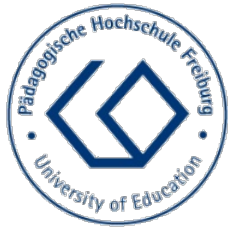


Global Textiles and Clothing Supply Chain



Hochschule Reutlingen
Reutlingen University



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Learning Objectives

After this course students should be able to...

- Describe different reasons for the globalization of the textile supply chain
- Outline the different stages of the textile value chain
- Describe the social and environmental impact of each stage of the textile value chain
- Outline different challenges of the global clothing supply chain

Globalization

Globalization is the process of interaction and integration among people, companies, and governments worldwide. Globalization has been taking place for hundreds of years, but has sped up enormously over the last half-century.

Globalization

Globalization has resulted in:

- increased international trade
- companies operating in more than one country
- greater dependence on the global economy
- freer movement of capital, goods, and services
- recognition of specific companies worldwide (e.g. Nike, Adidas, H&M)

BBC (2021)

Reasons for Globalization

- **Improvements in transportation** - larger cargo ships: cost of transporting goods between countries has decreased. Economies of scale: cost per item are reduced when operating on a larger scale + Goods and people can travel more quickly
- **Freedom of trade** - organizations (e.g. WTO) facilitate free trade
- **Improvements of communications** - internet and mobile technology have facilitated communication between people around the globe
- **Labor availability and skills** – some countries have lower labor costs and also high skill levels → Labor intensive industries such as clothing can take advantage of cheaper labor costs

Specific effects of the globalization on fashion

Cheap Labor

- Consumer can buy the most popular designs at a low price
 - In developed countries with enforced labor laws, it is not possible to have workforce that is cheap enough to produce products at low costs
- Therefore, companies utilize labor in developing countries with low labor costs and little labor laws



Partly inhuman conditions and unlivable wages

Specific effects of the globalization on fashion

Cultural Effects

- Countries and regions have long traditions and histories of cultural and individual fashion
- Multinational fashion firms serve the global market
 - Fashion is increasingly westernize
 - Large retails mostly produce mass-produce clothes that are popular in Western countries
 - Decrease of the regional individuality and diversity

Specific effects of the globalization on fashion

Cultural Effects

- Companies often open up stores in many countries worldwide
 - Decline in culture-specific dress
- Loss of heritage and domestic skills
 - Skills passed on from generation to generation allowed to create and repair (e.g. if clothes were not affordable)

Specific effects of the globalization on fashion

Environmental Effects

- Usage of chemicals in the producing countries
- Usage of water: High input of water and the water is often discharged unfiltered into waterways
- Wastewater pollution within processing and raw materials stages due to the use of nutrients and fertilizers
- Long-distance transport is required to move the finished products from the factories (located in low-labor-cost countries) to the consumer in a developed country

Textile Chain Overview

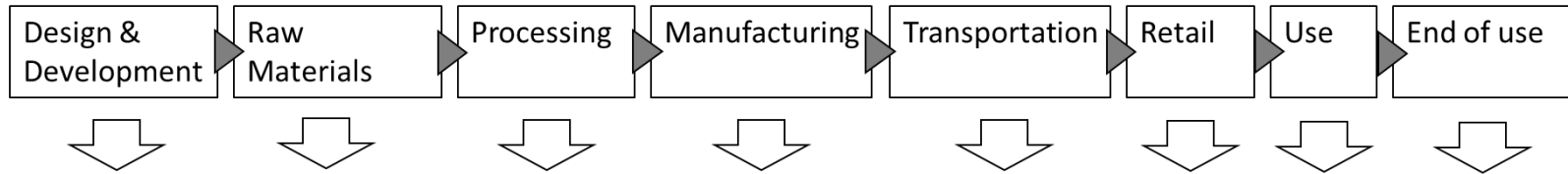


Let`s work!

- Illustrate the textil chain with its different stages
- State the environmental and social impact of each stage

Overview of environmental & social impact along the value chain

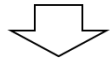
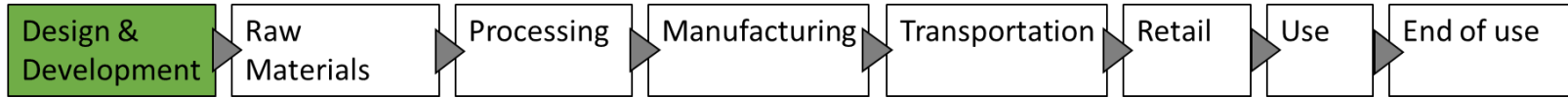
The Fashion Value Chain



Environmental	Water	Input of fresh water / output of waste water
	Energy	CO2 emission
	Chemicals	Amount and toxicity of utilized chemicals
	Waste	Amounts and types of waste generated / treatment of waste
Social	Labor Practises	Compensation, working hours, worker treatment/involvement, worker rights (to vacation, to form unions etc), gender equality, child labor
	Health & Safety	Facility standards (fire doors, emergency exits etc; established emergency procedures/training), exposure to chemicals and dangerous equipment
	Community & external engagement	Interactions / services for the community, e.g. education facilities for children of factory workers, engagement with external stakeholders and consumers

Modified from Kerr & Landry (2017)

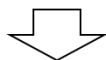
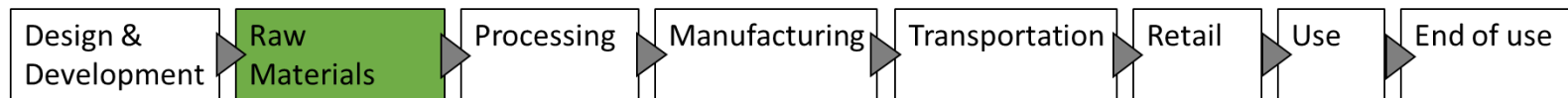
Design & Development



Environmental	Water	Choice of materials (e.g. cotton, water); Choice of colors (dyeing), finishing	Very High
	Energy	Choice of fabrics, e.g., oil as input for polyester	Medium
	Chemicals	Choice of material treatments, e.g., softening of fabrics; Choice of colors	High
	Waste	Choice of recycled fabrics and blends; Design for longevity Choice of cuts and possibility to glue	High
Social	Labor Practises	Design implies choice of supplier due to necessary capabilities	Low
	Health & Safety	Design implies choice of supplier due to necessary capabilities	Low
	Community & external engagement	-	Very Low

Modified from Kerr & Landry (2017)

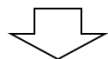
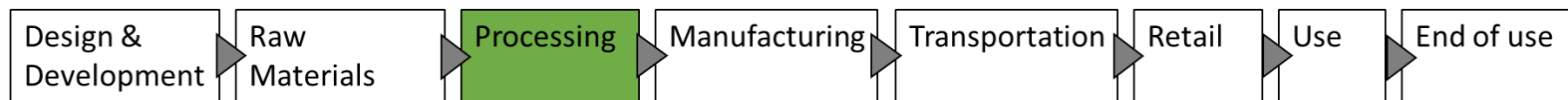
Raw Materials



Environmental	Water	Irrigation methods, e.g., choice between conventional cotton versus more sustainably sourced cotton	High
	Energy	Using recycled plastics/fibers, e.g., replacing virgin polyester	High
	Chemicals	Amount and frequency of fertilizer and pesticide use	High
	Waste	-	Very Low
Social	Labor Practises	Low level of wages; Prevalence of child labor	Medium
	Health & Safety	Safeguarding safety standards	Medium
	Community & external engagement	-	Very Low

Modified from Kerr & Landry (2017)

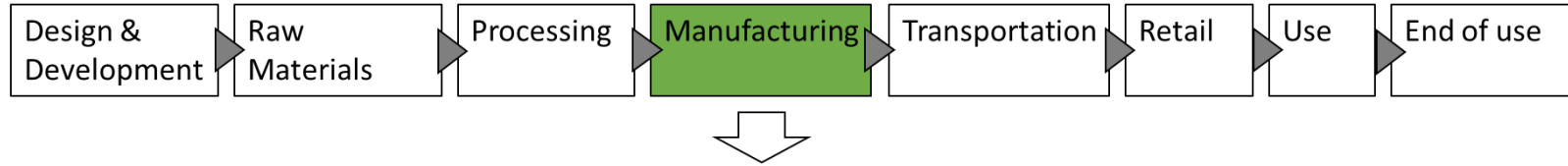
Processing



Environmental	Water	Water use in dyeing; Water use in cleaning, rinsing of fibers	High
	Energy	Share of renewable energy use; Energy efficiency of equipment	Very High
	Chemicals	Lack of waste water treatment in dyeing; Chemicals for fiber treatments	Very High
	Waste	Waste of fibers/fabrics (e.g., roll ends, off-cuts, samples)	Medium
Social	Labor Practises	Low level of wages, non-compliance to min. wage laws, gender inequality Worker wellbeing, bonded and child labor	Very High
	Health & Safety	Building safety; Chemical exposure of workers	Very High
	Community & external engagement	-	Low

Modified from Kerr & Landry (2017)

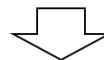
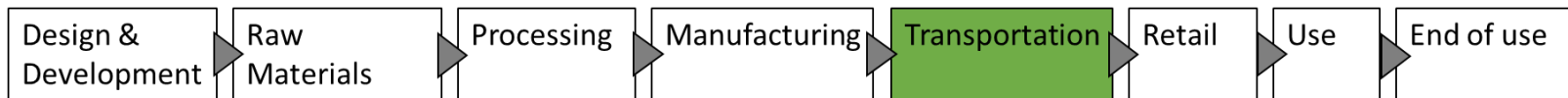
Manufacturing



Environmental	Water	Water use in garment finishing	Low
	Energy	Share of renewable energy use; Energy efficiency of equipment	Medium
	Chemicals	Toxicity of materials used for prints	Low
	Waste	Waste from cut-and-sew, samples	Medium
Social	Labor Practises	Low level of wages, non-compliance to min. wage and overtime laws, gender inequality; Worker co-determination (unions)	Very High
	Health & Safety	Issues in building safety; Insufficient length of rest times	Very High
	Community & external engagement	Setup of local infrastructure and services to workers	Medium

Modified from Kerr & Landry (2017)

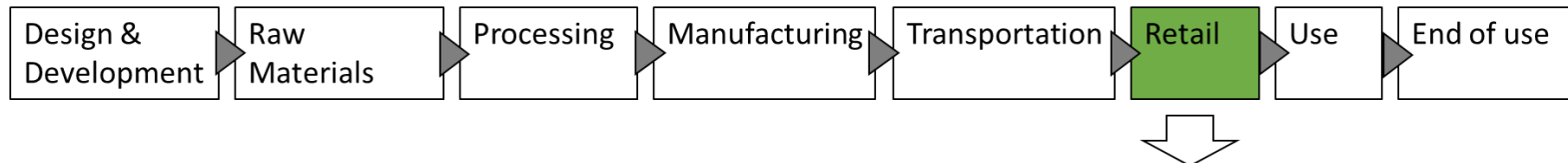
Transportation



Environmental	Water	-	Very Low
	Energy	Excessive use of energy in transport modes (airplanes)	Medium
	Chemicals	-	Very Low
	Waste	Waste generated through packaging, pallet use	Medium
Social	Labor Practises	Non-compliance to contract terms (sub-contracting); Excessive working hours	Low
	Health & Safety	Insufficient length of rest times	Low
	Community & external engagement	-	Very Low

Modified from Kerr & Landry (2017)

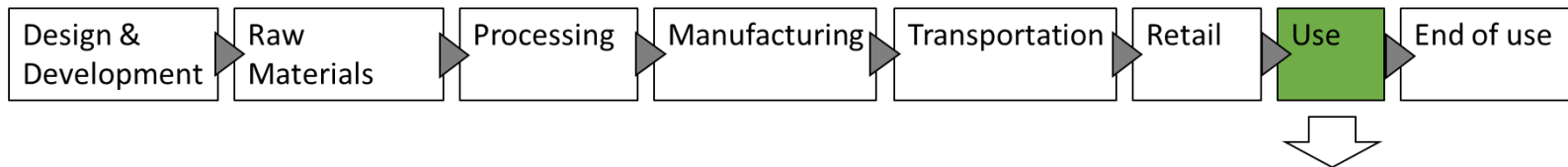
Retail



Environmental	Water	-	Very Low
	Energy	Energy efficiency in stores (e.g., lighting)	Medium
	Chemicals	-	Very Low
	Waste	Waste generated through packaging, tags, hangers, bags	Medium
Social	Labor Practises	Low level of wages, excessive working hours Limited social security, temporary employment	Medium
	Health & Safety	-	Very Low
	Community & external engagement	Engagement with consumers on sustainability awareness and Impacts	Medium

Modified from Kerr & Landry (2017)

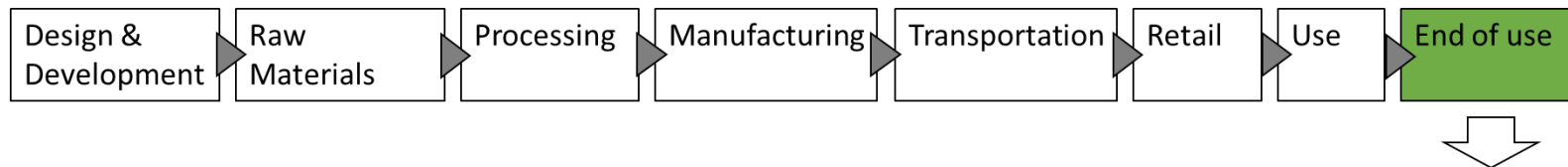
Consumer Use



Environmental	Water	Water use of washing by consumers	Medium
	Energy	Energy consumption of washing, drying, ironing	High
	Chemicals	Toxicity of detergents Pollution of waste water (e.g., chemical processing residues, micro-plastics)	Medium
	Waste	Prolonging product use avoiding resource waste Using second hand sources for products saving resources	Medium
Social	Labor Practises	-	Very Low
	Health & Safety	-	Very Low
	Community & external engagement	-	Very Low

Modified from Kerr & Landry (2017)

End of Use



Environmental	Water	Premature disposal leading to unnecessary resource waste	Medium
	Energy	Premature disposal leading to unnecessary resource waste	Medium
	Chemicals	-	Very Low
	Waste	Disposing end-of-use products generating waste and connected negative externalities (e.g., leachate emissions from landfills)	Very High
Social	Labor Practises	-	Very Low
	Health & Safety	-	Very Low
	Community & external engagement	-	Very Low

Modified from Kerr & Landry (2017)

Global Apparel Supply Chains

- Global sourcing gained increasing attention during the early seventies when the advantages of offshore production have been realized, particularly in terms of costs as the most dominant driving factor.
- Primary reasons for outsourcing and offshoring activities are: lower prices, access to locally unavailable products, technologies, and scarce resources, higher quality, increase of supplier base, and the opportunities to develop a foreign market

Global Apparel Supply Chains

- This has led to different integration levels of sourcing ultimately resulting in global sourcing strategies that involves worldwide geographically fragmented locations
- Therefore, the operationalization of global supply chain networks comprising multi-tier suppliers (first- and lower tier suppliers) is a highly challenging task and needs strategic management actions calling for the need of Supply Chain Management (SCM) in order to achieve purely economic objectives: lower costs, increased customer value and satisfaction, and finally competitive advantage

Global Apparel Supply Chains

- Many definitions have been provided since SCM faced rising importance during the early 1990s.
- In this respect, we can observe three degrees of supply chain complexity i.e., direct supply chain, extended supply chain and ultimate supply chain.

Global Apparel Supply Chains

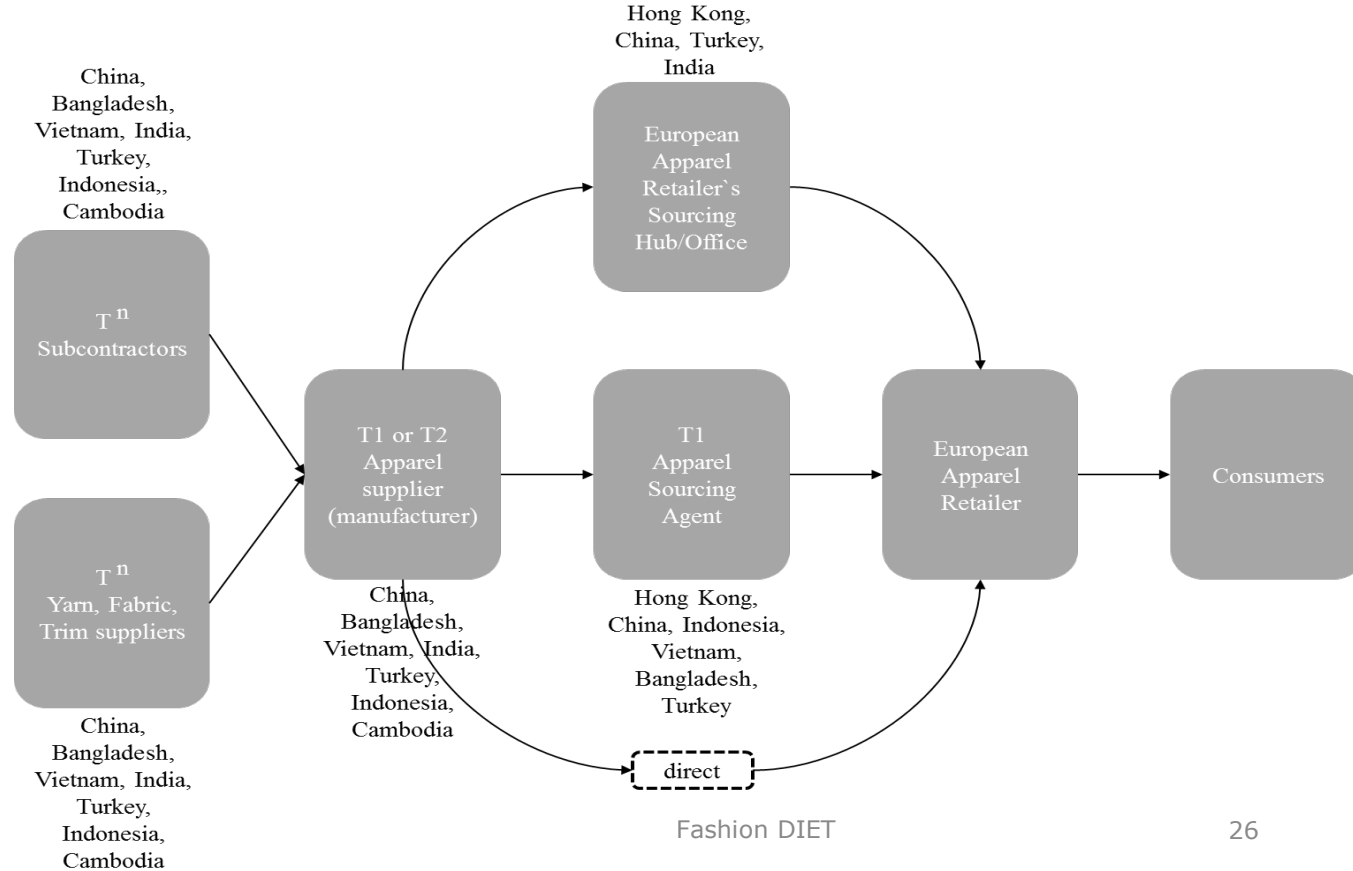
Ultimately, Mentzer et al. (2001, p. 18) define SCM as *“the systemic, strategic coordination of the traditional business functions and the tactics across these business functions within a particular company and across businesses within the supply chain, for the purposes of improving the long-term performance of the individual companies and the supply chain as a whole”*.

Global Apparel Supply Chains

In practice, apparel retailers approach their outsourcing and offshoring activities in three ways:

- direct sourcing,
- sourcing intermediaries,
- or sourcing hubs

Global Apparel Supply Chains



Global Apparel Supply Chains

As a consequence, the management of numerous suppliers and sub-suppliers (multi-tier Tn) in globally dispersed locations is extremely difficult entailing e.g. various internal and external risks such as supply, process, demand and control risks.

Global Apparel Supply Chains

In light of the globally dispersed apparel supply chain network the intense involvement of lower-tier suppliers in apparel supply chains makes it complicated to manage environmental and social issues because the buying firms lack of information and have less impact on lower-tier suppliers.

Global Apparel Supply Chains

- Lower-tier suppliers are considered being less responsive for social and environmental issues and have weak relationships with the downstream supply chain
- Due to the complex and long supply chains there is a substantial lack of visibility as they indicate that apparel retailers might even not know the suppliers who manufacture their garments what can induce considerable social risks such as the use of child labour

Sustainability Clothing Supply Chain Challenges

Demand volatility

- The fashion industry is volatile → forecasting is difficult: Potential losses; costs difficult to calculate
- Coronavirus: government action like lockdowns can alter demand overnight

Production volatility

- Impact of events like natural disasters, pandemic etc. on production → stock shortages, supply challenges etc.

Serai (2021)

Sustainability Clothing Supply Chain Challenges

Transportation issues

- Increase in transportation difficulties (e.g. Suez canal blockage in 2021) may have a significant impact on the fashion supply chain

Perishability

- Product lifecycles are shorter than ever
- Traditionally, the two primary lifecycles you would deal with were: Seasonal lifecycles, lasting 20 - 24 weeks; Fashion lifecycles, lasting 10 - 12 weeks
- Today: lifecycles are count in days rather than weeks and months Serai (2021)

Sustainability Clothing Supply Chain Challenges

Supply chain sustainability and transparency

- Forced to deal with public interests in working conditions, environmental impact of their operations etc.: greater focus on supply chain sustainability and transparency

Lead times

- Companies outsource production to low-wage countries to reduce their operating costs → challenge regarding the time it takes for products to become available
- Delays can make brands more susceptible to quickly fluctuating demand + shorter perishability window

Serai (2021)

Sustainability Clothing Supply Chain Challenges

Managing cost types

- It's common for businesses to focus solely on unit cost when sourcing products
 - It discounts things like transportation costs, export taxes etc.
 - Anything that is needed get the final product from the factory to the warehouse has to be covered

Serai (2021)

Sustainability Clothing Supply Chain Challenges

Availability of raw materials

- Eco-conscious consumers are increasingly driving towards organic and sustainable fibres
- Potential for disruption if the raw materials needed are not available

The popularity of fast fashion

- Consumers demand can place significant pressure on supply chains → firms might end up with products that need to be sold at a reduced price or a loss

Serai (2021)

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