries today. In clothing production, labor costs make up 60 % of total production costs [25, p. 14]. From this point of view, it is easy to understand why fashion industry was one of the fist industries to outsource

production to developing countries with lower labor costs ever since the beginning of 1970s. As a result, e.g. according to American Apparel and Footwear Association (AAFA), in 2013 an astonishing 97,5 % of the clothing products sold in the US were made internationally [35]. Many developing countries in the beginning of their industrialization still turn specifically to clothing manufacturing as means to attract foreign investors and boost their economy. [25; 36]

According to Gereffi, outsourcing production to countries with cheaper workforce is very typical for industries with buyer-driven supply chains – such as the fashion industry for example. With these kinds of industries, the products manufactured are not very technologically advanced and the scale and volume of operation are constricted. This again means that profits are generated with other means like thorough research, design and marketing for example. The retailers, branded marketers and branded manufactures, who are in charge of these activities, have thereby gained control over the supply chains with help of their strong brand names and marketing skills. [29]

In terms of profitability of the global supply chains, it is according to Gereffi highest in the most concentrated parts of the chains where market entry is harder for new firms. In the clothing and fashion industry, entry barriers are usually low for the actual clothing factories but significantly higher for e.g. textile and fiber producers at the very beginning of the chain or for branded manufacturers, marketers and retailers at the end of the chain. Gereffi notes that leading firms take advantage of this barrier to entry and use it to create different rents (as in "returns from scarce assets" [29, p. 43]). Whereas producer-driven supply chains rely more on for example technology rents (rents that companies, who posses better access to the main product and process technologies than competitors, can generate), the rents generated in the buyer-driven supply chains are not directly production-related and rather refer to relational, trade-policy and brand name rents. [29]

Relational rents mean rents that are generated by linking bigger assembling companies with small- and medium-sized businesses in order to create strategic alliances and close gatherings of smaller firms with shared efficiency. In other words, relational rent could be described as rents that can be generated with help of specific partnerships and advanced supply chain management. The fashion industry's buyer-driven supply chains are typically very competitive with locally owned production facilities and complicated, globally dispersed production networks. Therefore, leading retailers, branded marketers and branded manufacturers need to operate as intermediaries who link offshore producers with new, upcoming product niches. **Trade-policy rents** on the other hand refer to a so-called scarcity value that is generated through for example apparel quotas and other protectionist trade restrictions. Nowadays however, the protectionism in the fashion industry has decreased and e.g. quotas (between WTO nations) were removed on January 1, 2005 [36, p. 3]. **Brand name rents** are rents that are created by

successfully differentiating own brand name from those of the competitors and thereby gaining leverage in the global markets. [29]

One consequence of the outsourcing of production and the power shift to the retailing sector has been the change in product prices. In the 1980's, retailers started to engage themselves in the sourcing of private label products (or "store-brand products" [29, p. 46]). This means that they came up with their own brand and products, which the private label producers then manufactured according to the retailers' instructions. As Matttila has noted, the retailers do not usually posses a lot of material and technical know-how, it was reasonable for them to use private label producers, who were e.g. in charge of the acquisition of material for the products [28, p. 19]. These private label products were then sold more cheaply than national brands, yet they still turned out to be more profitable for the retailers. This is because by transforming their operations into private label sourcing, the retailers could get rid of some now unnecessary middlemen in their supply chain. [28; 29] As a result, the market became even more competitive and the pressure for cheaper products grew stronger.

In Figure 3.15, the change in overall US consumer prices and US clothing prices between 1987 and 2013 is compared. Even though the total consumer prices have increased throughout the years, this is not the case with clothing – on the contrary, the clothing prices have increased relatively little. It is clear from the figure that consumer prices for clothing have been kept down despite the increase in overall consumer prices due to the cheap imports from low-cost countries.

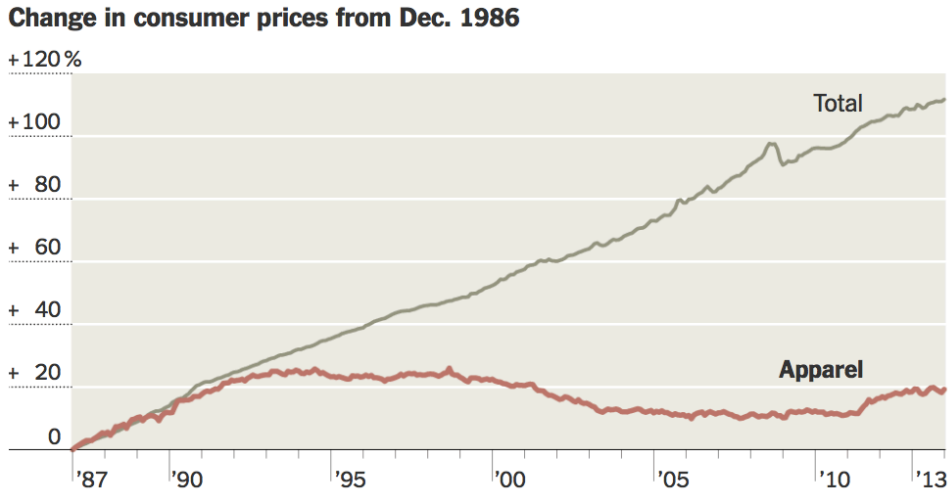


Figure 3.15: *Change in US consumer prices (total & apparel) between 1987-2013 [37]*

Figure 3.16 also highlights not only the relatively small change in clothing consumer prices as did figure 3.15, but also the difference between the price of a domestic and imported clothing product. Due to the cheap labor costs that cover 60 % of total

production costs [25, p.14], imported items can be sold a lot cheaper than domestically (here: in the U.S.) produced items.

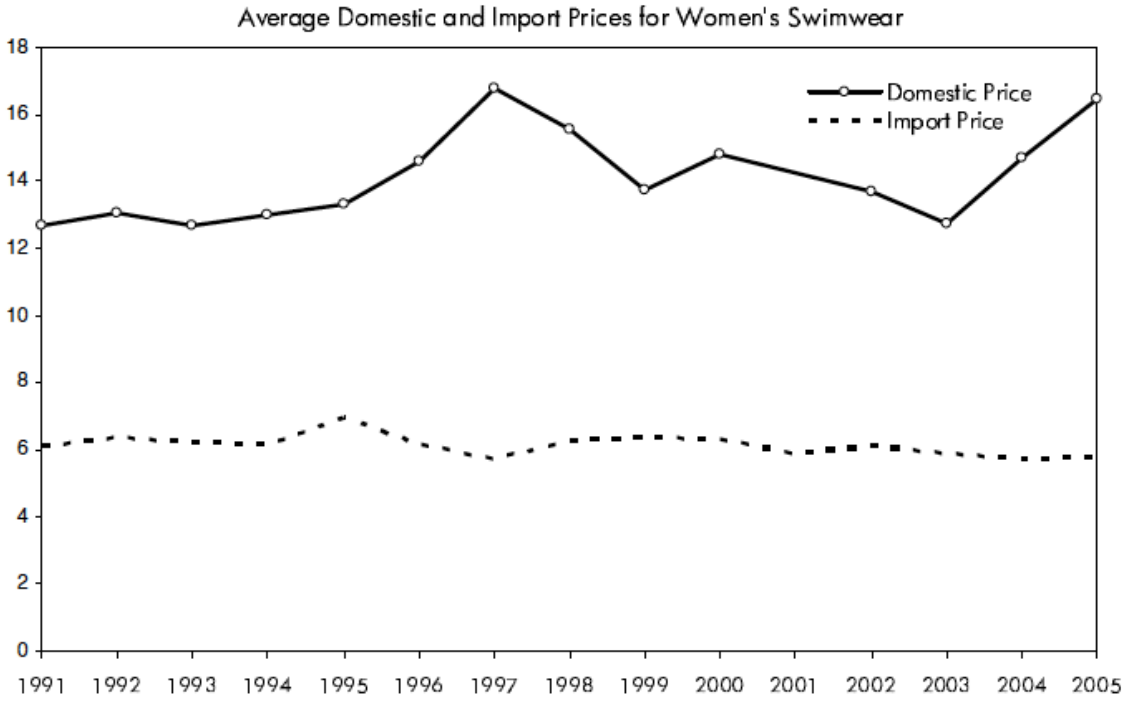


Figure 3.16: *Comparison between average domestic [here: US] and import prices for women's swimwear between 1991-2005 [38].*

Not only is the trend of outsourcing production to low-cost countries apparent when considering the reasons behind the cheap consumer prices of Figure 3.15 and 3.16, it can be seen from Table 3.3, which presents the leading exporters of clothing between 1980-2010, too. Although EU still was the second biggest exporter of clothing in 2010, is should be noted that its share of the world's clothing exports has actually gotten smaller from 2000 to 2010 whereas for example China has doubled its share during that same ten-year time frame. Also, other developing countries like Bangladesh or Vietnam for example have been able to grow their share of exports over the years while US's share in 2010 only covered 1,2 %. All this tells about the production jobs moving from the high-cost areas to the more low-cost locations.

Table 3.3: *Leading clothing exporters in 2010 (adapted from [39]).*

	Value [Billion US $]	**Share in world exports [percentage]**			
	2010	**1980**	**1990**	**2000**	**2010**
China	130	4.0 %	8.9 %	18.3 %	36.9 %
EU (27)	99	-	-	28.5 %	28.1 %
extra-EU exports	22	-	-	6.6 %	6.3 %
Bangladesh	16	0.0 %	0.6 %	2.6 %	4.5 %
Turkey	13	0.3 %	3.1 %	3.3 %	3.6 %
India	11	1.7 %	2.3 %	3.0 %	3.2 %
Vietnam	11	-	-	0.9 %	3.1 %
Indonesia	7	0.2 %	1.5 %	2.4 %	1.9 %
United States	5	3.1 %	2.4 %	4.4 %	1.3 %
Mexico	4	0.0 %	0.5 %	4.4 %	1.2 %
Above 9	**296**				**84.1 %**

According to consumer research, it seems like consumers attitudes and preferences would be changing and thereby possibly forcing global fashion companies to reconsider their supply chain and pricing policies and general courses of action. Consumers for example seem to be better aware of the markets and want to interact more with the clothing companies in order to express their wishes in terms of e.g. product quality and design. They also seem to claim more socially and ecologically responsible operating methods from the companies. Lastly, perhaps because of improved standard of living, consumers seem to make purchase decisions based not so much on their actual needs, but more on their emotions and more erratically. [40, see 27]

Vogled-Ludwig and Valente note however, that despite the changing attitudes in consumer research, these attitudes are yet to be reflected in the actual consumer behavior. They point out that clothing prices have remained low and are rather declining while the amount of cheap import products keeps on growing. They also argue, that there are no indicators that the actual consumer behavior is going to change anytime soon – on the contrary, consumers will rather remain as price-conscious as ever and the only changing variable seems to be their preferences towards different fashion trends. [27]

So, according to the actual consumer behavior, demand for cheap fashion products seems to prevail. In the case of the fashion companies however, the savings on production costs are no longer enough to enable these companies to sell their products at affordable prices. With the rise of digital media, new trends can be created within the matter of days. If companies want to engage themselves in the production of these trends, they need to operate fast. Therefore, as Dvorak and van Paasschen ([41], according to Mattila [4]) note that in addition to cheap offshore products and purchases, in order to survive in the competitive fashion markets, companies have to excel at supply chain and inventory management, too. Companies need to have their supplier

deliverer them products in the right amounts quickly and effectively, not only at a low price. [41, see 4, p. 2] With this new, practically seasonless era of fast fashion combined with the demand for cheap products, companies might be facing new challenges related to offshore production.

A forecast error results from incorrectly estimated demand in relation to actual demand. It can be both positive and negative. A positive forecast error results from excess buying in relation to actual demand and leads to unsold goods and goods sold at discounted prices. A negative forecast error is, in turn, an outcome of insufficient buying in relation to actual demand and causes lost sales. Both the goods sold at discounted prices and lost sales have, obviously, a negative impact on revenue. With conventional sourcing, a fashion company's total lead times can stretch up to 9 to 10 months. When purchase decisions are done that well in advance, companies struggle to get their forecasts right: the longer the lead times are, the bigger is the change for forecast errors (both positive and negative). This relationship between lead times and forecast errors is presented in Figure 3.17. [4; 6]

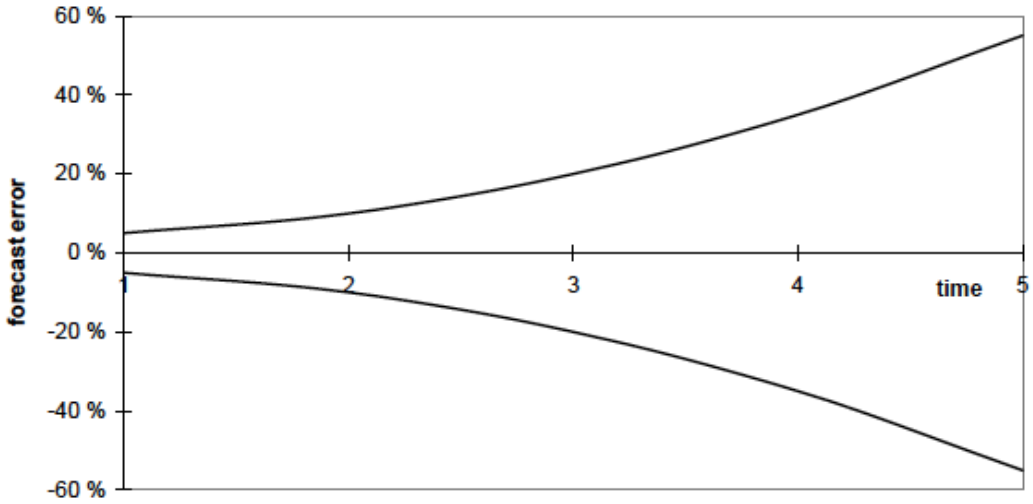


Figure 3.17: *Lead time's effect on forecast accuracy [4].*

To address this issue related to the long lead times and offshore sourcing, fashion companies have come up with different sourcing strategies and operation management styles. For example, the so-called lean systems have gained some popularity because of their demand driven and flexible approach. The idea of lean systems is to achieve a well-balanced system by utilizing available resources (both secular and physical) in the most effective way possible [42, p. 622]. Yet despite the more effective sourcing strategies, some challenges still remain. For example, according to research, approximately one third of clothing companies' purchases still end up being sold with discounted prices because of incorrectly forecasted demand [5, p. 1; 18, p. 26]. As the average discount is 50 %, these discounted products do not generate any gross margin

for the companies [18, p.26]. Also, because of the capital invested in the unsold products, companies cannot reorder the more popular products and even if they could, the replenishments would not make it to stores in time due to the long lead times. This again results to lost sales, which have an even more negative effect on the gross margin than the discounted products do, because discounted products can, even with the discounts, still be sold. [5]

All these problems raise questions about the profitability of offshore production and the long lead times. Also, if other problems related to offshore production – like e.g. the rising energy and transportation costs [8], the narrowing wage gap between developed and developing countries [7] and general issues related to working conditions in the low-cost countries – are also taken into consideration, alternative sourcing strategies with shorter supply chains might actually offer some interesting possibilities for fashion companies in the future.

3.5 Societal and environmental effects of outsourcing

As the fashion industry is such a global industry, it affects a lot of different parties as well as the environment. In this chapter, some of these societal and environmental effects of the global fashion supply chains are briefly discussed – mainly from the same perspective as the rest of this study i.e. from the perspective of the fashion companies in the more high-cost areas.

The often poor working conditions in the low-cost countries will not be discussed in this chapter, as it is a too vast and complex subject that cannot be properly researched within the scope of this study. Yet it should be noted, that the many problems concerning these low-cost productions sites are a real and important issue as for example the Bangladesh factory collapse in 2013 highlights [43; 44]. However, traceability of fashion products as well as possibilities of shorter supply chains are both subjects covered in this chapter.

3.5.1.1 Societal effects and skills within EU

In their study concerning the current state and the future of the European textile, clothing and leather (TCL) sector, Vogler-Ludwig and Valente also acknowledged the recent decline European TCL-industries caused by heavy price competition and increasing globalization among other things. According to them, Europe came up with three main strategies in order to tackle these issues and to be able to survive in the global markets. These strategies were:

- A cost-oriented approach
- An innovation-oriented approach

- A productivity-oriented approach [27]

The **cost-oriented approach**'s key feature was to establish production in EU's more low-cost countries (including newest EU member states Romania and Bulgaria) and thereby save on labor and energy costs. The **innovative approach**'s main focus on the other hand was developing top quality and innovative specialty textile products. The **productivity-oriented approach** aimed at creating savings by making use of IT and automation. In other words, the idea of this strategy was to optimize supply chain management and compete with flexible production. [27]

According to Vogler-Ludwig and Valente, these three strategies partly resulted to a dichotomy of skills within the EU. A direct result from the outsourcing of production into low-cost countries like China for example has of course been the general decline of employment in the European as well as in the US clothing sectors (see e.g. Figures in Chapter 3.2 for reference). The more value-added activities of the fashion industry's supply chain, such as product development, design and marketing for example, have remained in the high-cost areas whereas production is now almost wholly carried out in the low-cost areas. Vogler-Ludwig and Valente note however, that not only is this dichotomy of skills presented between e.g. Europe and Asia, but it can be observed within the EU's TCL-industries, too. [27]

Vogler-Ludwig and Valente divided the European TCL-industries into high-cost and low-cost areas. This division is presented in Table 3.4. Because of the differences in the infrastructure and cost structures between these two areas, they both possess different attributes that apply to them. According to Vogler-Ludwig's and Valente's report, the number of TCL-industry's blue-collar workers declined in the more high-cost areas of the EU and increased in the low-cost areas. Respectively the amount of technical and business professionals increased in the high-cost areas and decreased in the low-cost areas. In practice this implies to disappearance of production activities in the high-cost areas and growing financial dependency of the low-cost areas. [27]

Table 3.4: *European textile, clothing and leather industries divided into high- and low-cost areas by Vogler-Ludwig and Valente (adapted from [27]).*

High-cost areas	Austria	**Low-cost areas**	Bulgaria
	Belgium		Czech Republic
	Denmark		Cyprus
	Finland		Estonia
	France		Greece
	Germany		Lithuania
	Ireland		Hungary
	Italy		Malta
	Luxembourg		Poland
	Netherlands		Portugal
	Spain		Romania
	Sweden		Slovakia
	United Kingdom		Slovenia

The cost-oriented approach and the productivity-oriented approach, which both aimed at cost savings either through smaller labor and production costs or by utilizing IT and automation more effectively, were not enough to stop the decline of EU's TCL-industries. Therefore, the innovation-oriented approach, which focuses at making EU the top producer and innovator of top quality and specialty textile products, has become even more important. This is reflected e.g. in innovation surveys, which tell that the European TCL-sector has started to put more emphasis on its research and development activities. Especially new and innovative textile appliances were considered a worthy alternative for the competitive consumer markets of the more basic textile products. [27]

In terms of fashion industry, all this means a slow disappearance of the low value-added activities – mainly production – from EU. The high-cost areas have been able to achieve a leading position in the more value-added activities such as fashion design and branding for example. At the same time, as the high-cost areas act as managers of the supply chains, other kinds of skills and activities including e.g. machinery producers or just skilled labor force have been outsourced. As a result, these areas are left with a deteriorating skills basis and weakening understanding and experience of clothing production. In the future, this could lead to a disappearance of clothing machinery producers and training institutions altogether, which in turn would make competing in the global fashion markets more difficult. [27]

Although fashion industry's production activities have predominantly come to an end in the high-cost areas of EU, they are still carried out in the low-cost areas. Yet there are problems with these areas, too. According to Vogler-Ludwig and Valente, although the low-cost areas can offer competitive wages, experienced labor force and close proximity to major consumer markets, clothing producers in these areas struggle with weak market positioning and a lack of innovative culture and skilled professionals. Short-distance transportation is one competitive advantage these low-cost areas could

make use of, yet Vogler-Ludwig and Valente argue that without a proper strategy about how to improve the TCL-industries in these areas, production activities will continue to be relocated elsewhere and EU's fashion (and other textile) industry base deteriorate. [27].

3.5.1.2 Societal effects on US

The societal effects of outsourcing of production on the US fashion industry have already been highlighted throughout this study. For example: the employment in the US clothing manufacturing sector has dropped down by 83 percent from 1990 to 2011 (see Figure in 3.7 in Chapter 3.2) [1] due to the cheaper offshore labor costs (see Figure 3.18 for reference). Therefore, of the top 15 fastest declining occupations in the US, five of them (i.e. a little over a third) are related to the textile and clothing industry [45]. This goes hand in hand with the fact that 97,5 % of all the clothing products sold in the US in 2013 were made internationally [35].

Figure 3.18: *Wages for apparel workers in different countries [46].*

Similarly to EU, the more value-added activities of the fashion industry's supply chain have remained in the US whereas production is almost wholly outsourced. This is also reflected in Figure 3.19, which is a bubble chart that presents future projections for different fashion-related occupations in the US. On the vertical axis, the change in employment of these occupations is presented in percentages. On the horizontal axis, the change in employment is presented, but this time in number of employees (i.e. net change). The actual size of the bubble presents the projected level of employment in 2020. [1]

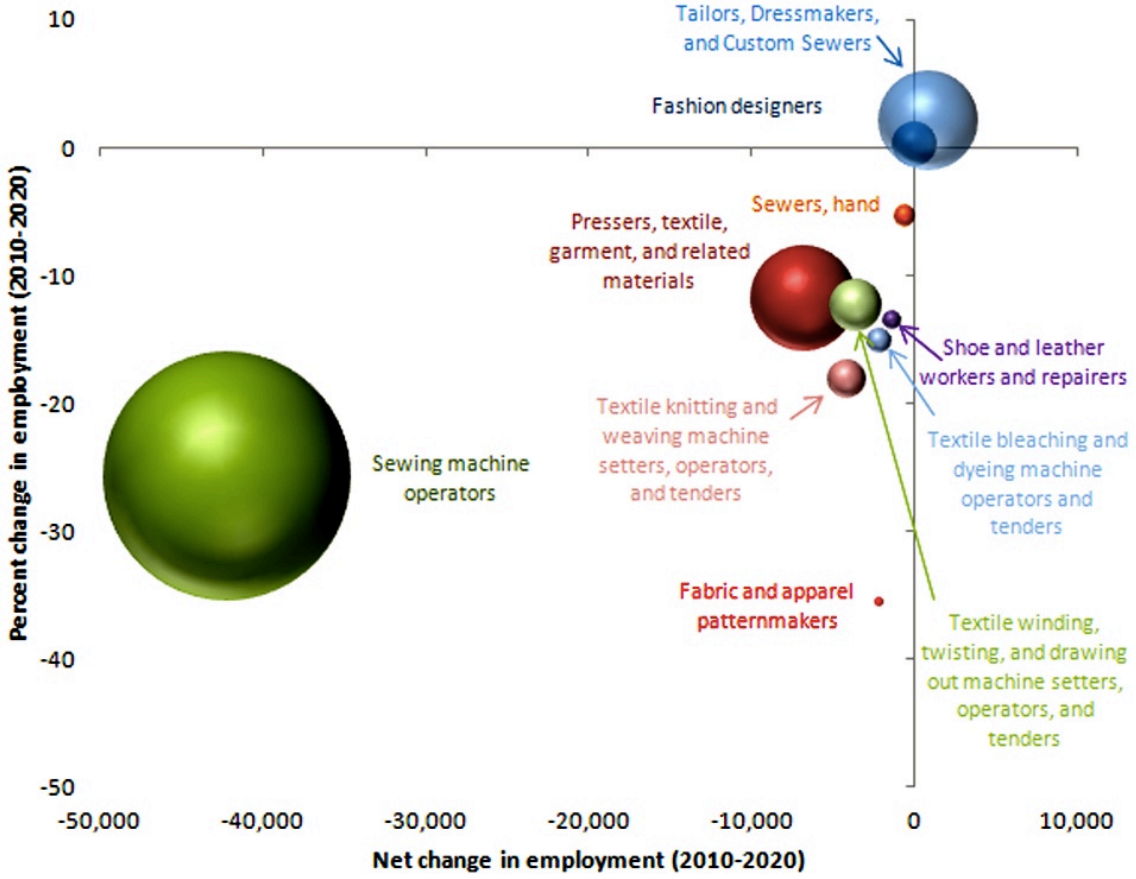


Figure 3.19: *Employment projections for fashion-related occupations in the US, net and percent change in employment, 2010-2020 [1].*

As can be seen from Figure 3.19, the decline of the low value-added, labor intensive activities seems to continue in the US. The fashion designers and tailors, dressmakers and custom sewers are the only occupations whose employment is not expected to come down in the coming years (although it is not expected to grow significantly, either). All of this, similarly to EU, suggests to a slow deterioration of the US clothing industry base and weakening understanding and experience of clothing manufacture.

According to Davidson, the deteriorating of the U.S. clothing industry is already a problem. For example with some companies reshoring back to U.S., the existing small contract manufacturers are in trouble because they are unable to handle the increased workload and there are not enough skilled sewing machine mechanics, seamstresses or managers available. [47] Also, whereas Asian factories are able to handle a product order from start to finish in the same facility, the U.S. apparel supply chain is a small and complicated network of different specialist contractors, who are shattered across the country [46].

3.5.1.3 Fashion industry & the environment

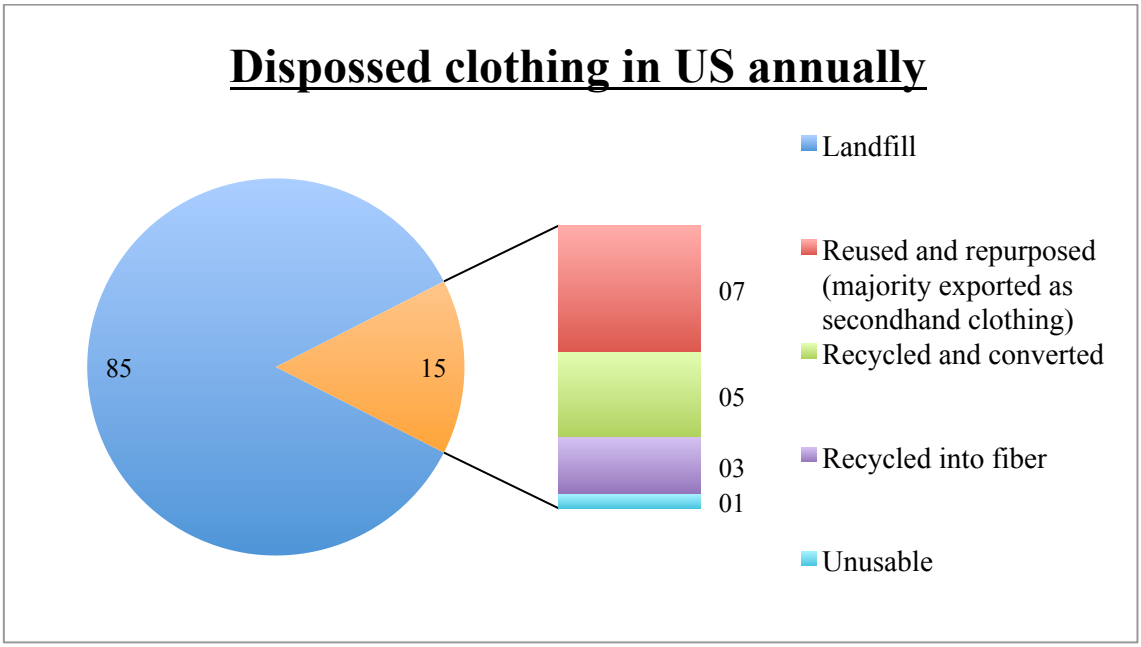
With fashion industry being one of the most global industries today, its environmental effects are also significant. These effects are partly a consequence of different aspects related to fiber and clothing production in general, partly due to the global nature of the industry and partly due to the increasing consumerism in the industry. Also, the environmental effects of all the washing and other activities a clothing item goes through after it leaves the stores should not be neglected either when talking about the ecological aspects of fashion. Yet as this study deals mainly with fashion industry's supply chains, the environmental effects of e.g. cotton or polyester production as well as the aforementioned textile care activities exceed its scope. Instead, the environmental effects of e.g. fashion industry's long lead times as well as the cheap clothing prices and increasing consumerism are briefly discussed as they more directly related to the study subject.

Even a basic product, such as a T-shirt for example, has to travel thousands of miles within the fashion industry's supply chain before making it to the stores. Also, as both the rate of purchase as well as disposal have increased significantly over the years, the T-shirt's travel from the store to garbage is now shorter than ever. This situation has been brought about with help of globalization, which has enabled fashion companies to produce clothing at incredibly low prices. Fashion industry has always been characterized by short product lifecycles, low predictability in terms of demand and erratic and impulsive consumer behavior [48, see 32, p. 155]. All this has only been accentuated and today, many consumers regard fashion as something disposable. Some even argue that if clothing prices and quality continue to decline, so too will the demand for used clothing as new clothing is sold equally cheap. [49]

Whether or not demand for used clothing will decline, overproduction of clothing is a real problem. As already mentioned, it is hard for fashion companies to forecast demand especially when purchase decisions are made well before the start of a selling season and the production networks are complex and globally dispersed. As a result, approximately on third of the fashion companies purchases do not correspond with the demand and end up being sold with discounted prices or donated to charity. Not only is this bad business for the fashion companies – it is not sustainable for the environment, either. When unwanted products are produced, resources from raw materials to energy are gratuitously wasted. With better-located production facilities and closer proximity to main consumer markets, fashion companies could shorten their lead times and be a lot more demand-driven. This would not only benefit the companies in terms of forecast errors but it would benefit the environment, too, as less unwanted products would be produced and less resources wasted. [5]

The problem of overproduction of clothing (as well as the era of growing consumerism and disposable fashion) is well highlighted in the following example concerning US's textile and clothing recycling: even though approximately 1,1 billion kg of postconsumer textile waste is collected in the US annually, the clothing proportion of it only makes up 15 % of all the clothing that is disposed in the US annually. In other words, 85 % of US's clothing waste still ends up directly in landfill. Also, of all the clothing donated to charity (included in the 15 %), only about 20 % is sold in the US charity shops because there simply is way too much clothing in relation to the demand. So, although unwanted clothing can be donated to charity, which is better for the environment than simply throwing it into garbage, there still is way too much used clothing in the US in spite of the fact that 85 % of it is not even recycled. In Table 3.5, the different uses of disposed clothing in US are presented in percentages. [49]

Table 3.5: *Uses of disposed clothing in US (in percentages) [based on 49 & 50].*



Another factor related to the unnecessary use of resources are the traditional clothing samples fashion retailers usually want to see 3 to 12 months before the start of the selling season. As the samples are physical and usually sourced offshore, they need to be produced well in advance so that the fashion companies as well as the producers have enough time to prepare themselves for e.g. advertising and production after the samples have been approved. According to Mattila & Mustonen, if fashion companies were to take better advantage of the modern 3D-technologies and use 3D-samples instead of physical samples, the decisions regarding production could be made a lot closer to the start of the selling season. This would reduce the unnecessary waste of resources in two ways: firstly by making the production more demand-driven and thereby lessening the chance for forecast error and production of unwanted products and secondly, by making production of physical samples unnecessary. [5]

In addition to the overproduction and wasting of resources, another issue related to the environmental effects of the global fashion supply chains is the traceability of the products. Nearby production does of course not automatically guarantee that products are produced in an ecologically and socially responsible manner. Yet it is easier to gather this kind of production information from the producers if they have long-term partnership with the fashion company and also, if they are located in a neighboring area. When a fashion company sources products from various offshore suppliers, they usually use a sourcing agent to help with the purchases. With these kinds of long and complex supply chains (the supplier could use subcontractors, too) it is considerably more difficult to get a proper understanding about the ecological and social aspects of the production. The fact of the matter is that when a supply chain is not transparent, changes are that some of its activities might not be very sustainable. [5]

As what comes to the carbon dioxide emissions related to the transportation of fashion products across the world: they are actually quite small when compared to overall carbon dioxide emissions of a fashion product. For example, only 5 % of the carbon dioxide emissions of a t-shirt, that is made from 100 % cotton and transported from India to UK via ship, are caused by transportation. [5] It should be noted however, that the energy and transportation prices are expected to rise in the future, and the costs of climate change are going to affect the global enterprises more and more. [8; 27]

3.6 Possibilities of shorter supply chains

Although fashion industry's supply chains have over the years become more and more efficient and different sourcing strategies have been developed, there are still some problems with the outsourcing of production and long lead times. For example, according to Mattila and, some of the problems for of fashion companies are:

- Approximately one third of the retail trade's purchases do not correspond with the demand. Because of this, products end up being sold with significant discounts.
- A part of the discounted products still do not get sold and need to be donated to charity.
- The products that correspond with the demand are sold quickly but cannot be reordered because of invested capital in the yet unsold products. Also, because of the long lead times reordered products cannot be delivered in the course of the selling season. [5]

As was discussed in the previous chapter dealing with the societal and environmental effects of outsourcing, there are also problems when looking from this perspective. The purpose of this chapter is therefore, in the light of existing research and statistics, to

explore what benefits could be achieved with shorter, more local supply chains and production strategies.

3.6.1 The Kelano-project

The Kelano-project was a project carried out by Tampere University of Technology in co-operation with Borås University and funded mainly by Tekes (the Finnish Funding Agency for Innovation). Finatex, the Federation of Finnish Textile and Clothing Industries, and several fashion companies also took part in the project. The goal of the project was to find out concrete ways to make fashion industry's supply chains both more demand-driven as well as sustainable. [5]

The project was divided into six smaller parts that were first, retrieval of information, then benchmarking, developing a measuring system, references and finally, solutions and publication. Two master's theses and one bachelor's thesis for Tampere University of Technology were also carried out as a part of the Kelano-project. [5]

A part that is particularly interesting in terms of this study is the benchmarking part of the Kelano-project. This is because it contains fairly recent information about several fashion companies with different operating methods and analysis about the success factors of these companies.

3.6.1.1 The benchmarking-companies

The benchmarking was carried out mostly by interviewing selected companies. Public sources were used to gather information about the companies that were not interviewed (H&M, Zara and Patagonia). In addition, all of the companies' financial statements of the year 2008 were analyzed. [5]

The participating companies were from four different categories: Finnish companies, Swedish companies, fast fashion (Spanish and Portuguese) companies and slow fashion (US and UK) companies (see Table 3.6 for a full list of companies). A report about the Swedish companies and master's theses about both the fast fashion and the slow fashion companies were written as a part of the Kelano-project. No individual report was written about the Finnish companies though. Therefore, their operations and success factors were not analyzed on such a detailed level in the project (and as a result, in this study), as was the case with the other participating companies. [5]

Table 3.6: *A list of the benchmarking-companies in the Kelano-project (adapted from [5]).*

Finnish companies	**Swedish companies**
Citymarket	Lindex
Inex Group	Gina Tricot
Marimekko	H&M
Masi Company	Ball Group
Naisten Pukutehdas	Hans K
Nanso Group	SOMconcept
Orneule	
Texmoda Fashion Group	
Fast fashion (Spanish and Portuguese) companies	**Slow Fashion (US and UK) companies**
Mango	Continental Clothing
Desigual	John Smedley
Zara	Patagonia
Flor da Moda	

Five of the six **Swedish companies** were clothing companies with the exception of Hans K, which is a furniture company specializing in quick deliveries. Of the clothing companies SOMconcept is a Swedish microcompany focusing on mass tailoring, Ball Group is a Danish (although listed in the Swedish company –category) clothing retail store and Lindex, Gina Tricot and H&M are large Swedish clothing retail stores. H&M is owned by Hennes & Mauritz AB, which also owns popular Swedish brands COS, Monki, Weekday and Cheap Friday and is the one of the world's largest fashion chains. [5]

The **fast fashion companies** included Mango, Desigual, Zara and Flor da Moda. Fast fashion refers to affordable and fashionable clothing products that have been manufactured fast. Clothing retail stores use this concept. Their business strategy is to have new clothing products enter their stores continuously and fast so that their store offering changes repeatedly.

Zara is a Spanish vertical clothing company that is famous for its fast fashion approach. It is owned by Industria de Diseño Textil S. A. (or more commonly: Inditex). Desigual is a fashion brand that is owned by a Dutch company NTS It's not the same. Desigual's headquarters are located in Barcelona, Spain. Flor da Moda is a Portuguese fashion company that first started out as subcontractor but that later expanded into a fashion retail chain with its own brand, Ana Sousa. Mango is after Inditex the second most successful Spanish fashion company. [5]

Slow fashion companies are companies that aim at producing long lasting products in a responsible manner. There were three companies in the Kelano-project's slow fashion

category: Continental Clothing, John Smedley and Patagonia. Continental Clothing is a British wholesaler of men's, women's and children's cotton clothing. John Smedley is also a British company that manufactures luxury knitwear for men and women. Patagonia is a brand that is owned by an US company Lost Arrow. The company manufactures clothing and accessories for men, women and children. [5]

As noted earlier, no detailed introduction or analysis was conducted about the Finnish companies on an individual level.

3.6.1.2 Company groups

After interviewing and analyzing the benchmarking clothing companies, they were (Ball Group, SOMconcept and Finnish companies excluded) redivided into four new company groups based on their design and operations approach. These groups were:

- Traditional companies
- Fast service companies (VMI)
- Brand builders
- Fast fashion companies [5]

According to Kelano-project's final report, **traditional companies** design mainstream products and their acquisition times are long – from six to eighteen months even. **Fast service companies** are companies whose acquisition times are short but who design traditional products. These companies take use of vendor-managed inventory (VMI) to achieve their fast service. VMI means that a product supplier (usually the manufacturer but sometimes also the reseller or distributor) takes care of its buyer's inventory and resupplies it once products are running out [51]. **Brand builders** design unique products that differ from mainstream products, but have traditional acquisition times. **Fast fashion companies** design fashionable products according to the most recent trends and their operations are fast. [5]

Of the Kelano-project's benchmarking companies Mango, Lindex and John Smedley were considered traditional companies. Desigual and Patagonia on the other hand were brand builders and Continental Clothing and Flor da Moda fast service companies. In addition to Zara, Gina Tricot and H&M belonged to the group of fast fashion companies. [5]

Table 3.7 is a fourfold table that presents the differences between the four aforementioned company groups in terms of their design approach and acquisition times. The benchmarking companies have also been marked to their designated company groups in the table.

Table 3.7: *The four company groups for the Kelano-project's benchmarking companies (adapted from [5]).*

	TRADITIONAL DESIGN	ENHANCED DESIGN
SLOW RESPONSE	Traditional companies: - Mango - Lindex - John Smedley	Brand builders: - Desigual - Patagonia
QUICK RESPONSE	Fast service companies: - Continental Clothing - Flor da Moda	Fast fashion companies: - GinaTricot - Zara - H&M

Interestingly, of all the four original fast fashion companies (Mango, Desigual, Zara and Flor da Moda), only Zara was considered a true fast fashion company. For example Mango, who described itself as a fast fashion company, had according to the benchmarking interviews traditional supply chains and long lead times which rather made it a traditional, slow response company. Desigual on the other hand had more enhanced design than Mango, but equally traditional supply chains and Flor da Moda's service was fast, but design quite traditional. So, actually only Zara fulfilled the requirements of a fast fashion company: it had both fashionable design and fast lead times. [5]

3.6.1.3 Key figures

As noted earlier, the benchmarking companies' financial statements of the year 2008 were also analyzed as a part of the Kelano-project. For the companies that were redivided into the four aforementioned company groups, certain key figures where calculated from the statements. The purpose of the key figures was to help recognize success factors that concern global fashion companies. These key figures with short explanations are listed below:

- **Gross margin:** Calculated by subtracting the acquisition costs of products sold from the actual sales. One measure used for profitability.
- **Net profit:** Another measure for profitability. The profit that remains after all costs have been subtracted.
- **Growth:** In the Kelano-project, growth referred to the scale of operation of the benchmarking companies. How much a company has debt in respect of assets

(i.e. what is the solidity of the company) affects its intentions to expand its business and grow in the long run.

- **Stockturn:** A measure of efficiency. Tells how quickly a company's inventory is renewed – or in other words: how often a company's inventory is fully sold in the course of one year.
- **Debt to Assets:** A measure of solidity, which means how well a company can meet its financial obligations in the long run. Tells how much a company has debt in respect of assets.
- **Current ratio:** A measure of liquidity. Is calculated by dividing short-term assets with short-term debts.
- **Cash turnover:** A measure of efficiency. Tells how well a company utilizes its short-term assets.
- **Actual mark-up:** Mark-up is another term for the contribution margin of a product. It is added to the selling price of a product to be able to cover operating costs and generate profits. *Actual* mark-up is not always the mark-up the company desires. Actual mark-up is calculated by dividing the company's sales with its purchases.
- **GMROI:** Stands for gross margin return on investment. Another measure for profitability – or more precisely, profitability of inventory. Tells what kind of gross margin return is generated with capital invested in the inventory. [5]

3.6.1.4 Results

According to the key figures calculated in the Kelano-project, companies from the fast fashion and brand builder –company groups have been the most successful ones during the past ten years. They, for example, had the highest actual mark-ups. Fast fashion companies have fashionable design according to the latest trends and brand builders on the other hand manufacture products that are unique and differ from the mainstream. Therefore, they were able to attain high actual mark-ups. Fast fashion companies also had the best results in the net profit percentage (before taxes), GMROI and cash turnover (see Table 3.8). According to the Kelano-project, the success of the fast fashion companies was due to their good understanding of consumers' needs and the fact that they were able, thanks to their fast supply chains and distribution channels, to also meet those needs. [5]

Table 3.8: *Key figure results for the Kelano-project's company groups (adapted from [5]).*

		TRADITIONAL DESIGN	ENHANCED DESIGN
SLOW RESPONSE	**Year: 2008**	**Traditional companies**	**Brand builders**
	Gross margin [%]	43,39%	57,63%
	Net profit (before taxes) [%]	4,18%	9,22%
	Growth (2005-9) [%]	5,01%	316,52%
	Stock turn	2,15	2,37
	Debt to Assets	0,70	0,44
	Current ratio	0,41	0,5
	Cash turnover	1,09	1,89
	Actual mark-up	1,94	2,36
	GMROI	2,01	3,23
	Year: 2008	**Fast service companies**	**Fast fashion companies**
QUICK RESPONSE	**Gross margin [%]**	30,55%	59,01%
	Net profit (before taxes) [%]	4,56%	12,58%
	Growth (2005-9) [%]	-0,11%	144,33%
	Stock turn	2,78	4,15
	Debt to Assets	0,42	0,35
	Current ratio	0,43	0,52
	Cash turnover	1,62	2,83
	Actual mark-up	1,44	2,44
	GMROI	1,22	5,97

Fast service companies have traditional design, but their service is fast due to vendor-managed inventory. Therefore, it was reasonable to assume that the fast service companies would have the best results in stock turn. Yet this was not the case – the fast fashion companies actually had the best stock turn (4,15). In the Kelano-project's final report, this was contributed to the fact that in the case of the fast fashion companies, stock mainly refers to finished products at stores where as with fast service companies, stock entails raw material, components and finished products both in storage and in stores. Traditional companies on the other hand had the slowest stock turn (2,15), which was quite expected, as these companies have long lead times throughout their whole supply chain. [5]

As noted above, the key to the success of the fast fashion companies is the fact that they are extremely demand-driven. That, again, is achieved through their very effective supply chain management and short supply chains. For example, according to the Kelano-project, 50 % of Zara's products are manufactured in its own production facilities in Spain. And as for the rest: 26 % of the remaining products are acquired from elsewhere of Europe and only 24 % from Asia. This kind of production network makes it possible for Zara to acquire its most fashionable products (which make up

approximately 75 % of all its products) during – not before – the ongoing selling season. Gina Tricot also acquires the majority of its products from Europe: 50 % of Gina Tricot's products are from Europe, 38 % from China and 12 % from India. H&M's is the only company of the three who acquires majority of its products from outside of Europe: 60 % of its products are from Asia and less than 40 % from Europe. Yet, according to the Kelano-project, they are extremely price conscious and excel at supply chain management and are therefore able to achieve good results. [5]

Although in terms of the whole fashion industry, the Kelano-project covered only a small part of it. Still, the participating companies presented a good sampling of various fashion companies with different operating methods from traditional supply chain management to true fast fashion companies. The results offer interesting details about the success factors of fashion companies. According to the Kelano-project, it seems that fashion companies could by adapting more quicker and shorter supply chains better their profitability – even though purchases closer to the start of the selling season were considerably more expensive. With more demand-driven and shorter supply chains, the companies could have better chances of forecasting the demand correctly and thereby decrease their need for discount sales and on the other hand, effectively provide customers replenishments of the most popular products. According to the project, purchase decisions should be made as near the selling season as possible for example by utilizing 3D-samples instead of physical samples. Also, unnecessary processes in the supply chain that do not add any value for the end consumer should be tried to get rid of. It is suggested in the Kelano-project's final report that the costs of inefficient supply chain and inventory management are actually enormous and over 25 % of companies' purchases end up being sold with discounted prices. [5]

3.6.2 H. Mattila: Merchandising Strategies and Retail Performance for Seasonal Fashion Products

"Merchandising Strategies and Retail Performance for Seasonal Fashion Products" is a dissertation carried out by Heikki Mattila for the Lappeenranta University of Technology. It studies the effects of different apparel merchandising strategies on retail performance, and focuses especially on the retailer's profitability and success. The object of the dissertation was to come up with estimates for selected performance measures, which could then be used to help select a suitable merchandising strategy for seasonal fashion products. [6]

The dissertation consisted of three parts that were first, a theoretical study, then an empirical research with case studies and lastly, based on the aforementioned two parts, a model for selecting successful merchandising strategies. [6]

3.6.2.1 Sourcing strategy trade-offs

When selecting a sourcing strategy, retailer has to choose whether they want to engage in an offshore or local sourcing strategy. This is related to whether the retailer wishes to use up-front or replenishment buying. [6]

Offshore sourcing strategy means that a retailer sources its products offshore from countries with low labor costs. Local sourcing strategy then again refers to producers with a closer proximity to the retailer but with higher purchase prices. Depending on which sourcing strategy the retailer chooses to use, different buying strategies apply. Up-front buying means that retailer buys its products before the start of a selling season. Replenishment buying on the other hand means that product replenishments can be made during a selling season, too. [6]

There are advantages and disadvantages related to both of these sourcing strategies. For example: although a retailer might benefit from the low labor costs related to an offshore sourcing strategy, due to the long lead times of this sourcing strategy replenishment buying is not possible unless expensive air freight is used. Then again local sourcing strategy enables replenishment buying but at the same time increases the purchase prices. [6]

In order to balance out the advantages and disadvantages of these strategies, it is not uncommon for retailers to engage themselves in both of the aforementioned sourcing strategies simultaneously. This results in e.g. **Quick Response (QR)** and **Vendor-Managed Inventory (VMI)** –strategies. The QR-strategy is a combination of both upfront and replenishment buying meaning that the retailer sources some of its products offshore before the start of the selling season and some as replenishments from more local producers during the selling season. The use of **point-of-sale (POS) information** is a vital element of the QR-strategy. POS information means electronically recorded information about actual sales, and it is a great tool for making more accurate forecasting and inventory decisions. The VMI-strategy then again refers to a strategy where the product supplier manages the retailer's inventory. The actual purchase decisions as well as the products are made in advance, before the start of the selling season. Yet with this strategy, only some of them are first delivered to the retailer's stores and then later, for example once a week, the retailer places replenishment orders based on POS information. The POS information however is not shared with the product supplier, who simply delivers the ordered products from the ready-made inventory. [6]

3.6.2.2 Critical success factors related to sourcing strategies

Mattila identified four critical success factors related to the sourcing of seasonal fashion products. Those success factors were:

- Forecast accuracy
- Process lead time
- Offshore / local sourcing mix
- Up-front / replenishment buying mix [6]

Forecast accuracy means how well a retailer has been able to estimate future demand. **Process lead time** refers to the time it takes for a product supplier to deliver a product once a retailer has placed an order for it. **Offshore / local sourcing mix** means the relation in which a retailer uses these sourcing strategies and related to that, **up-front / replenishment buying mix** mean the relation in which a retailer uses these buying strategies. All of these critical success factors are closely tied to one another. For example, the shorter the process lead times, the better the forecast accuracy. The lead times then again are related to the sourcing mix used by the retailer, and the sourcing mix defines which buying mix to use. [6]

3.6.2.3 Success measures for retail success

In the dissertation, it was necessary to define certain success measures in order to be able to evaluate the retail success. These success measures were:

- Service level
- Lost sales
- Product substitute percentage
- Gross margin
- Stock turn
- GMROI-R
- Mark-down rate [6]

Service level means how well products are available in stores in relation to demand. **Lost sales** result from unsatisfactory service level, when wanted products are not available (or e.g. if they are too expensive). **Product substitute percentage** tells how many consumers that didn't find the product they were looking for end up buying a substituting product. **Gross margin** is the margin that results from subtracting the acquisition costs of products sold from the actual sales. **Stock turn** tells how often a retailers's inventory is renewed within the course of one year. **GMROI** stands for gross margin return on investment and it tells how well merchandising inventories manage to

generate profit. GMROI is calculated by dividing gross margin with average inventory. The average inventory can be used at either cost value or at retail value. When inventory at retail value is used, the calculated GMROI is called **GMROI-R. Mark-down rate** is the percentage of all the products that end up being sold with discounted prices. [6]

3.6.2.4 Successful sourcing strategies

After analyzing the success measures resulting from different variations of the critical success factors related to the sourcing strategies, successful sourcing strategies were identified. According to the dissertation, up-front buying together with replenishments was considered to be more profitable for the retailer than up-front buying solely. When a retailer engages in either a GR- or a VMI-strategy, better retail performance can be expected when compared to a traditional offshore sourcing strategy, given the fact that purchase prices are less than 40 % higher with the QR-strategy and less than 23 % higher with the VMI-strategy. Of offshore, QR- and VMI-strategies, the QR-strategy was considered the most successful one if POS information was shared with the retailer and the product supplier. This is because with a QR-strategy and shared POS information, production decisions can be made based on actual demand instead of forecasts, yielding in improved forecast accuracy. In general, reducing lead times between the forecasts and the start of a selling season resulted in better profitability. Only in a case where the number of replenishments was very limited, the traditional offshore sourcing strategy was considered to be more profitable than an offshore / replenishment mix. [6]

3.7 Future scenarios for EU's and US' fashion industries

There have been different scenarios for both EU's and US's fashion industry's future as well as the future of clothing and textile industry in these areas in general. In this chapter, some of these scenarios are highlighted and especially the aspects regarding the future of the fashion industries are discussed.

3.7.1 Future scenarios for EU's TCL-industries

Vogler-Ludwig and Valente, whose research has already been referenced throughout this study, studied the current state and the future of the European textile, clothing and leather product sector in 2009. The study was a commissioned by the PROGRESS program, which was a European Commission program that took place between 2007 and 2013. The main goal of the program was to improve e.g. employment and social solidarity within Europe. As a part of their research, Vogler-Ludwig and Valente came

up with three alternative future scenarios for the EU's TLC industries. [27; 52] These scenarios were:

- Globalization limited
- Asian dominance – European excellence
- Advanced New Member States [27]

The **Globalization limited** is en *ecological* scenario, which main focus is on transforming the European TCL-sector into a self-sufficient sector that is no longer as dependent on international trade. Instead, it creates competitive advantage with environmentally friendly production methods that entail e.g. proper emission control, energy efficiency, specialized small-scale production and sustainable products. The **Asian dominance – European excellence** –scenario then again is a *technological* scenario that aims at turning EU's TCL-sector into high-tech sector with innovative and technically advanced specialty textiles. This scenario will lead to deindustrialization of the TCL-sector and create jobs for e.g. technical and marketing specialists and natural scientists. The **Advanced New Member State** –scenario is a *"jobs first"* –scenario. It aims at defending EU's industrial base by creating an independent TCL-industry in EU's low-cost areas. This scenario is based on market and quality oriented management and requires proper cost and quality control as well as efficient production. [27]

The differences between these scenarios and their main focuses are presented in Figure 3.20 and their main competences in Table 3.9.

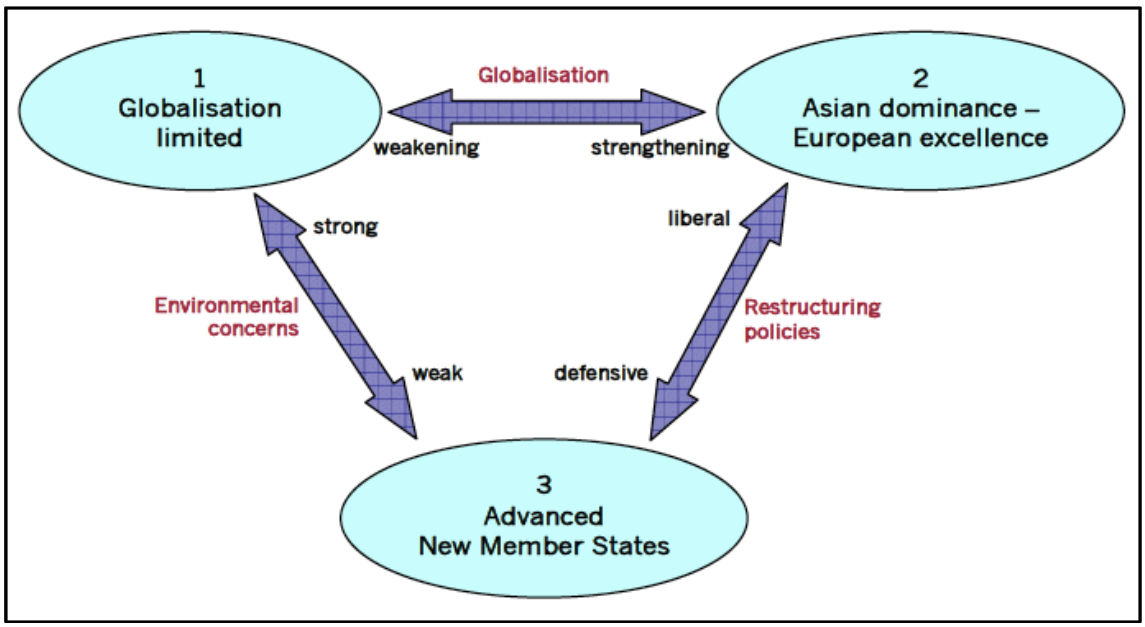


Figure 3.20: *Three future scenarios for EU's TCL-industries [27].*

Table 3.9: *Main competences of the three future scenarios [27].*

	Scenario 1 **Globalisation limited**	Scenario 2 **Asian dominance – European excellence**	Scenario 3 **Advanced New Member States**
General management	Change management Network management	Strategic, visionary, intercultural	Quality management, market-oriented
Marketing and sales	Consumer-oriented, socially and environmentally responsible	Client-oriented, technical know-how, trend-setting, intercultural	Competition-oriented, Market knowledge, Intercultural
Administration	Environmental legislation (REACH)	International business	International business
Research & development	Sustainable products and technologies, Traditional techniques	Interdisciplinary, multi-skilled, creative	Market-oriented, efficiency oriented, creative
Process engineering	Energy and emission control, Cost control	Supervision of global value chain	Cost control, Quality control
Production	Small scale, specialised, crafts-oriented	Client-oriented, Technical know-how	Quality-oriented, mass-production
Quality control	Environmental standards Network operations	Diversified standards	Large-scale control systems, network operations
Logistics	Energy-efficiency-oriented	Delivery-time-oriented	Delivery-time-oriented

As for the three scenarios, the Asian dominance – European excellence –scenario is currently the one Europe seems to be heading at, because it has been outsourcing its production activities more and more and paying more emphasis on product development, brand management and marketing. [27] Yet in terms of this study and its focus on fashion industry and possibilities of shorter supply chains, the Advanced New Member State –scenario is the most interesting one.

In order to work, all of the three scenarios require adequate courses of action. According to Vogler-Ludwig and Valente, the Advanced New Member State –scenario is very ambitious, as it calls for both very efficient as well as flexible mass-production that is carried out at low costs. Therefore, it requires e.g. strong investments into vocational training in the fields of engineering, business administration, management, marketing and design. Crafts-related vocational training should be revived, too. Industrial policies that strengthen EU's regional clusters and help promote business foundation and process innovation, design and marketing are equally necessary. Also, intellectual property should be properly protected. The production networks in this scenario should better their competitiveness by taking advantage of high product specialization, which would lead to economies of scale with greater efficiency. Clothing

companies for their part should try to come up with their own competitive brands and independent marketing channels. [27]

There are some problems with all of the three scenarios, too. For example: as the Advanced New Member State –scenario is a "jobs first" –scenario that needs very cost efficient and flexible production networks in order to work, its focus on different environmental factors is not as good as e.g. the Globalization limited –scenario's. Vogler-Ludwig and Valente also estimate, that all of the three scenarios will result in job losses in the EU's TLC-sector. However, whereas the Asian dominance – European excellence –scenario is expected to cause a 50 % drop in the TCL-industry's employment by 2020, the other two scenarios are only expected to drop the employment by 20-25 %. Then again, these two scenarios are also expected to slow down the overall growth of the TCL-sector. The Advanced New Member State –scenario for example aims at engaging in low value-added activities and therefore, relies on low wages. [27]

It is clear that all of these scenarios cannot exist at the same time and therefore, Europe's TCL-industries need to decide whether to they want to engage in a deindustrialized economy or try to protect their industrial base. At the moment it seems that the Asian dominance – European excellence –scenario seems to be gaining more popularity. The Advanced New Member State –scenario could bring fashion industry's production activities back to EU on a bigger scale, yet it entails a lot of challenges and requires a complete reorganization of fashion industry's production networks. Vogler-Ludwig and Valente note however, that the rising costs of climate change and the ecological aspects of global supply chains together with the problems related to the dichotomy of skills between high- and low-cost areas might end up increasing the appeal of the other two strategies. [27]

3.7.2 Future of US fashion industry

There have also been different scenarios regarding US fashion industry's future. For example, Eundeok Kim and Kim KP Johnson released two articles about forecasting the future for US fashion industry's different sectors in the Journal of Fashion Marketing and Management in 2009. The articles were carried out by examining the opinions of different professionals working in the US fashion field.

According to the articles, developments in technology are going to mold the industry in the future. Yet instead of trying to bring production activities back to the United States, technology was considered to be a valuable tool in making the fashion supply chains more integrated and quicker. Overall, US's fashion industry's future was seen as more consumer-driven and collaborative, combining different nations and resulting in a more efficient production. [53; 54]

Another factor that is, according to the articles, going to get even more important is the individualization of consumers and mass-customization. In the future, consumers might expect a lot more personalized shopping experience. What this means for the retailers is that they will have to be able to provide the consumers with more than just products they like. Instead, consumers are expected to take a more active role in the whole design process. This was considered possible with help of technologically advanced design softwares like body scanning and other 3D-technologies for example. [53; 54]

With the mass-customization, the roles of the different actors within the US fashion industry from consumers, designers and retailers to producers are expected to change. For example, the need for technical designers will increase whereas creative design activities are expected to move offshore. Also, retailers have to come up with new ways to incorporate consumers in the design process on which the selling associates need to be educated. One thing that is not going to change however is the importance of speed-to-market. On the contrary, fashion companies will have to serve the consumers even quicker, which of course puts the companies under a lot of pressure. Whether or not the technological advances in the supply chain management as well as product design will be enough to make US fashion industry competitive in the global markets and guarantee the required speed-to-market remains to be seen. [53; 54]

4 CASE STUDIES

The point of this chapter is to study on a more practical level how companies, who wholly or partly prefer shorter supply chains and more local producers, have arranged their production related operations and how they have succeeded in the fashion market. As this study is conducted as a literature review, a key criterion upon selecting the case companies was that enough data was available about the selected companies. This of course limited the number of companies suitable for this study. In the end, Zara and American Apparel where considered good choices for this study, and the following chapters will analyze the operations of both of these companies in more detail.

4.1 Zara

Zara is a Spanish clothing company that is known for its fast fashion approach. It is owned by Industria de Diseño Textil S. A. (or more commonly: Inditex), which is also a Spanish company and the largest fashion retailer in the world. [55] Inditex owns altogether 8 different fashion brands of which Zara as well as Zara Home are two. The other brands are Pull&Bear, Bershka, Stradivarius, Oysho, Massimo Dutti and Uterqüe (see Figure 4.1) [56]. However, Zara is the first and largest of Inditex's brands and contributes for 64 % of Inditex's sales [57]. All of the Inditex's brands follow a fast fashion approach meaning they offer fashionable items that are affordable and manufactured fast. However, their operations are otherwise separated from each other, and each of them have e.g. their own ordering, warehousing and distribution systems. [58, p. 62-63]

Figure 4.1: *Inditex's eight brands and their logos [56].*

Zara's headquarters are located in La Coruña, which is a town on the northern coast of Spain (see Figure 4.2). In addition to Zara, it also hosts e.g. the headquarters of Inditex. All Zara's distribution as well as a big part of its manufacturing are executed in La Coruña, too. Altogether Zara employs over 120 000 people (2013), has over 2000 stores in 88 countries worldwide and contributed net sales worth of 11 594 million euros in the year 2014. [57; 59; 60]

Figure 4.2: *Location of La Coruña in Spain [61].*

4.1.1 Company history

Zara as well as Inditex were founded by Amancia Ortega Gaona. He was born in 1936 in Spain and worked for several different clothing retailers before starting his own business in 1963. According to Crofton and Dopico, due to his experiences with the different retailers, Ortega came to the conclusion that if costs are properly controlled and also cut during different stages of fashion industry's activities, better profitability can be expected. In 1963, he then set up his own dress making business, Confessiones Goa, which was a vertically integrated clothing company combining both clothing design and manufacturing activities. However, the company was not directly involved in retailing but sold its products to wholesalers, small retailers as well as department stores, who then sold the products to the final consumers. When the company first started, it employed around 125 people but within its first ten years of business, it quickly evolved into a 380 person successful company. [62; 63]

In 1975, the first Zara-store was opened in La Coruña, Spain. The store enabled Ortega to sell his company's products directly to the final consumers. From the very beginning, Zara's approach to fashion was to offer customers fashionable clothing with affordable prices. This approach was well received within the public and Zara's success grew, which led the previously family-run company to turn into an even more professional business with adequate managers. However, Ortega continued to take an active part in the company management as well as clothing and store design. Along with the success, Zara was able to expand its business to a more national level and nine new stores around Spain were opened between 1976-1983, as well as two garment factories and a

logistics center in Arteixo, a town near La Coruña. During this time, Ortega focused on the vertical integration of the company and as a result, Inditex was created to work as a holding company for all the different subsidiaries related to the company. In 1983-1984, Inditex started using co-operatives and workshops for its sewing activities and in 1986-1987, Inditex's manufacturing subsidiaries no longer sold their products to any other retailers than the ones owned by Inditex. [62; 63]

Zara's international expansion started in 1988 when it opened its first store outside of Spain in Porto, Portugal. After that, stores were opened e.g. in 1989 in the US and in 1990 in France. In the following years, new stores would constantly be opened and other brands would be added to the Inditex, too. As already mentioned, today Zara has over 2000 stores in 88 different countries worldwide. The more recent developments of Zara include for example its holding company, Inditex, turning into a publicly traded company in 2001 with an initial public offering of 26 % of the company's shares [62, p. 47], and the opening of Zara's online-store in September 2010. [63]

4.1.2 Business characteristics

According to Ferdows, Lewis, Machuca and Laurent, Zara was first founded to work as an outlet for a big order that had already been manufactured but that the original customer had cancelled. Yet very soon after launching of the first store, the company took note of the advantages of having manufacturing and retailing activities closely tied to one another, and it has been one of Zara's key success factors ever since. [58, p. 62] The results of branching into retailing inspired Ortega to start working on the vertical integration of the company, and it was also during that time he came up with his groundbreaking policies of making fashion accessible to everyone by offering consumers fashionable clothing items at affordable prices. [62]

So, from the very early stages of Zara, the company has always identified itself as a retailer of fashionable and economical clothing items [64, p. 7]. Inditex, Zara's holding company, defines its objectives as to offer consumers "creativity and quality design together with a rapid response to market demands" and also, to "democratize fashion" [62, p. 42]. In order to achieve these objectives, Zara has to offer its consumers new and constantly changing products all throughout the year. As the products change quickly, majority of them are usually produced in small amounts. Even if a product becomes very popular, Zara is not going to reproduce it. [65] Also, as a part of its strategy and related to the scarcity of the products, Zara tends to hold minimal inventory. All this means that if a consumer finds something they like and want in a Zara store, it would be a good idea for them to buy the desired product straight away because it might me sold out – or moved elsewhere – the next time they visit the store. After two or three weeks, if a product in Zara's store remains unsold, it is either shipped to another store in the

same country or back to Zara's facilities in Spain. As a result, for example in central London, consumers have been found to visit an average clothing store four times a year whereas Zara stores are visited approximately 17 times a year. Another result of Zara's low inventory strategy is that Zara has, compared to other fashion retailers, less unsold products that need to be discounted (less than 10 % whereas the industry average is between 17 and 20 %) and manages to get 85 % of the full price on its products (again, industry average between 60 and 70 %). [58; 66; 67]

Another thing that is distinctive for Zara is that they do not advertise. Zara's only uses 0,3 percent of its sales on advertising while the average for its competitors is about 3 to 4 percent [66]. This is because, according to Inditex's chief communications officer, the products at the stores change so quickly that e.g. magazines and other media cannot keep up with the pace [59]. Also, as the Zara stores are visited more frequently than the average store, it creates positive buzz and word-of-mouth for Zara thereby eliminating the need for big advertising campaigns [58, p. 63].

Zara's business strategy has generated a lot of success for the company. Because of this, it has also understandably stayed the same throughout the years – the company still focuses on offering consumers affordable and fashionable items according to the latest trends – although ecological aspects seem to have gained more attention in Zara's operations, too. For example, on Inditex's corporate homepage, the company declares that: "Zara is always striving to meet the needs of its customers at the same time as helping to inform their ideas, trends and tastes. The idea is to share responsible passion for fashion across a broad spectrum of people, cultures and ages." [60] Further on Zara's own homepage, Zara's mission statement is defined as: "Through Zara's business model, we aim to contribute to the sustainable development of society and that of the environment with which we interact." [68]

It is certain however, that to be able to manage a business strategy with constantly changing, economical products, Zara has to have a strong hold of the different actors within its supply chain [58, p. 65]. How the company has actually organized its operations and made their approach on fashion retailing possible in practice will be discussed in a following chapter concerning Zara's key operational features.

4.1.3 Products

Zara's product range consists of lines for women's, men's as well as children's wear (see Figure 4.3). Accessories such as shoes, bags and makeup for example, can also be purchased from Zara's stores. [64, p. 10 & p. 12] However, the women's wear line is the biggest part of Zara's operations, making up about 60 % of Zara's total sales [58, p. 63].

Figure 4.3: *Zara's Autumn Winter 2015 Campaign –pictures [69].*

As for the designing of the three product lines: instead of only using groups of designers, Zara has assigned a creative team consisting of designers and sourcing- and product development specialists for each of the product lines. The different members within one team then work together on a number of different products, using popular products that have sold well as a foundation and reference. The teams have also been advised to e.g. restrict the number of changes they make to a product prototype so that the development process and speed to market are as quick as possible. [70, p. 2]

As a result, Zara launches new products considerably more often than an average fashion retailer. According to Ferdows, Lewis and Machuca, Zara's designers come up with 40 000 new designs per year, from which about one quarter, i.e. 10 000, end up being produced (whereas according to Ghemawat, Nueno and Daily, the corresponding number of new designs per year for Zara's competitors is between 2000-4000 [64, p. 9]). In addition, most of the selected designs come in different colors and sizes meaning Zara has to manage approximately 300 000 new stock-keeping units (SKUs) annually. [66] This is all part of Zara's strategy: although Zara, like many other fashion retailers, does present final consumers new clothing collections every season, in Zara's case these collections only make up around 39 percent of their total sales. The rest of the sales (i.e. a remarkable 61 percent) are made with products that are produced during the ongoing season. In practice this means that Zara has new products enter their stores as often as every two weeks instead of every twelve weeks, which is the case with many other fashion retailers. [62, p. 44]

4.1.4 Key operational features

Zara and its exceptional take on fashion retailing has been studied in many different researches. In this chapter, that existing research is looked into in order to get an understanding of how Zara has put its operations in action and what the reasons behind its success are. As the topic of this thesis is to ponder the possibilities of shorter supply chains, that is also the main focus and point of view of this chapter.

It should be noted, too, that although Zara's key operational features have been divided into their own, individual categories within this chapter, these categories are closely related to each other and together, make Zara's success possible.

4.1.4.1 Vertical integration

Zara is popular for its fast fashion approach. As already discussed in the previous chapter, Zara manages to offer consumers new products as often as every two weeks, which means that the company produces about 10 000 new products – or, when different sizes and colors are taken into account, about 300 000 new stock-keeping units – every year. [62; 66] To be able to carry out production of that many products that quickly, Zara has to have a strong control over its entire supply chain [58, p. 65]. In Zara's case, this is executed with help of vertical integration.

Vertical integration means that the retailer has not outsourced its production but also owns a part or all of the companies within its own supply chain [4, p. 18]. As for fashion firms, vertical integration is quite rare. Many companies have e.g. kept hold of their design and sales related activities, but outsourced the actual manufacturing in order to save on labor costs and because of other reasons covered more thoroughly in Chapter 3: Overview of fashion industry's production networks. Yet Zara has chosen a different approach: ever since the beginning, it has focused on the vertical integration of the company and to this day, carries out a big part of its production in its own factories. [62]

In Zara's case, the company has decided to carry out the more capital-intensive production activities, that add more value to the product, itself. These activities include for example acquiring of raw materials, designing of the products, cutting, dyeing, quality control, distribution, logistics etc. The more labor-intensive activities that add less value to the products are then again outsourced. Sewing is an example of an activity that Zara has outsourced. [62, p. 43]

What all this means in practice is that Zara has a diverse network of both raw material and fabric suppliers from for example China, Turkey and Italy among others. After the acquisition, the materials are usually delivered to Inditex's subsidiaries, where they are

then processed (meaning e.g. dyed, printed and cut). [62, p. 43] In Arteixo, a town near La Coruña where the first Zara-store was opened, there are 11 factories that Inditex owns and that process products for Zara [65]. Then, the fabrics are further delivered to different sewing co-operatives and workshops, where they are sewn according to Zara's requirements. The network of these sewing workshops covers more than four hundred workshops, and they are mainly located near La Coruña or in Northern Portugal. Finally, after the sewing, ready products are delivered back to the Inditex's subsidiaries, where they undergo quality control, finishing and packaging for example. [62, p. 43]

Zara's distribution and retail sales are also carried out by Inditex's subsidiaries. After the products are ready and packed, they are sent to Inditex's distribution center in Arteixo, from where they are finally shipped with help of an outsourced delivery service [64, p. 12] to Zara's stores around the world. As for the stores: the majority (89%) of Zara's stores are managed by the company itself. In a case where the store is located in a country with major cultural and/or legal business differences, franchises are used. It should be noted, however, that these franchises use e.g. the same ordering mechanisms as the company-managed Zara stores and are overall tightly linked to the company. [62, p. 43; 65]

Also, unlike many other companies, Zara has chosen to keep its three product lines (men', women's and children's wear) as their own operationally distinct units. This means that each product line has, as was mentioned earlier, been assigned with their own creative team consisting of designers, sourcing- and product development specialist. Respectively, each product line also has e.g. their own sales, market specialist and production-planning staffs as well as their own hall in Zara's centralized design and production center, which is attached to holding-company Inditex's headquarters in La Coruña. Although it is more expensive for Zara to operate its three product lines separately (which is why many fashion retailers handle their product lines as one single entity), the supply chain for each of the product lines is, as a result of this, a lot more responsive and faster. [71]

So, of Zara's overall production, about 50 % is carried out by Zara itself in Spain and the rest is then carried out by subcontractors. Of these subcontractors, about 26 % are from Europe and the remaining 24 % from Asia. [5] The production in Europe is approximately 15 to 20 % more expensive for Zara when compared to production in Asia. Therefore, the more basic products are usually the type of products that are produced in Asia, as they are not as time-sensitive as the more fashionable products. The more fashionable products are then again the type of products that are produced in Europe. [64, p. 11]

By having a strong hold of its whole supply chain, keeping its own factories, distribution centers and retail stores and preferring European subcontractors, Zara has

managed to achieve very short lead times: the lead time for a completely new product is, at its fastest, four weeks and for a product that is modified of an old product, two weeks. Therefore, Zara is able to make production decisions for 50 % of its products during and not before a selling season. Only basic products (about 20 %), because they are usually manufactured in Asia, are ordered half a year before the start of the season, 30 % just before the selling season and the majority, 50 %, not until during the selling season. [5] For comparison: the industry average for this kind of "in-season commitments" (meaning production during the selling season) varies from 0 % to a maximum of 20 % depending on the retailer (see Figure 4.4 for reference) [58, p.65]. Yet this way, Zara has been able to lessen its chances for forecast errors and oversupply of products, as orders are based on actual demand during the season.

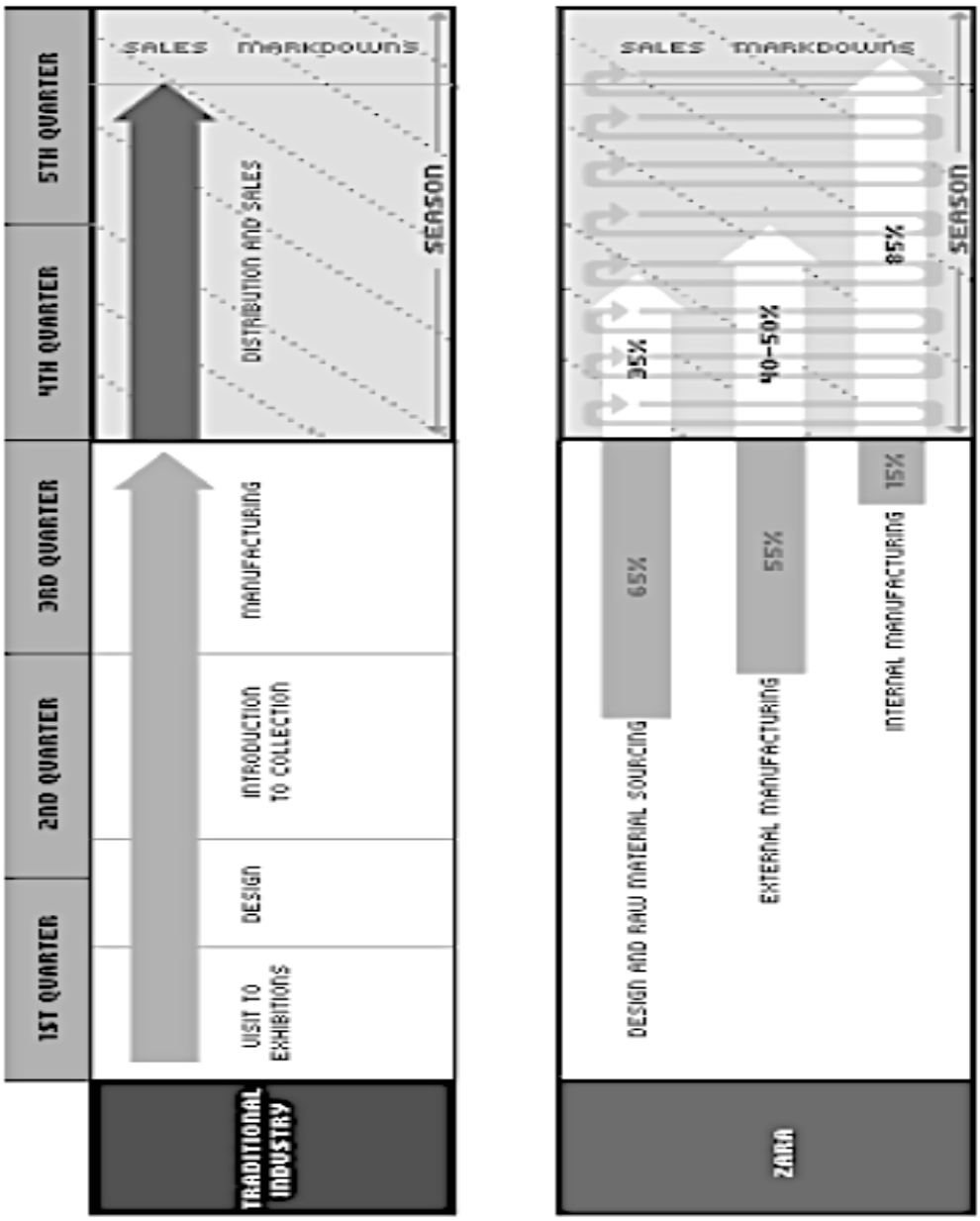


Figure 4.4: *Pre- and in-season commitmens: Zara vs. traditional industry [64].*

4.1.4.2 Centralized distribution

As was mentioned in the previous chapter, Inditex has its own distribution center in Arteixo. This means that even if a Zara's product in question was only a basic product that was manufactured in China by Zara's Chinese subcontractors, it will still have to be sent to the distribution center in Spain before it ends up in a Zara-store somewhere in the world. This might seem like an odd arrangement but it has actually been one of Zara's key factors in making its supply chain as efficient as it is. [65]

The Arteixo-based distribution center is approximately 470 000 square meters big and it is operated on dual-shifts. [64, p. 11; 67] All of the Inditex-owned Zara's factories are linked to the distribution center via tunnels or a ceiling rails network that all in all covers about 200 kilometers (see Figure 4.5 for reference) [65]. As the distribution center holds a massive amount of Zara's products (approximately 50 000 products per week from each factory [65]), there is a mobile tracking system for the products. The system is able to assign products into their suitable areas in the distribution center with help of barcodes, and it can handle about 45 000 products per hour. [64, p. 11]

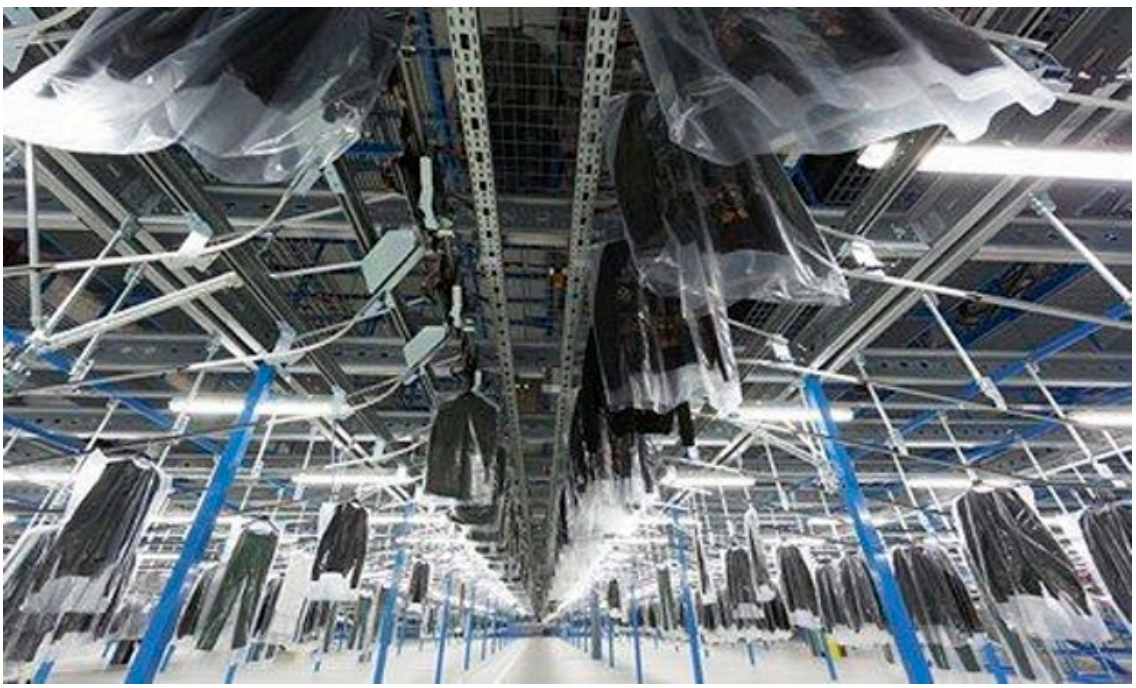


Figure 4.5: *Ready items in Zara's facility [72].*

Ghemawat, Nueno and Dailey however note, that the majority of the products in the distribution center stay there only for some hours and never more than three days. The shipments from the distribution center are also done in a graduated manner based on different time zones: shipments to America, Middle East and Asia are carried out early in the morning and shipments to Europe are handled later in the day. [64, p. 12]

Zara's stores place orders directly to the distribution center via handheld computers. Usually there are new orders twice every week, but during a peak of a sales season, even as often as three times a week. In the distribution center, these orders are handled, and based on e.g. the availability of the products and previous sales history, allocation decisions are then made accordingly. If an order ends up being approved, products are delivered to the stores with help of an outsourced delivery service. Products going to stores in Europe (about 75 % of all products) are transported via truck and products going outside of Europe (the remaining 25 % of the products) are transported via plane. The delivery to Europe takes approximately 24 to 36 hours, and to outside of Europe approximately 24 to 48 hours [64, p. 12].

With help of the vertically integrated, centralized distribution center, Zara is able to keep proper track of all of its products. Also, as the products in the distribution center have already been tagged and packed and as the stores are able to place orders directly to the distribution center, Zara is able to react to the orders quickly and effectively. As a result, stores do not need separate storage spaces for products but the products can be directly placed on the shelves.

4.1.4.3 IT tools

Because of the pace and the amount of products that Zara produces, the company also has to have adequate IT tools to be to able to keep track all their different stock-keeping units. The fact that Zara's organizational structure has been kept as simple as possible and there is no communication and co-operation between Inditex's different brands or even Zara's three own product lines of course helps the flow and control of information, too. [64; 58]

One of Zara's vital IT tool are the customized handheld computers (=PDAs) that Zara's store personnel use. With help of these PDAs (as well as regular phone conversations), the store personnel are able to forward a lot of different and important information to Zara's headquarters in La Coruña. This information includes for example quantitative data about how new products have sold and what products need to be ordered to the store, as well as e.g. more general consumers feedback. [66]

Ferdows, Lewis and Machucha also note, that IT tools are present during Zara's product development phase, too. For example: the designers only refine suitable colors and textures for a product after and not before the product prototype has been chosen for production. They do this with help of computer-aided design system. Also, if the product chosen for production is made in Zara's own factory, they transfer the product specifications – such as cutting information for example – to all the related machines in the factory in question. [66]

Barcodes are another vital factor in keeping Zara's supply chains and product flow quick and efficient. The barcodes do not only apply for ready products – they are used throughout the whole production process from tracking down cut pieces to sewing and packing of the products. [66] Also, as was mentioned earlier, the distribution center's tracking system uses barcodes to assign products into their suitable places in the center. According to Butler, when an order is placed and approved, the system then allocates products through the ceiling rails into separate boxes according to each store's needs. Obviously, the stores communicate their orders for the distribution center as barcodes. [65]

As to which store orders are approved and which are not, Zara uses computer algorithms to help in the decision-making. Zara has developed these algorithms in co-operation with Massachusett's Institute of Technology, and they are designed to come up with the proper mix of stock-keeping units for each store. Although Zara's managers' actions are guided by the suggestions produced by these algorithms, they are able to adjust the orders manually, too. [65]

It should be noted, however, that it is not only the certain IT tools Zara uses that have enabled it to be as efficient as it – it is the way it uses them. Every aspect in the company's operations has been analyzed and optimized for the IT tools. For example: it is not uncommon for a fashion retailer to use the PDAs as help in the communication between different parties (like for example store personnel and production managers). Yet in order to make the most of this kind of communication and prevent vital information from getting lost within the different organizational levels, Zara has e.g. decided to keep its organizational structure as flat as possible. Or: within a week, one Zara-store can, instead of dealing with just one general market specialist, receive three separate phone calls from Zara's headquarters in La Coruña – from each of the market specialists in Zara's three product lines. And also: Zara does not solely and blindly rely on its electronically collected data, but highly values word-of-mouth information from Zara's retail managers, too. [66; 70]

4.1.4.4 Flexibility

As a result of the vertical integration, centralized distribution system and clever utilization of IT tools, Zara has achieved a highly flexible production system. Usually, according to Ferdows, Lewis and Machuca, a small change in e.g. retail orders can result in much bigger fluctuations in a factory's orders because it goes through so many different levels (e.g. wholesalers and distributors) before being received by the factory in charge of the production. Therefore, when a selling season has started, traditional fashion retailers are only able to make changes to 20 % of their orders at the highest. Yet in the case of Zara, it is able to make changes to 40 to 50 % of its orders. [66]

Zara's flexibility also comes from well thought out little things. For example, approximately half of all the fabric Zara buys is bought as undyed, so that the company can postpone decisions regarding which color products to produce until later during the season. [64, p. 11] Related to this, Zara's designers also develop their designs using fabrics and trims that are already available instead of having to wait for the fabric first being processed. In other words: Zara's design process's starting point is to focus on what they already have and what could be made of that, instead of first designing what could made and only then, looking at what would be needed for the designs. [70, p. 2] Also, as was already mentioned before, Zara's designers only refine suitable colors and textures for a product after and not before the product prototype has been chosen for production, and they have been advised to e.g. restrict the number of changes they make to a product prototype so that the development process and speed to market are as quick as possible, too. [66; 70, p. 2]

The need for flexibility is also taken into consideration in Zara's operations before actual production decisions have even been made: even though it is more expensive for Zara, the company has decided to invest in high-tech factory equipment and extra factory capacity, just to be prepared for any unexpected increases in production or other unexpected changes. This is something only very few subcontractors for example in Asia would be able to do. [67] Yet clearly, Zara has been able to make this investment work for their favor, considering their exceptionally short lead times and the small amount of unsold products compared to many other fashion retailers.

4.2 American Apparel

Like Zara, American Apparel is a vertically integrated fashion retailer and in addition to Zara, also a whosesaler. Whereas Zara is a European fashion retailer, American Apparel, like the name suggests, has its roots in the US.

American Apparel®

Figure 4.6: *American Apparel -logo [73].*

American Apparel (see Figure 4.6 for the company logo) sells women's, men's children's and pet's wear and also offers accessories. The company headquarters (pictured in Figure 4.7) are located in Los Angeles, California and it is the largest clothing manufacturing facility in North America [74]. By the end of 2014, American Apparel employed approximately 10 000 people worldwide and had altogether 239 stores in 20 countries with net sales worth of 609 million US dollars[75].

Figure 4.7: *American Apparel's headquarters in LA, California [76].*

The company was founded by Dov Charney, originally at the end of the eighties, and it was settled in Los Angeles in 1997. After that, the company has had ups and downs along its way. For example in 2008, the Guardian awarded American Apparel as the label of the year [77]. Yet the more recent developments of the company include a filing for bankruptcy on October 5th, 2015 [78].

4.2.1 Company history

As was mentioned in the previous chapter, Dov Charney, a Canadian born in 1969, is the founder of American Apparel. He originally started his business at the end of the eighties, while still in boarding school, by importing Hanes' and Fruit of the Loom's T-shirts from the United States to Canada, where he then sold them to his friends. He continued with that in college, where his T-shirt business evolved into a small wholesale business that was operated through his college dorm room. Eventually, he ended up quitting college in his third year in order to dedicate his time fully to his T-shirt business. At this time, he began manufacturing the T-shirts as well, with the help of a $10 000 loan from his father. [77; 79; 80]

American Apparel was shortly set in the state of South Carolina. But in 1997, Charney moved the company to Los Angeles, which has been American Apparel's home ever since. The move to the current headquarters, which today employs about 3000 people [81], happened in 2000 [82]. There, American Apparel first continued as a manufacturing wholesale business until expanding into direct retailing in 2003 (while also continuing with wholesale), in hopes of being able to cover all the debts the

company had managed to attain throughout the years. So, the first American Apparel store was opened in Los Angeles in 2003. [77; 79; 80]

After 2003, the company expanded quickly: in 2004, American Apparel started operating in Europe and in 2005, altogether 65 new stores where opened. During that time, Charney was named "entrepreneur of the year" by the company Ernst & Young, as well as "man of the year" by the Apparel magazine. [77; 80]

By 2006, according to MarketWatch, American Apparel had managed to gain market share and was able to compete with bigger, well-known American fashion retailers such as GAP for example [80]. Further in 2008, as was mentioned previously, American Apparel was named the label of the year by Guardian magazine. [77] Yet after 2009, the company has failed to generate any profit and eventually, before almost going bankrupt in 2009 and 2011 [81], had to file for bankruptcy in October, 2015. [78; 83]

Already before filing for bankruptcy in October 2015, Dov Charney had been replaced as CEO of American Apparel by Paula Schneider. American Apparel decided in December 2014 to end Charney's employment as the company CEO due to different scandals, media controversies and legal troubles he had gotten himself into. [84]

4.2.2 Business characteristics

According to Stoel, there are two factors that make American Apparel a unique clothing company. Those factors are that it has both environmentally and socially responsible production methods and that it is a US based clothing producer (which already is unique on its own) that is involved both in wholesale and retail businesses. [85]

Also, in contrast to Zara, which does not really advertise its products at all, American Apparel has always been known for its very bold and provocative advertisements. Within the years, American Apparel's advertisements have many times featured posters of models wearing nothing more than the item they are advertising – from socks and underwear to bodysuits (see Figure 4.8 for a fairly moderate example). According to Zerbo, the purpose of these kinds of advertisements is to increase consumer's awareness of the company. The bold advertisements have also have been a major factor in molding the company's identity. [80] Like American Apparel itself describes: "The American Apparel advertising campaign has become a synonymous with our brand name as the signature Made in the USA basics that first put us on the map." [86]

Figure 4.8: *American Apparel's ad from January 2015 [86].*

The bold advertisements have indeed been a good way for American Apparel to distinct the company from its competitors as American Apparels's products themselves are not really the most high-fashion products but rather basic cotton T-shirts and sweaters. Another thing that is a big part of American Apparel's identity and that it also has used as a way to stand out, as was noted in the aforementioned statement, is its USA made products (see Figure 4.9). The US production has always been an important factor of business for Charney, who has been given credit for supporting the US clothing industry instead of using cheap overseas sweatshops [87]. All the American Apparel's products are designed, produced and shipped from its Los Angeles headquarters [74], and the employees are treated fairly – for example they are paid better than what the minimum wage in California is and they are entitled to free English lessons, parking and an $8/week health insurance among other things. [87]

Figure 4.9: *American Apparel's ad from March 2015 [86].*

Also, as was mentioned earlier, one unique thing about American Apparel is that is involved both in retail and wholesale businesses. After the company started with its retail operations by opening its very first own store in 2003, it has increased its store numbers quite quickly and massively leading to 242 stores at the end of 2014 [75]. According to the company founder, Dov Charney, the opening of the stores was a necessary move in order to make consumers more aware of American Apparel's brand. Yet other instances have described American Apparel's store opening strategy as "rapid over-expansion" and one reason behind the company's struggles. [80] These description are not that far-fetched: the 200+ stores with around 5000 employees only amounted to 31,4 percent of the company's $609 million revenue in 2014, and the numbers only seem to be decreasing. The wholesale sector on the other hand contributed to 34,4 percent of the 2014's revenue with a 5,1 percent increase from previous. [80; 88]

4.2.3 Products

American Apparel's product range is quite big – it consists of women's, men's, children's and even pet's (see Figure 4.10) wear and accessories. It is particularly known for its cotton basic products [77].

Figure 4.10: *American Apparel's ¾ sleeve dog raglan [89].*

American Apparel itself has, according to Stoel, described its style as "iconic, clean, simple and timeless". [85] This can also clearly be seen from American Apparel's products. The company has always avoided logos and it is not known for wild patterns but for its simple Y-front cotton shirts the company founder, Charney, is also often seen wearing [77].

Yet although the design of American Apparel's product is often really simple and plain, what is unique for the company's products is that they are offered in a large variety of different colors (see Figure 4.11) – from basic colors to more trendy colors to even very bright and flashy colors. [80; 85]

Figure 4.11: *American Apparel's wholesale hoodie sell sheet from September 7th 2012. [90]*

Similarly to Zara, American Apparel is a vertically integrated fashion retailer. Yet whereas Zara has really made the most of having its manufacturing and retailing activities closely tied to one another by bringing small batches of new products to the markets as often as every two weeks, American Apparel's approach has been a lot more traditional. American Apparel's products are not as trendy and fashionable as Zara's and it is known for bringing new products to the market a lot less frequently and also, in larger amounts. [80]

4.2.4 Key operational features

In this chapter, American Apparel's key operational features are looked into. As has been established, American Apparel has not been performing too well ever since 2009. Therefore, existing research and articles are used to get a better understanding behind the struggles the company has been facing and also, to establish whether the short supply chains have had any – positive or negative – effect on them.

4.2.4.1 Vertical integration

Like Zara, American Apparel is a vertically integrated company: All American Apparel's products are designed, produced and shipped from its California based facilities. And, unlike Zara, who has outsourced e.g. its low value-adding sewing activities to mostly close-by sewing workshops, American Apparel has really kept hold of all of its activities related to the production of a clothing item. [74] American Apparel's vertically integrated supply chain model is presented in Figure 4.12.

Figure 4.12: *American Apparel's supply chain model in a nutshell [91].*

All of the American Apparel's main facilities are located in the California area. Besides the company headquarters and factory in Los Angeles, American Apparel has also a fabric dyeing and finishing facility in Hawthorne, a knitting facility in Los Angeles, a knitting, dyeing, cutting and sewing facility for fabrics in Garden Grove, a dyeing facility for ready clothing items in South Gate and lastly, centralized distribution facility in La Mirada. As for the distribution, American Apparel has outsourced the actual transportation of the products to Fresh Air Freight and trucking companies. Also, the company uses one of its subsidiaries for replenishments of its US retail stores. However, possibly the most unique thing about the vertical integration of American Apparel is that the company's own employees both model and photograph the pictures the company uses in its advertisements. [91]

Whereas Zara has, with the help of vertical integration, created an incredibly quick and effective production network, American Apparel's and Dov Charney's goal with vertical integration always seems to have been first and foremost to guarantee socially and ecologically responsible production methods. American Apparel itself states that by having all of its activities from designing, knitting, dyeing and cutting to sewing and storage under the same roof, the company can ensure that e.g. all the needed US environmental regulations are being obeyed and the employees treated fairly. [74]

When compared to clothing industry workers in general, the American Apparel employees are indeed doing quite well. In 2007, California's minimum wage was $6,75 per hour but with their performance-related hourly fee, the American Apparel's employees were able to make $12 per hour on average – which is almost double the minimum wage. Also, as was mentioned earlier, the employees, who largely consists of immigrants, are offered a health insurance that costs them $8 per week, inexpensive full-family health care, free English lessons, properly lit and ventilated workspaces, free parking, company subsidized meals and free international phone-calls during work days. [77; 87]

Of course, this kind of commitment to employees' working conditions is, for a fashion retailer, honorable and frustratingly rare. Yet these kinds of benefits are also not cheap for American Apparel. According to The Economist, the subsidized health insure costs about 4 to 5 million dollars per year for the company and e.g. the meals about $500 000 yearly. [87]

Like is the case with Zara, American Apparel's stores are also operated and owned by the company itself. In addition to the costly worker benefits, the stores have been a major expenditure for the company and nowadays, their sales only contribute to about 30 % of the company's yearly revenue As was mentioned earlier, when American Apparel first started with its retail business, its store numbers expanded quickly and according to many instances, too quickly. Several stores were opened over a short period of time (150 stores within the first three years of retail business and almost twice as many in the next three years, too [77]) in order to make the new retail customers aware of the brand. [80] In the end, the large number of stores only credited to even more debt for the company and the financial crisis and the following recession did, on their part, not help the company's situation either [77]. So now, with the new American Apparel CEO, one of the company's key intentions is to close down several of the company's stores that have not been performing well and instead focus on fewer, fast-growing locations and also, enhance the company's e-commerce and wholesale channels [92].

With the filing for bankruptcy, not only has the number of stores but also, the profitability of American Apparel's US manufacture in general, been brought into

question. While the company itself has adamantly stated that it will continue with its US based manufacture – "You can't have American Apparel without apparel made in America" [93] – other instances have commented, that in order for the company to save itself, it will either have to offshore its production or invest in expensive factory automation equipment and robotics. [85; 93]

4.2.4.2 Centralized distribution

Like Zara, American Apparel has a centralized distribution system that is located as of 2013 in La Mirada, California. Before that, the distribution center was located in the company's Los Angeles downtown factory. [94]

According to American Apparel, by having all of its activities executed in the same California area, the company can bring products to the market quickly and effectively [91]. Yet when considering American Apparel's old distribution center, the company's operations do not seem the most effective. As mentioned above, before moving to the new distribution center in La Mirada in 2013, American Apparel's centralized distribution was carried out from their downtown Los Angeles factory (see e.g. Figure 4.7 for reference). That factory is, as a working space, reportedly really narrow and only has small freight elevators. So, when the distribution center was there, all products had to be processed and moved by hand. This means that the distribution center employees were processing orders by reading an order sheet and manually collecting the ordered products into a shopping cart (see Figures 4.13 & 4.14). [94]

Figure 4.13: *American Apparel's distribution employee collecting an order in the company's old distribution center [94].*

Figure 4.14: *Inside American Apparel's old distribution center [94].*

The new American Apparel distribution center however is automated (see Figure 4.15). According to the company, the new distribution center was build because the company needed both quicker distribution system and more space for it. So, the new center is a little over 23 200 square meters big and unlike the old downtown working space with its 7 stories, flat. It also has e.g. auto-piloted cars that run up and down through the product aisles, an automated conveyor belt that only runs when products are placed on it, energy-efficient lighting and easy loading places for trucks picking up orders. [94; 95]

Figure 4.15: *American Apparel's new distribution center [95].*

The new American Apparel distribution center is, of course, worlds apart from the company's old distribution center. Yet when compared to e.g. Zara's distribution center, which Zara started building already in 2003 [63], it does still seem a bit more moderate. Of course the comparison to Zara's distribution center is somewhat unfair – many fashion retailers have looked up to it and tried to duplicate it [65]. But when considering the financial hardships American Apparel has had over the years, it does seem a little peculiar that the move to a much more effective distribution system happened so late in the company's operations and e.g. only after almost going bankrupt twice [81].

4.2.4.3 Flexibility & product offering

According to Dov Charney himself, the reason for keeping all the production activities under American Apparel's own roof is not only to guarantee socially and ecologically responsible production methods but also, to be able to respond quickly to new trends and changes in demand [87]. On its homepages, American Apparel for example states, that its vertically integrated production system enables the company to have better flexibility and quicker lead times than many other actors in the market [91]. Yet when considering other fashion retailers' products, American Apparel's product offering with its mostly basic cotton products does not seem that diverse – despite the versatile colors the products come with. Also, the company is more known for bringing big batches of new products to the markets with a more traditional schedule than focusing on new, trendy products and offering them more quickly but in smaller amounts [80].

The fact that American Apparel has not been fully utilizing the flexibility its vertically integrated production system should be well suited for, has also been contributed to one the reasons behind the company's struggles. For example, according to Zerbo, American Apparel's problem is that the company fails to provide its young costumers, who after all are the company's target market [96], sufficient amounts of trendy and fashionable clothing items [80]. Stoel also comments, that American Apparel has failed to make its products seem unique to its customers in a market where the most basic products are really similar with each other and competition therefore tough and also, largely based on product price. Stoel even argues that in order for American Apparel to save itself and be able to respond to the heavy price competition, the company will either have to outsource its production to cheaper countries or truly make it production flexible enough (by e.g. investing in robotics and automated production) so that the U.S. based production costs can be covered. [85]

Not only has the need for more versatile product offering and schedule been brought up by different media outlets – American Apparel itself has also acknowledged this need. Therefore, as a part of the company's new turnaround plan, it was announced in the summer of 2015 that American Apparel would, for the first time ever, bring a fall

collection of men's and women's "advanced basics and key items" to the market. Usually, the fall season has not been one of the focal points in the company's operations but with the fall collection, American Apparel wanted to start the process of renewing its product offering and increasing its productivity by SKU. [92]

The launch of the fall collection did however not go as was originally planned. Because of the low amount of capital American Apparel had due to its debts and bankruptcy, the company was able to produce only 15 % to 20 % of the new fall collection's products – the rest it simply could not afford. This was, of course, a letdown for American Apparel. Yet the company has stated that it plans on continuing with the creation of new styles and freshening up the product offering. Whether that, together with closing down of underperforming stores and other actions in the turnaround plan, will be enough to save the company and enable it to stay in the California area, remains to be seen. Many instances argue that it is inevitable for the company to start offshorting at least some parts of the company's production especially as Los Angeles plans to raise its minimum wage to $15 per hour by the year 2020. [93]

4.3 Zara and American Apparel: Quantitative comparison

In this chapter, Zara's and American Apparel's operations and performance are compared based on different key figures in order to get a better understanding of the differences between the companies.

In Figure 4.16, Zara's and American Apparel's net sales between 2004 and 2014 are first compared. It is clear from the figure that not only is Zara's scale of operation a lot bigger than American Apparel's but that it has also been able to increase its sales quite successfully throughout the years. Compared to Zara, American Apparel's net sales have on the other hand only increased very little. As a result, the difference between the companies' net sales has increased by a staggering 198 percent between the ten-year time frame.

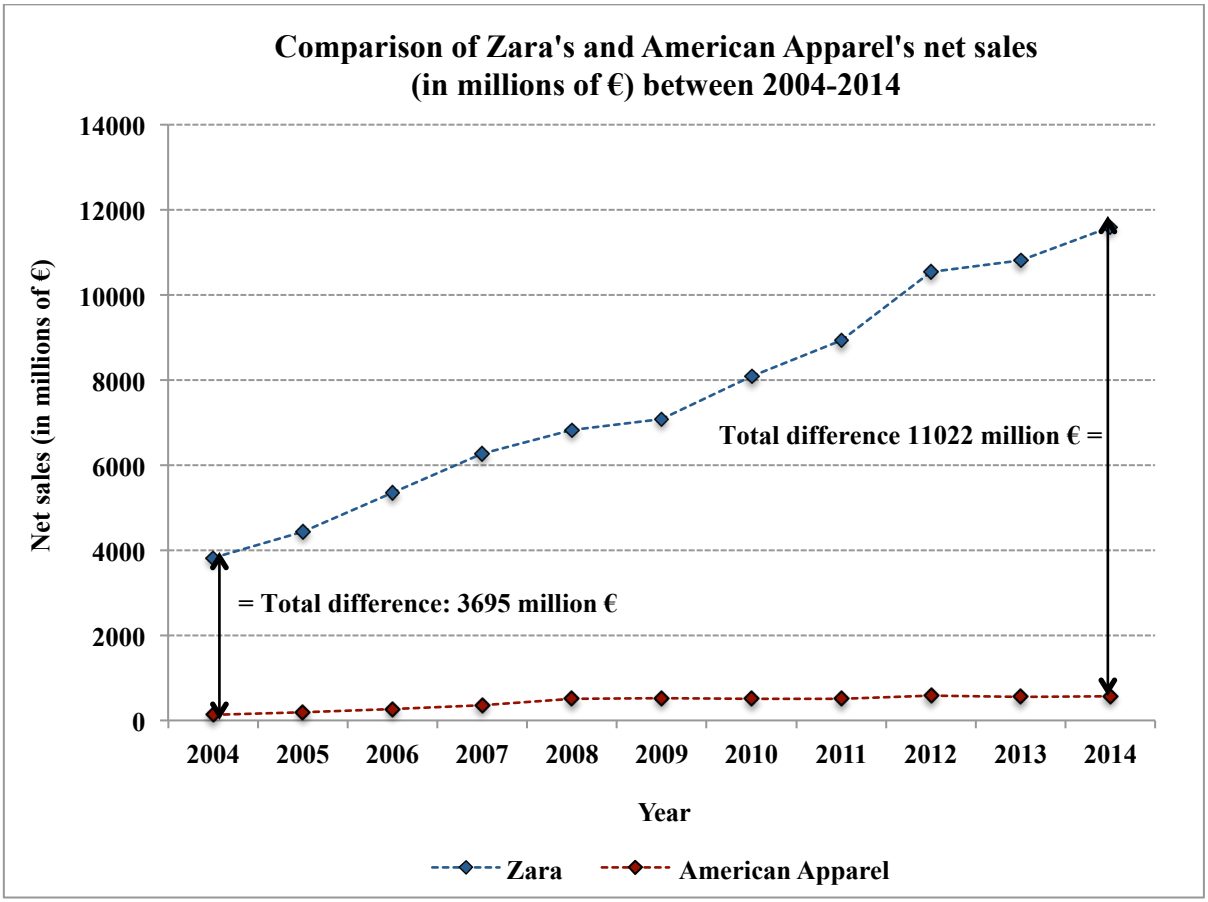


Figure 4.16: *Zara's and American Apparel's net sales between 2004-2014 (based on [97; 98]).*

In figure 4.17 the companies' store numbers between 2007 and 2014 are compared. Again it is obvious from the figure that Zara operates in a lot larger scale than American Apparel. Also, similarly to Zara's net sales, Zara's store numbers also increase steadily throughout the years whereas American Apparel's store numbers actually start to decrease after 2009. As was discussed in the previous chapter, American Apparel's store opening strategy has been described as rapid over-expansion and after the financial crisis, the company was, at the latest, forced to decrease its store numbers. The change in the difference between the companies' store numbers is not as drastic as the change in the difference between the net sales (although the time frame is different in the figures, too) but still, the difference has increased by 56 percent in the seven years presented in the figure.

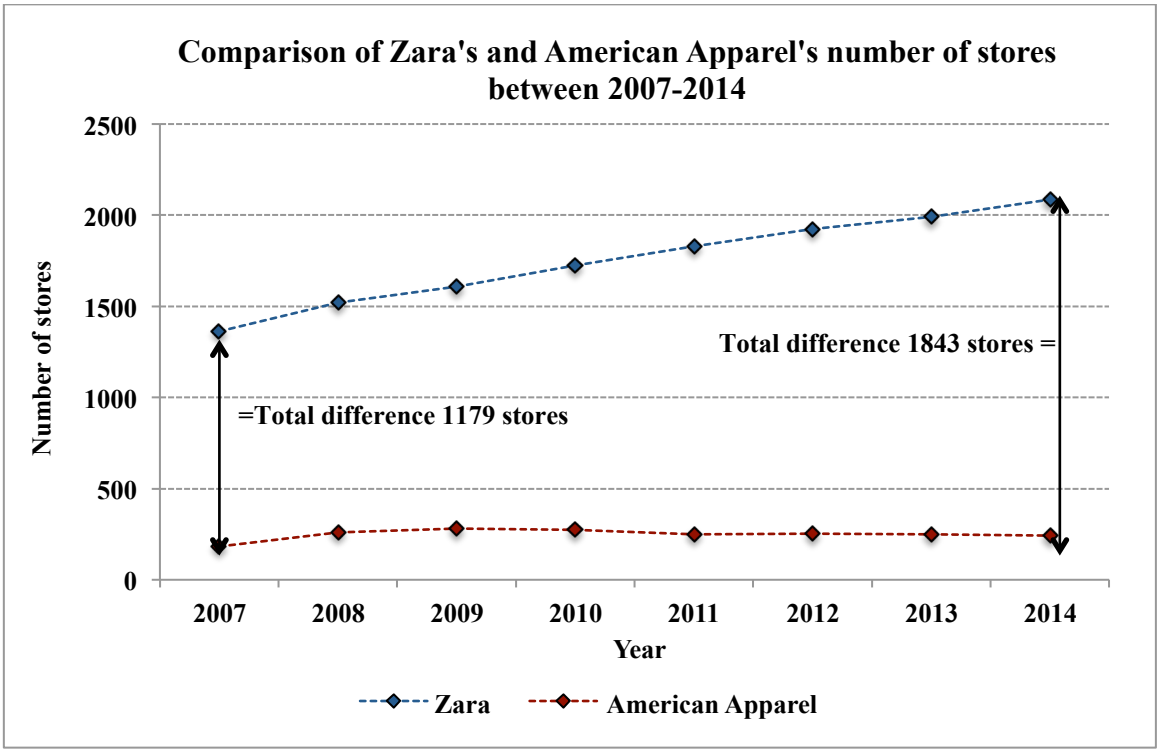


Figure 4.17: *Zara's and American Apparel's store numbers between 2007-2014 (based on [97; 98]).*

In Figure 4.18, Zara's contribution to Inditex's sales between 2004 and 2014 is presented. This is because in the following figure, Inditex's and American Apparel's gross- and net profit margin percentages are compared as there was no data available on solely Zara's gross- and net profit margin percentages. Overall, Zara's sales have grown at a similar rate to Inditex's sales and Zara's share of Inditex's whole sales has been about 65 percent from 2004 to 2014.

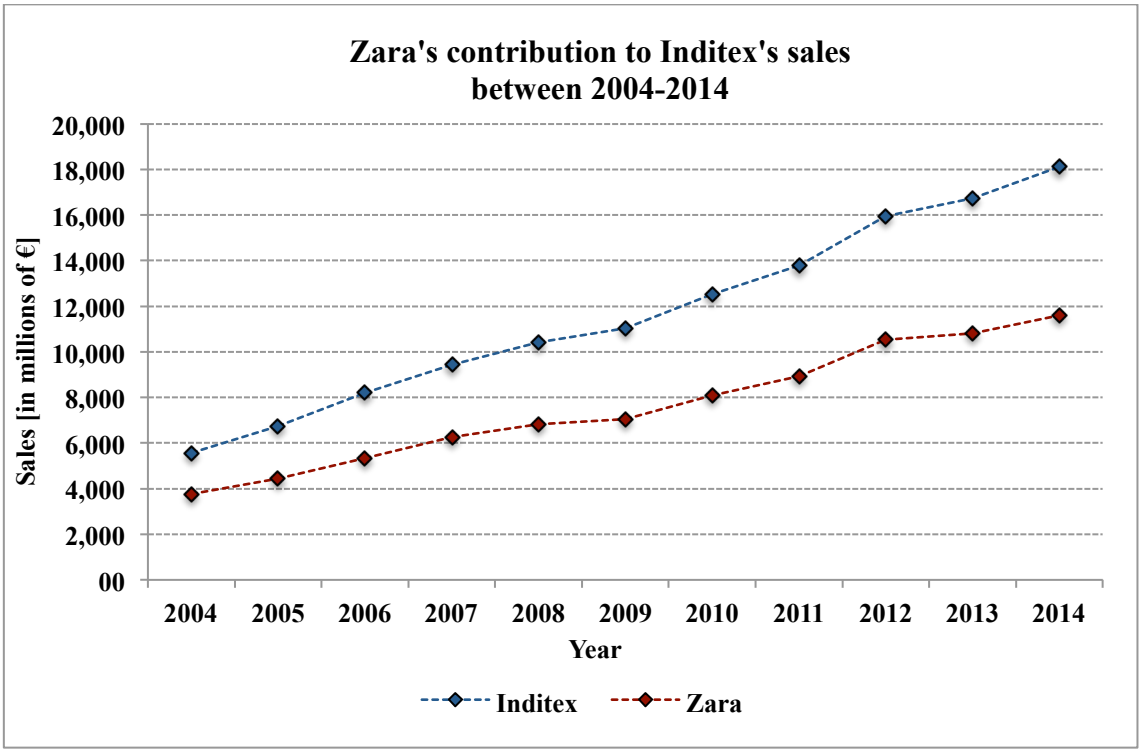


Figure 4.18: *Zara's share of Inditex's net sales between 2004-2014 (based on [97]).*

In Figure 4.19, Inditex's and American Apparel's gross- and net profit margin percentages between 2004 and 2014 are compared. As has been established, in this study gross margin is understood as the difference between the acquisition costs of products sold and the actual sales and it is one measure of profitability. Net profit then again is another measure for profitability and understood as the profit that remains after all costs have been subtracted from the sales. [5]

The results in Figure 4.19 are really interesting – both Zara and American Apparel have had very similar gross margin percentages (around 56% and 50 %) between 2004-2014. Yet when comparing the actual net profit percentages, there is a clear difference. Whereas Zara has been able to make profit and maintain about 13 % net profit percentage between the presented ten-year time frame, American Apparel's net profit percentage has been negative ever since 2009 meaning after 2009, the company has failed to generate any profit. This means that the direct costs related to both of the companies' products are manageable and both companies can generate quite good gross margin percentages but then again in American Apparel's case, the indirect costs of the company's operations are too much for the company to handle.

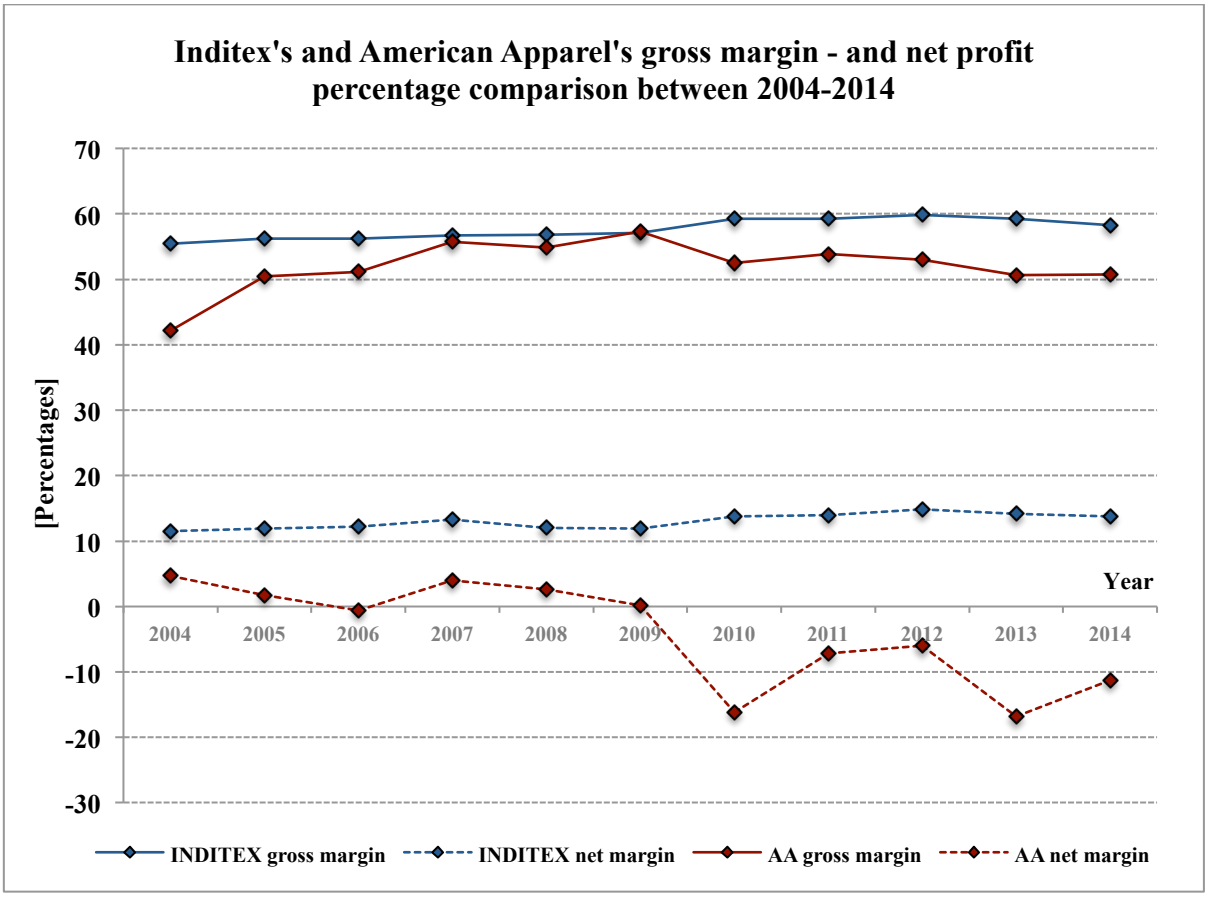


Figure 4.19: *Inditex's and American Apparel's gross margin percentage and net profit percentage between 2004-2014 (based on [98; 99]).*

In table 4.1, Figure 4.19's results are presented but in a table-form.

Table 4.1: *Inditex's and American Apparel's gross margin percentage and net profit percentage between 2004-2014 (based on [98; 99]).*

Year	Gross margin [%]		Net margin [%]	
	American Apparel	Inditex	American Apparel	Inditex
2004	42,1	55,4	4,7	11,5
2005	50,5	56,2	1,7	11,9
2006	51,1	56,2	-0,6	12,2
2007	55,7	56,7	4,0	13,3
2008	54,9	56,8	2,6	12,0
2009	57,3	57,1	0,2	11,9
2010	52,5	59,3	-16,2	13,8
2011	53,9	59,3	-7,2	14,0
2012	53,0	59,8	-6,0	14,8
2013	50,6	59,3	-16,8	14,2
2014	50,7	58,3	-11,3	13,8

5 ANALYSIS

The reasons for outsourcing of production to offshore locations are clear. In a labor-intensive industry, where labor costs make up to 60 % of total production costs, cheaper labor can undeniably offer fashion retailers huge savings. Also, as the manufacture of fashion industry's products is not technologically very challenging, outsourcing of production does not seem risky from that perspective, either. Yet when considering the quick development of digital media and the pressure it puts on fashion retailers in terms of lead times and product availability, as well as the often socially and ecologically questionable working conditions of the offshore production sites, it is justified to speculate whether the savings on the labor costs truly overshadow all the other issues and problems related to the offshore production.

Research, quite understandably, suggests that fashion retailers who are able to meet the demand best are the most successful ones. Or, if a fashion retailer is able to build a brand so strong that it can fight against the mainstream fashion trends, it can be successful, too – although it might still operate in a niche market. Still: the fact that about a third of fashion retailers' products need to be sold with discounted prices suggests that meeting the demand is very challenging and that there is room for improvement within the fashion industry's supply chains.

One important factor related to the demand and availability of the products is that it is not enough that the products are quickly available – they must appeal to the customers, too. This is also apparent in the Kelano-project [5]: the fast service companies, despite the fact that they had products enter their stores quickly, had e.g. the lowest actual mark-up, gross margin percentage and gross margin return on investment (GMROI). The fast service companies utilized vendor-managed inventory –strategy to attain fast product availability. This means that they made actual purchase decisions about the products already before the start of a selling season, but had the product supplier manage their inventory and make replenishments when products were running out. As the actual mark-up is calculated by dividing actual sales with purchases, huge discounts have a negative effect on it: the more products are sold with discounts, the poorer the sales and therefore, the actual mark-up. The fast service companies' actual mark-up was only 1,44 on average so they were not making that much profit with their products. For comparison: in the Kelano-project, the fast fashion companies had an actual mark-up of 2,44 on average and the brand builder companies 2,36. In other word: these companies had either more fashionable or unique design, so their offering probably met the demand better than the design of the fast service companies – hence, they had better sales and were probably not as forced to e.g. sell discounted products. Also, with the lowest actual mark-ups, it is no wonder the fast service companies also had the lowest

gross margin percentage and gross margin return on investment. For example, the fast service companies' GMROI was only 1,22 (fast fashion companies 5,97, brand builder companies 3,23) meaning they were selling their products only with a little higher prices than with what they had acquired them for.

This is not to say vendor-managed inventory –strategy is not a good strategy for fashion retailers. On the contrary: it can be quite a good strategy. For example, in Heikki Mattila's dissertation [6], the results indicate that a fashion retailer can, by utilizing a VMI-strategy, better its retail performance. Yet the key element is, as also Mattila points out, that sufficient attention is paid on forecast accuracy and demand-drivenness. In other words: if the products do not correlate with the demand, having them quickly available won't help, but if the products meet the demand, a fashion retailer can very well benefit from having the product supplier manage its inventory and make replenishments of popular products once they are running out.

So, it all comes down to meeting the demand. And to be able to meet the demand, a fashion retailer should postpone purchase and production decisions to as late as possible to lessen the possibility of forecast errors. Zara is a good example of this: its lead time for a completely new product is four weeks and it is one of the largest fashion retailers in the world and has even managed to stay productive throughout the latest recession. Of course Zara has been perfecting its unique operating system for many years and it is not possible for a random fashion retailer to just try to mimic it. Yet still: research indicates that even by engaging itself only partly to shorter supply chains and more local production, a fashion retailer could succeed better in the competitive fashion market.

Of course saying that by using shorter supply chains a fashion retailer will automatically be successful, is too simple. There are also other factors that should be taken into account. One of these factors is the product offering of the fashion retailer. For example: it the retailer mainly sells basic products that are not as easily subjected to unpredictable changes in demand as more trendy products are, longer lead times and supply chains might be the best solution. Also, if the retailer's products are really unique and do not follow the mainstream fashion trends, production in that case does not necessarily has to be really quick and effective, either – especially if later replenishment are not needed. Another factor is the utilization of the shorter supply chains: if the fashion retailer does not know how to integrate its operations to work well with the possible quicker production or does not have the proper technology for that (e.g. use of POS-information) the shorter supply chains might just end up costing the retailer more. In a way, American Apparel is a good example of many of the aforementioned things: it has its own production facilities in immediate proximity to its headquarters and main consumer markets yet its products are rather more basic than

really fashionable and also, it does not bring new products to the market quickly but rather in a more traditional schedule.

One thing that should not be neglected either when talking about the possible benefits of shorter supply chains is the fact that both of the case companies looked into in this study were vertically integrated. This means that for them, shorter supply chains and close-by production are more or less given. Yet this is not the fact with many other, not vertically integrated fashion retailers and companies. In fact: if the fashion retailer is small – which majority of the fashion retailers are – it might not have the needed power and connections to create a quick and effective deal with a more close-by producer. Rather, if it decides to use this kind of producer, its order might be processed only after the producer has carried out bigger orders from more influential retailers. As the market is already dominated by a small amount of big retailers and now, with the clothing industrial base deteriorating in the EU and US, this problem is only accentuated as there may not be enough skilled professionals and facilities to handle all the orders in the needed time frame.

The poor infrastructure of EU's and US's clothing industry is indeed something fashion retailers considering more local production should take into account. The fact that there are not that many producers left, which might result in longer lead times, is not the only problem. Another problem is that the producers are often too specialized in a certain process and not product, meaning they might not be able to handle a retailer's order from start to finish. Instead, the retailer might have to use multiple different producers, who might be scattered across EU/US. This again decreases the benefits a retailer might hope to attain with the more local producers – even though the producers used might operate closer to the retailer than e.g. Asian producers. Having to circulate the order and product from one producer to another does not make the supply chains straightforward and shorter but rather, maybe even more complex.

This is also a subject matter that Vogler-Ludwig and Valente handled in their research [27] regarding the future of European TLC-industries. According to them, for Europe to be able to strengthen its TCL-industries, there has to be strong support and investments in vocational training, new industrial policies as well as improvement of the existing innovative culture. In other words, for EU's (as well as US's) clothing industry to redeem itself and try to bring production back on a larger scale, it has to be a joint effort with governmental support. Otherwise, as the fashion industry is extremely competitive and also large based on product price, it is very difficult for an individual fashion retailer or producer to try to fight against the cheaper, offshore labor. Especially since entry barriers for a starting fashion retailers are already high and production then again is not as profitable and internationally very competitive.

When talking about shorter supply chains and more local production, environmental issues are often referred to, as well. There indeed are some clear environmental benefits that can be achieved with this kind of production. For example: by using more close-by producers, retailers can often get rid of unnecessary middlemen (e.g. traders) within the supply chain. As a result, the supply chain is not only shorter and quicker, but also more traceable. Therefore, it is easier for the retailer to monitor that the producer is obeying all the needed safety and environmental regulations. Of course the matter is not always that black and white but generally, the lesser actors there are in the supply chain, the easier it is to mange and monitor. Also, as the environmental laws are often a little stricter in the EU and US than e.g. in many places in Asia, the production is often a bit more sustainable in those places, too. Another good thing about the short supply chains in terms of environment is that with them, the retailer can postpone production decisions closer to the start of a selling season meaning the products will more likely meet the demand and hence, less unwanted products are produced.

Yet, as it is with everything, there are also some more negative things related to the shorter supply chains and environment. For example with Zara: even though its sell-through percentage is high and only a small amount of its products need to discounted, one could question how sustainable it is to bring new products to the market as often as every two weeks. Of course e.g. Zara can argue that it uses sustainable materials and production methods but still, its business model rather encourages consumerism than moderate and thoughtful purchases. Research also indicates that Zara's stores are visited considerably more frequently than many other, more traditional fashion retailers' stores. So, from this point of view, American Apparel's model could be considered more sustainable in terms of its decision to focus on more basic, good quality and long-lasting cotton wear with a high emphasis on environmentally friendly production. However, when it comes to succeeding in the fashion market, this has not been the best possible strategy and therefore, also American Apparel is now forced to being more demand-driven and offering more fashionable products alongside their cotton basics.

Fashion industry's impact on the environment is not the main topic of this study so clearly, there are a lot more environmental issues related to fashion industry's supply chains that have not been covered within this study. But it could be said that local production and shorter supply chains are not automatically the more environmentally friendly solution – for example the retailer and its business strategy play a key role, too – yet they do offer a lot of good possibilities for carrying out more sustainable, traceable and demand-driven production.

5.1 Zara vs. American Apparel

Zara and American Apparel offer an interesting comparison as they are both vertically integrated fashion retailers that own a big part if not all of their production facilities but that have had very different outcomes in the fashion market.

Although the main outlines of the two case companies are really similar, they posses a lot of differences as well. For example: Zara offers trendy and fashionable products but does not advertise (almost) at all, whereas American Apparel is known for very edgy and provocative ad campaigns but also, for more basic and plain products. Or: Zara has from the start positioned itself as a retailer that understands fashion and brings new and interesting products to the market quickly whereas American Apparel has always rather emphasized its made in the USA –image, environmental awareness and fair treatment of its workers.

There are also differences with the production methods, too, although both of the companies e.g. have their own factories. Whereas Zara's take on the vertical integration is a little bit more subtle, American Apparel has really kept hold of all of the activities related to its product's life cycle. Zara, too, does a big part of its own manufacturing, but it has outsourced the manufacture of the more basic products to offshore producers as well as all the sewing, which is the most labor-intensive yet not that value-adding part of the production.

Overall, Zara's actions seem more thought-out than American Apparel's. One could even say that Zara has been able to transform its effective production to an overall company culture because all of its activities from small details to bigger entities are so well planned out and deliberate. This is for example reflected in the fact that it treats its three product lines as separate entities, buys about half of its fabrics as undyed and starts its design process by looking at what fabrics are already available, as well the fact that it has invested in high-tech factory equipment and extra factory capacity and that it makes shipments from its distribution center in stages, based on different time zones. When compared to that, American Apparel's operations from its old, ineffective distribution center to not as well thought-out product lines and offering do seem a bit more all over the place.

Yet still: when Zara's and American Apparel's gross margin percentages are compared, both of the companies have managed to generate gross margin percentages of over 50 from 2004 to 2014. From this point of view, American Apparel's production does not seem any less ineffective than Zara's. On the contrary: American Apparel's gross margin percentages are really good for a fashion retailer and state that it can generate good results with its made in the USA –products. Yet it is the net profit percentages where the differences between the companies begin. Whereas Zara's net profit

percentage has stayed around 13 during the ten-year time frame, American Apparel has failed to generate any profit ever since 2009. This is to say that despite the good gross margins, American Apparel's overall operation has not been effective and productive.

There are a couple of factors that could be attributed to the cause of American Apparel's troubles. One of these is the rapid store-expansion the company went through when it first started with retail. The store numbers and the maintenance costs related to them were clearly too much for the company to handle in the long run – hence why the company is now closing its underperforming stores. Then there are all the legal troubles American Apparel's founder, Dov Charney, has gotten himself into. These have not only amounted to huge legal fees for American Apparel, but have most likely had a negative impact on the company's brand, too. And as Gereffi [29] notes, brand name rents are one way for leading fashion retailers to gain leverage in the fashion markets, so a negative brand and company image might have huge effects for a fashion retailer and its success. Also, related to the two aforementioned things, American Apparel has generated huge debt throughout the years – too huge for the company to be able to keep up with in the end. This is then again partly because American Apparel's products have not really evolved and have therefore not been selling that well. Especially with the recession, people are less willing to spend their money on clothing, so the competition between fashion retailers has gotten extremely tough. And when looking at American Apparel's net sales, it is clear that they have stagnated from 2008 on meaning, American Apparel has not been performing well in the even more competitive fashion market.

So, from this point of view, it is not the more expensive local production and shorter supply chains that are the ultimate cause for American Apparel's downfall. However, it can be speculated whether the bankruptcy could have been avoided had American Apparel been more demand-driven and utilized its vertically integrated production network even more to bring new, trendier and better-selling products to the market. Now, after filing for bankruptcy, American Apparel needs to really optimize its operations to be able to save itself. This means that there are probably going to be changes in the production methods, too, as already was the case with the new distribution center. Whether the changes include just optimizing of the US manufacturing or switching to offshore producers, remains to be seen. Yet when compared to Zara's operations, there is room for improvement with American Apparel in terms of efficiency and thoughtfulness.

The two case companies showcase that fashion industry is a really hard industry and there are no magic prescriptions that work well with every fashion retailer. On the contrary: there are a lot different aspects and elements that need to work in order for the fashion retailer to be successful. Among these elements are e.g. the product offering of the fashion retailer, its marketing strategy, the size of the retailer and the resources it has

available, the willingness of the retailer to share information (e.g. POS-information) with the producer and the technology the retailer has at its disposal. Majority of these elements are more related to e.g. R&D and marketing – i.e. the more value-adding activities in the clothing value chain – than the actual production. Yet to be able to achieve a lot these elements, well thought-out and flexible production and effectively managed supply chains are an absolute must for a fashion retailer.

6 CONCLUSION

RQ1: What are the benefits shorter supply chains could offer for a fashion retailer?

According to this study, there are some benefits fashion retailers could gain by utilizing shorter supply chains and more close-by producers. The main benefit is the fact that the retailer could postpone its purchase and production decisions closer to the start (and even during) of its selling season. This will lead to better forecast accuracy for the retailer meaning, less products would need to be sold with discounted prices or donated to charity. Also: with a close-by producer, it would be possible for the retailer to make replenishment orders of the most popular products as a) the producer is geographically close enough for it to be possible and b) because of improved demand forecasts, capital would not be tied to the unwanted products. The replenishments would result in less lost sales which, in terms of the retailer's gross margin, have an even more negative effect on it than the unsold products.

With the globally complex and dispersed supply chains, retailers often turn to traders and other middle men to help them link the retailer with potential producers and suppliers. With more local producers, this would not be as necessary. As a result, the supply chains would be quicker and more effective as unneeded actors are reduced from them, and also, probably more profitable, too, as they would not contain as many unnecessary stages that do not add any value to the product. Another benefit is that by getting rid of the unnecessary middle men, the supply chains would be easier to manage and the product more traceable meaning, the possibilities for carrying out more sustainable (ecologically and socially) production would increase. Also, quality issues could be tackled easier and quicker.

Another benefit in terms of the environment would be that because of the improved demand forecasts, resources would not have to be wasted for the manufacture of redundant products.

The idea with the shorter supply chains is that the retailer would be better prepared for unexpected changes in demand by having products available quicker. With this kind of system, one benefit is also, that inventory costs could decrease. This because the retailer would not need to make its full order well before the start of the selling season and therefore, have a huge inventory space for it, but it could make smaller orders more often and in an ideal case, have them enter the store directly without any need for in-between storage. However, the ideal case is very hard to attain, so it is often safer for the retailer to have at least some kind of small buffer inventory available.

RQ2: What are the factors a fashion retailer considering shorter supply should pay attention to?

There are many factors the fashion retailer should take into consideration before opting for more close-by producers and shorter supply chains. One important thing to look at is the retailer's product offering. If the retailer sells basic items that do not change much from year to year and also, do not really require replenishments throughout the season, offshore production could in that case be considered the better option. Yet if the retailer's product offering contains more fashionable items and bigger uncertainties and changes in demand, the better forecast accuracy related to more local sourcing could benefit the retailer. Also, it should be taken into account that the retailer does not need to use the shorter supply chains to source all of its products – it could still use the offshore producers for more basic items.

Another thing to consider is what kind of retailer the retailer is – i.e. is it a branded retailer, vertically integrated retailer or for example, a branded manufacturer and also, how big the retailer is. This is related to what kind of knowledge and resources the retailer has at its disposal. For a vertically integrated retailer, local production could already be the reality or in any case, easier to organize than e.g. for a small branded retailer without any production-related technical or material know-how. Although fashion industry's supply chains are buyer-driven, they are controlled by a small amount of big retailers that have been able to push the prices down. This puts a lot of pressure on small retailers and if they choose to use close-by producers, they should pay extra attention to choosing the producer and making sure it is reliable (i.e. it does not handle the retailer's orders as last priority) or else the increased costs of the local production might get too overwhelming for the small retailers to handle. Of course small retailers often have a weaker positioning than bigger retailers when negotiating with offshore producers, too. So, in any case, it is important especially for a small retailer to carefully weight all the sourcing strategy's costs in respect of its possible benefits before making any decisions.

For the shorter supply chains to really be able to benefit the retailer, they have to be effective. Yet if the retailer is not a vertically integrated retailer meaning, it is in possession of e.g. its own manufacturing units, the effectiveness is not always that easy to achieve (although vertical integration is no absolute guarantee of effective production, either). To help with this, retailer should have the needed technology at its disposal. This means that e.g. point-of-sale software and information should be utilized and shared with the producer, so that actual demand can be monitored in real time. Inventory and distribution management should be well monitored and organized, too, so that it can support the effective production and prevent any unnecessary bottlenecks in the supply chain. Overall, the retailer should be willing to invest in modern technology

and equipment to truly be able to make the most of the benefits the shorter supply chains and local production can offer.

It should not be neglected either, that it is not only the retailer's dedication and input that matter – the producer plays an important role, too. Meaning it is not only the retailer whose technology needs to be in order but also, the producer. This might be a challenge for the retailers. This is related to the fact that manufacturing has over the years moved from the EU and US to Asia, where e.g. the machinery base is now often more advanced and producers are able to handle orders from start to finish in the same facility. With the EU and US clothing manufacturing industry deteriorating, the same effectiveness might be harder to achieve, especially on a larger scale. This is not to say EU/US production will never be as effective – just that the producer's preparedness for quick and effective operation should be thoroughly analyzed before any collaboration. And overall: the retailer and producer need to rely on each other and be willing to e.g. share the POS-information or otherwise, the collaboration will most likely not be beneficial.

6.1 Implications for future research

As this study has been an exploratory research, the conclusions are not clear and undeniable truths but should rather be regarded as hypothesis and a basis for future research. In the future, more quantitative analysis on fashion retailers that prefer shorter supply chains as well as traditional fashion retailers (focusing on e.g. the same key figures presented in the Kelano-project) should be carried out to be able to analyze if the possible benefits mentioned in this study are also manifested in practice. Yet overall, with this kind of industry where there are a lot of different kinds of actors sharing the market, it is not possible to come up with a strategy that will work for every retailer. However, there clearly is some room for improvement with fashion retailers' demand forecasting and supply chains, which the growth of digital media and the quicker than ever changing trends will most likely only accentuate.

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