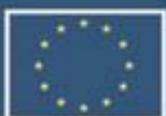


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A Background Analysis on Transparency and Traceability in the Garment Value Chain

Final Report

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LIST OF ACRONYMS

ADB	Asian Development Bank
APT	Advanced Particle Technology
ATC	Agreement on Textiles & Clothing
BCI	Better Cotton Initiative
BSR	Business for Social Responsibility
CmiA	Cotton made in Africa
CMT	Cut, making up and trim
EEAS	European External Action Service
EC	European Commission
EIPRO	Environmental Impact of Products
EPZ	Export-Processing Zones
EU	European Union
EUD	European Union Delegation
FDI	Foreign Direct Investment
GDP	Gross Domestic Product
GHG	Greenhouse gases
GIZ	German cooperation agency
GOTS	Global Organic Textiles Standard
GSP	Generalised System of Preferences
GVC	Global Value Chains
IADB	Inter-American Development Bank
ILO	International Labour Organisation
ISO	International Standardisation Organisation
ITC	International Textile Centre
IWTO	International Wool Textile Organisation
LDC	Least Developed Countries
MEAs	Multilateral Environmental Agreements
MFA	Multi-Fibre Arrangement
OBM	Original Brand Manufacturing
ODM	Original Design Manufacturing
OECD	Organisation for Economic Co-operation & Development
OPT	Outward Processing Trade
RFID	Radio Frequency Identification
RSN	Responsible Sourcing Network
SAC	Sustainable Apparel Coalition
SDG	Sustainable Development Goals
SEDEX	Worldwide platform for sharing responsible sourcing data on supply chains
SIPPO	Swiss Import Promotion Programme
SME	Small & Medium Enterprise
SGS	Société General de la Surveillance
TA	Technical Assistance
TBT	Technical barriers to trade
ToR	Terms of Reference
VCA	Value Chain Assessment
UCPD	Unfair Commercial Practices Directive
UNDP	United Nations Development Program
USAID	United States Agency for International Development
WB	World Bank
WTO	World Trade Organisation

TEXTILE TERMS USED IN THIS REPORT¹

Carded yarn	Yarn produced from fibres that have only gone through a woollen card before spinning. Used for fibres that are too short for combing.
Combed yarn	Yarn produced from fibres that have undergone the process of carding, preparation and combing. Reserved for long fibres, usually longer than 65 mm.
Course (knitting)	A row of loops along the width of a knitted fabric.
Cable stitch (knitting)	Two or more groups of adjacent wales that pass over one another to give a cabled effect.
Colour fastness	The property of resistance by a dyed fabric or yarn to a given agent (washing, light, rubbing, perspiration).
Gauge (gg)	A term used to indicate the number of needles per unit length along the needle bar of a knitting machine. In current practice, it is equal to needles per English inch (25.4 mm). The higher the gauge, the more needles per inch and thus, the finer the yarn and the resulting knitted structure.
Ginning	A process that removes cotton fibres (lint) from the seeds.
Intarsia	Knitted plain, rib or purl fabrics containing designs in two or more colours within the same knitting course. Each area of colour is knitted from a separate yarn.
Knitted Fabric	Textile fabric produced by interlacing loops of a continuous yarn.
Knitwear	Generic term applied to most weft-knitted outerwear garments such as pullovers, jumpers, cardigans and sweaters.
Mark up	The difference between the <u>cost</u> of s (or s) and their selling price
Pilling	The entangling of fibres formed during washing, or wearing of a garment, to form balls or pills which stand out of the surface of the fabric.
Plain knit	A weft-knitted fabric consisting wholly of knitted loops meshed in the same direction.
Rib (knitting)	A knitted structure in which both back and face loops occur along the course.
Sequined (garment)	Knitted garments (usually Womenswear) containing decoration applied by shinning or metallic objects or yarns.
Single jersey	Generic term to designate knitted fabrics made on one set of needles.
Single piqué	Non-jacquard double jersey fabric made on an interlock basis using a selection of knitted and tuck loops.
Spinning	The process of producing a textile yarn consisting of twisted, aligned fibres
Stitch (knitting)	Intermeshing of loops of yarn in a knitted structure
Stitch Density	The relation of number of courses to number of wales in a knitted fabric. Sometimes referred to as cover.
Super fine wool	Sheep's wool with a fibre diameter between 15 and 18.8 microns
Thread	A textile yarn in general
Yarn Twist	Helical disposition of the fibres forming a yarn. It is directly related to the consistency of the yarn. Measured in turns per unit length.

¹ Denton, M. J., and P. N. Daniels (eds.). *Textile terms and definitions, 11th edition*. Manchester: Textile Institute, 2002.

GARMENT PRODUCING MODALITIES; PRODUCT OWNERSHIP AND CONTRACTING CONDITIONS²

Garment assembly process (Cut Make and Trim - CMT): CMT is the most basic stage of the apparel industry, in which garment-sewing plants assemble products using imported inputs that belong to the buyer. The apparel manufacturer is responsible for cutting, sewing, supplying trim, and/or shipping the ready-made garment. The buyer purchases the fabric and supplies it to the manufacturer, along with detailed manufacturing specifications. Work is frequently carried out in Export-Processing Zones (EPZs), special economic zones, or in geographic locations that offer tariff reductions for export production to the buyer's country. While the required formal skill level is low in the CMT segment of the value chain, the requirements rise rapidly as companies upgrade into higher value stages and workers with more advanced skills are needed to support new functions, such as logistics, finance, design and marketing.

Full Package: When upgrading from CMT, the apparel manufacturer takes responsibility for all production activities, as well as for finishing and distribution. **Full Package** requires upstream logistic capabilities; procuring, financing and stocking necessary raw materials, piece goods, and trim needed for production. The buyer may specify textile firms from which the garment manufacturer must purchase materials, or the garment manufacturer may be responsible for establishing its own network of suppliers. The firm is also often responsible for downstream logistics, including packaging for delivery to the retail outlet. The buyer still provides the manufacturer with product specifications and designs, but the buyer is not involved in details of the manufacturing process, such as pattern making and size escalation. Full package firms can range from single production operations to global suppliers, which have multiple production centres and work on multiple product ranges. Textile fabrics may be imported, or sourced from domestic producers. This latter option can create important backward linkages to the textile industry and many countries initiated development of their textile production in order to supply textile materials to their apparel manufacturers.

Full Package with Design (ODM): This business model includes designing the products the company will manufacture. ODM involves carrying out all the steps involved in the production of a finished garment, including design, fabric purchasing, cutting, sewing, trimming, packaging, and distribution. Typically, the supplier will organise and coordinate design of the product; approval of samples; selection, purchasing and production of materials; completion of production; and, in some cases, delivery of the finished product to the final customer. Full package with design arrangements are common for private-label retail brands.

Original Brand Manufacturing (OBM): When upgrading to OBM, the garment manufacturer will incorporate the branding of its products. This requires development of complex marketing planning, strategies to market, distribution and selling of own brand products. The company will also enter the world of intellectual property and its protection. Own brand development requires considerable investment time and the acquisition of complex skills in the staff involved, but the profit potential is considerably larger than in any other stage of the apparel chain.

² Smith, Jayne. *Guide to basic garment assembly for the fashion industry*, Hoboken: Wiley-Blackwell, 2013.

EXECUTIVE SUMMARY

The purpose of the Background Analysis on Transparency and Traceability in the Garment Value Chain is to explain how traceability can turn the challenge of transparency into new opportunities for developing a reliable garment industry in which social and environmental standards are respected. At present, this global garment industry generates 1.3 trillion EUR of business each year, and employs 75 million people worldwide. In addition, around 100 to 150 million people work in the production of natural fibres (farming and ginning).

The background analysis has been carried out following the guidelines established in the project Terms of Reference, focusing research on how to advance the ongoing effort by the European Commission to engage consumers and other stakeholders in the value chain in moving towards responsible corporate conduct and improving transparency.

The results of this background analysis are intended to feed into ongoing work by the Commission on responsible management of the value chain in the garment sector. To fulfil this objective, the research has in particular followed the guidelines of The UN Global Compact and the 17 Sustainable Development Goals (SDGs) included in Agenda 2030.

Abundant information has been obtained on:

- Gender Equality Conditions;
- Working conditions along the supply chain;
- Responsible Production and Consumption (including possible traceability systems applicable to the textile/apparel value chain);
- Environmental Impact of Textile and Garment production.

These subjects are highly relevant for implementing the Sustainable Development Goals in the context of the 2030 Agenda for Sustainable Development. They are covered under specific goals such as decent work, sustainable production and consumption, ending poverty, empowering women, inclusive growth, and global partnerships.

The execution of the assignment was based on an in-depth, online search of relevant stakeholders' websites, complemented by a review of published documents, statistics and studies carried out by organisations such as the United Nations, the European Commission, the International Labour Organization (ILO) and the World Bank.

A detailed mapping of the textile/apparel value chain is included in Chapter 2. This mapping takes into account the major developments that have occurred over the last decade, which contributed to transform apparel manufacturing into a truly global supply chain spanning all continents.

The textile/apparel industry is the world's oldest consumer goods manufacturing sector. Its complex structure covers the entire production chain, transforming natural and synthetic fibres (such as cotton, wool, and polyester) into finished garments. It has long been key for Least Developed Countries (LDCs) and other developing countries to attract investment, enter a manufacturing sector capable of diversifying economic growth, and providing employment for large numbers of a semi-skilled workforce.

Production of textiles and garments has been moving away from developed countries for the last 30 years. This migration accelerated after the first of January 2005, when all quotas for the amounts of apparel products that developing countries could export to developed ones were totally removed.

The dismantling of the Multi-Fibre Arrangement (MFA) that had governed the world trade of textiles and clothing from 1974 to 2004 introduced a major change in the international trading environment. One of its main consequences was to change the geographical distribution of global apparel production, as well as the lives of workers involved in this sector (Chapter 2.2 of the report).

The retail distribution stage is the last segment of the textile/apparel value chain (see chapter 2.1). Not only does it have direct access to the final consumer, but the latest Information Technologies have given companies in this sector a powerful edge over all the preceding elements of the supply chain. Having the technology to measure final consumer attitudes and preferences in real time, is the ultimate key to success in an industry that is largely dependent on design, aesthetics, fashion and intangible decision motivations.

State of the art Information Technology has also played a major role in developing the complex logistics involved in sourcing materials and labour from several different countries, using Just In Time methods, moving the intermediate and finished products globally, and stocking thousands of retail destinations across the planet at the right time and in the right quantities.

Not long ago, apparel product cycles followed nature's seasons: Autumn/Winter and Spring/Summer. The process of colour selection, design definition and style forecasting was mostly in the hands of the large fabric manufacturers and it took on average six months to go from fabric design to retailing a finished garment. Nowadays, the process is dominated by fashion brand owners and international retailers who have reduced the product cycle to eight weeks.

With the liberalisation of international trade in textiles and clothing, and with the availability of globalised manufacturing, competition to deliver apparel products to the developed markets of the world has increased exponentially and retail prices for apparel have dropped accordingly.

Fashion brands and international retailers took control of most decisions regarding design, style and components of garments to be manufactured; they also decide where they will be manufactured, their production cost and retail prices. (Chapter 2.3) The research carried out has yielded evidence that major fashion and garment brand owners, retailers and importers have not, until recently, shown much concern for the transparency of the supply chain³. It took several dramatic events in exporting Least Developed Countries to provoke action capable of advancing the search for responsible social management and for sustainable and responsible sources of supply.

The research also covered a considerable number of initiatives for improving, or applying traceability systems, most of which will have desirable consequences for the transparency of the supply chain. Many of these initiatives and systems are described in Chapters 3 and 4 of the report. Even more are listed in Appendix II.

Different organisations have proposed different approaches to arrive at a satisfactory traceability system for the garment value chain. The evidence shows that such a system is still some way away from practical implementation. There is little consensus regarding the adoption of a single system that would satisfy all stakeholders.

The final part of the report (Chapter 5) deals with what conclusions could be drawn from the research.

It is not the purpose of the study to make recommendations on which traceability system should be applied in the apparel value chain. Instead, the report enumerates the fundamental elements that operational traceability systems should have.

Traceability systems have been developed primarily for the food industries. Apparel production, however, faces different complexities, and the development of specific traceability systems has lagged behind those developed for the food industries.

Garment production can see products dyed, printed, bleached, stone washed, degraded, shrunk and felted, processes that produce physical and chemical changes. Traceability systems for the garment value chain must take into account that wide variety of processes and transformations.

A general conclusion is that apparel products destined for European consumption travel through several countries along the production chain. This imposes added constraints on any traceability system aiming at recording the different stages of the supply chain.

Moving towards more ethical and sustainable consumption requires persuading retailers, and fashion brand owners to be more transparent about environmental impacts and social conditions along the textile/garment supply chain. Such information will be disclosed only if fashion brands feel sure it will not damage their own image. It should be noted that these organisations already have the power and

³ European Parliament, "Briefing. Workers' conditions in the textile and clothing sector", European Union, August 2014.

the necessary tools to implement changes along the supply chain. Improved traceability and more transparency are part of the change.

The state of workers' rights and social conditions along the textile/apparel value chain has become public knowledge in the European Union and other developed countries.

Several organisations, including Non-Governmental Organisations, are actively campaigning to improve workers' conditions along the entire garment supply chain and the research carried out has taken into account these campaigns, while maintaining a position of neutrality regarding their goals and policies.⁴

The major issues affecting the sustainability of the textile/garment value chain can be summarised as follows:

- The garment supply chain has become buyer-driven.
- Because of their direct contact with final consumers, global buyers manage the supply chain from a position of greater strength with respect to suppliers.
- There is insufficient transparency between different stakeholders in the supply chain.
- Subcontracting and dubious commercial practices are still abundant along the value chain.
- Workers involved in the supply chain are disadvantaged and tend to have their rights ignored.
- The concept of "Fast Fashion" has become contrary to sustainability of garment production.
- Apparel consumers in the developed world are slow to adopt more ethical behaviour.

The European Commission and the European Union member states carry out different cooperation programmes aimed at strengthening the capacity of governments in garment producing countries to implement international standards and norms, and commit to sustainable garment value chains; and on the other hand, support the private sector in managing its supply chains responsibly. This vital work contributes to improving workers' conditions in garment producing countries and it should not be discontinued.

⁴ A total of 43 websites researched for information are listed in Appendix I of this report.

1. SCOPE OF THE RESEARCH

The working premise for the present study has been that Improving traceability and transparency across the entire supply chain can help to develop a sustainable garment industry. The main elements for a sustainable and reliable garment value chain include:

- Improving the social conditions of workers outside the EU, while keeping garments affordable.
- Achieving an eco-friendlier environmental footprint over the entire value chain, including the wearable life cycle of apparel and their future disposal
- Moving consumer attitudes and motivations towards more intelligent garment buying choices
- Ensuring final consumers receive accurate and relevant information about the environmental footprint of textile apparel products

Because this study was commissioned by the EC's Directorate-General for International Cooperation and Development, the research has also looked for ways in which EU funded cooperation aid can contribute to improve conditions in the textile/garment value chain, both in regards to products, processing and social conditions for workers involved along the chain.

The UN Global Compact⁵ aims to mobilize a global movement of sustainable companies and stakeholders to create a better world. In September 2015, the 193 Member States of the United Nations adopted a plan for achieving a better future for all, outlining a 15-year roadmap designed to end extreme poverty, fight inequality and injustice, and protect our planet.

The core of "Agenda 2030" is made up of 17 Sustainable Development Goals (SDGs) which clearly define the world we want – applying to all nations and leaving no one outside its reach.

On 1 January 2016, the 17 Sustainable Development Goals (SDGs) of the 2030 Agenda for Sustainable Development officially came into force. Several among them are particularly important for all stakeholders involved in the garment value chain:

- **Gender Equality (goal 5)**
- **Decent Work and Economic Growth (goal 8)**
- **Industry, Innovation, and Infrastructure (goal 9)**
- **Reduced Inequalities (goal 10)**
- **Responsible Consumption and Production (goal 12)**
- **Climate Action (goal 13)**

Fulfilling these ambitious goals will take an unprecedented effort by all sectors of the society, including all stakeholders along the manufacturing chain.

Execution of the study was based on in-depth, online search of numerous relevant stakeholders' websites, complemented by published documents, statistics and studies carried out by organisations such as the UN, the EC, the International Labour Office and the World Bank. Sources used in the study are listed in Annexes I and II.

The research has yielded a wide scenario of the state of traceability and transparency, along with the difficulties and challenges that line the path of further progress.

The state of workers' rights and social conditions along the textile/apparel value chain has become public knowledge in the EU and other developed countries. Thus, NGOs and other organisations have implemented online campaigns aimed at changing the way the apparel supply chain is managed. The present study has researched many online publications by such organisations and taken information from them⁶.

⁵ United Nations, "United Nations Global Compact",

⁶ Appendix I to this report lists 43 websites consulted for information.

1.1 EU INVOLVEMENT

The Council of the EU has declared its commitment to sustainable development in several documents and occasions. On 26 May 2015, the Council adopted several previously published conclusions⁷.

Online publication⁸ accessed on January 12th, 2017.

Council conclusions on the EU and Responsible Global Value Chains⁹, establish under point 12 the following:

'The Council supports efforts undertaken in promoting responsible supply chains through initiatives such as an EU Garment Initiative and through initiatives in the agricultural sector such as the Forest Law Enforcement, Governance and Trade Action Plan (FLEGT), Amsterdam Declarations on deforestation and on sustainable palm oil supply, as well as in other sectors. The Council strongly encourages the Commission and Member States to share best practices, including the promotion of new and innovative approaches, and to scale up such initiatives and expedite their delivery. The development of a Public-Private Partnership on Responsible Mineral Sourcing and other initiatives concerning the responsible sourcing of minerals in conflict-affected and high-risk areas, are useful tools in this regard'.

And:

All developed countries and emerging economies should grant duty-free and quota-free access to their markets to LDC products, except arms and ammunition. All countries have to increasingly address 'behind-the-border' issues such as: trade facilitation; technical regulations and standards; labour and environmental regulations; investment; services; intellectual property rights; public procurement. Transparent and simplified rules of origin can stimulate trade, including at regional level.

The European Commission supports promoting responsible global value chains, in line with inter alia the Communication on a Stronger Role of the Private Sector (2014)¹⁰; the Trade for All Strategy (2015)¹¹; and the EU strategy for Corporate Social Responsibility (2011)¹².

The EU has aligned laws in all Member States with Textile Regulation (EU) No 1007/2011¹³ on fibre names and related labelling and marking of the fibre composition of textile products. This was done to protect consumer interests and eliminate potential obstacles to the proper functioning of the internal market.

According to the Regulation, textile products have to be labelled or marked whenever they are available on the market. The indication of the fibre composition of a product is mandatory at all stages of the industrial processing and commercial distribution of that product.

All products containing at least 80% by weight of textile fibres, including raw, semi-worked, worked, semi-manufactured, semi-made, and made-up products are covered by the Regulation.

The Regulation does not cover size, country of origin, or wash/care labelling.

The main relevant elements of the regulation are:

- General obligation to state the full fibre composition of textile products;
- Minimum technical requirements for applications for a new fibre name;
- Requirement to indicate the presence of non-textile parts of animal origin;
- Exemption applicable to customised products made by self-employed tailors;

⁷ Council of the European Union, "A New Global Partnership for Poverty Eradication and Sustainable Development after 2015 – Council Conclusions", European Union, May 2015, [p. 10](#).

⁸ *Ibid.*

⁹ *Ibid.*

¹⁰ European Commission, "A Stronger Role of the Private Sector in Achieving Inclusive and Sustainable Growth in Developing Countries", European Commission May 2014,

¹¹ European Commission, *Trade for all. Towards a more responsible trade and investment policy*, European Union, 2015,

¹² European Commission, "Corporate Social Responsibility",

¹³ European Commission, "Textiles and clothing legislation",

European Union - Labelling/Marking Requirements¹⁴

There is a broad array of EU legislation pertaining to the marking, labelling and packaging of products, without any central directory containing information on marking, labelling and packaging requirements. Nevertheless, applications for the textile/garment value chain are limited to the fibre content.

In April 2014, The European Parliament voted that manufacturers should be required to label all non-food goods with their country of origin. The new law does not only make the labelling mandatory; it also changes well-established rules already in place in several member states of the EU.

EU labelling reports indicate that: 'Consumer protection requires transparent and consistent trade rules, including indications of origin. When such indications are used, they should enable consumers to be fully aware of the origin of the products they purchase, to protect them against fraudulent, inaccurate or misleading claims of origin'.

However, WTO rules may prevent some actions: '...origin labelling systems including requirements for traceability should be carefully designed in order not to impose unreasonable burdens on economic operators from other countries.'

Corporate social responsibility (CSR) refers to companies taking responsibility for their impact on society. The European Commission believes that CSR is important for the sustainability, competitiveness, and innovation of EU enterprises and the EU economy. It brings benefits for risk management, cost savings, access to capital, customer relationships, and human resource management.

2011 COM Communication on CSR and in addition the Commission has included in its recent Communication of 22.11.2016 "The next steps for a sustainable European future" a reference to CSR in a specific paragraph (in page 11) which reads as follows:

"Additionally, EU action on Corporate Social Responsibility (CSR) and Responsible Business Conduct (RBC) encourages the private sector to contribute to the achievement of social and environmental objectives, thereby fostering equitable and sustainable growth and the protection of social rights (SDG 8). Throughout global supply chains EU policies contribute to more sustainable practices in forest management, better working and environmental conditions in textiles and ship recycling, combating illegal fishing and trade in conflict minerals and endangered species. The Commission will intensify its work on Responsible Business Conduct, focusing on concrete actions to meet current and future social, environmental and governance challenges, building upon the main principles and policy approach identified in the Commission's 2011 EU Corporate Social Responsibility Strategy."

The Communication also makes specific reference to the sectoral approach in the garment sector, and the need to achieve coherence across all EU policies: "Concrete projects such as [...] ongoing EU action towards sustainable global supply chains, such as in the timber and garment sectors, show the added value of pursuing a coherent approach."

1.2 RESEARCH FROM OTHER STAKEHOLDERS

Study on responsible management of the supply chain in the garment sector¹⁵

This Study, commissioned by EuropeAid, refers to Transparency and traceability in the supply chain (SDGs 12 and 17) in the following terms.

¹⁴ "European Union - Labeling/Marking Requirements",

¹⁵ AETS, *Study on the responsible management of the supply chain in the garment sector*, European Union, December 2016.

Supply chains in the garment sector can be highly fragmented and diverse, with several actors adding value at different levels. There are two key issues related to achieving transparency across garment supply chains:

- 1) It is difficult to trace the origin of a garment back to the textile production and further to the raw materials. The current system of production makes it almost impossible to assess how sustainably or ethically the fabric for the garment was processed from its raw material fibre state (e.g. natural fibre, man-made or synthetic origin such as the region or way in which the cotton was sourced, or the factory in which the polymers were extruded) to yarn or fabric. Quite often the focus of transparency initiatives is on the garment production. Not enough effort is put into looking further down the chain to see how the raw materials were processed or where they came from. Some companies that focus on producing sustainably have been able to set up adequate systems of traceability, but they usually produce and market a limited number of items or cater for a specific high-end customer.
- 2) Attempts to achieve more transparency and improve traceability systems are thwarted by subcontracting practices. This issue is very sensitive and has been a point of focus for several retailers, as well as NGOs and development agencies. While orders for garment production are given to a specific factory, often production of the complete order does not take place in the nominated factory. The nominated factory is likely to have been audited by the international retailers and brands. However, there is almost zero visibility of the various subcontractors who continue to work in the next tier of the sector. These smaller subcontractors have no access to direct export options or international buyers due to lacking technical skills, the absence of management systems, poor language skills and / or substandard working conditions.

These statements lack clarification regarding the causes that have delayed the development of specific traceability systems along the textile/apparel value chain.

Several stakeholders expressed concern over the absence of a traceability labelling system in use across all the EU. Naming country of origin for all operations (knitting, dyeing, sewing) is not considered to be of value from the point of view of consumers.

Companies sourcing products from conflictive regions or where no guarantee can be obtained that supply chains are free from child labour and other unacceptable social conditions, may well relish the possibility of having 'plausible deniability'. This may explain the finding that 'Only a few stakeholders saw the current situation as problematic, except for a small minority of stakeholders who stated that a traceability labelling system could be valuable'. What is desired, and what is right, may be very different things.

Traceability and labelling will bring additional costs (including translation) to the supply chain. WTO case law requires that no 'unreasonable burdens' should derive from traceability schemes. However, traceability information does not have to be communicated by labelling, and if done as part of due diligence, costs may be minimised while business risks are reduced.

1.3 INFORMATION TRENDS

Apparel brands adopt different degrees of transparency regarding corporate policies; their social responsibility and the management of their supply chains. Information displayed on company websites usually, but not always, reflect to what degree each brand complies with voluntary standards¹⁶.

Full compliance by most major fashion brands has not been achieved to date. However, the general trend is moving in that direction, a trend shown by surveys being carried out by several organisations on fashion brands attitudes and compliance with traceability and transparency requirements. Results of such surveys need to be taken with care, because participation is voluntary and validity of conclusions varies.

Fashion brands and global retailers already have detailed information about behaviour of their target consumers. They access masses of information in real time through daily reports from their thousands of points of sales. They use that information to make design decisions, product pricing, stock collections and regulate the pace of change of garments through point of sale.

¹⁶ Sources 1 through 14 on Appendix I

The Dutch based organisation **Rank-a-Brand**¹⁷ carries out regular sustainability evaluations in fashion, clothing, footwear and retailer brands. Respect for international labour rights in clothing manufacturing, such as the ban on child labour, is ranked highly in these surveys. Sustainable fashion also includes the use of eco-friendly fabrics and reducing carbon emissions.

Even high scoring companies in such surveys offer limited information on their entire supply chain counterparts and countries of origin. However, some brands do provide lists of manufacturers, and others claim they have, or are building in-house traceability.

Rank-a-Brand indicates that there is: 'widespread absence of publicly available information on policies, sourcing and supply chain traceability across the textile sector – all of which are necessary for overall market transformation'.

Fashion brands want standards that 'give us confidence in the supply chain'¹⁸. They also want hard data as a basis for communications: robust, and traceable¹⁹. Many brands place great value in the Higg index from the SAC, which aims to reach. "*An apparel, footwear, and home textiles industry that produces no unnecessary environmental harm, and has a positive impact on the people and communities associated with its activities.*"²⁰

Rank a Brand sees a lateral benefit here too: 'Traceability and transparency further facilitate increased accountability of companies towards their consumers, owners, supply chain partners and other stakeholders'.

Other indices, rankings, and transparency initiatives look particularly at the garment sector like the Greenpeace Detox campaign²¹.

Fashion Revolution²² and the magazine Ethical Consumer²³ have partnered to publish a Fashion Transparency Index²⁴ which ranks companies according to their level of transparency based on a questionnaire and publicly available information about supply chain issues. The Fashion Transparency Index is a research and communication tool, not an auditing measure, and it surveys 40 of the biggest global fashion companies regarding how well fashion brands know their supply chain and what information they share about where, and how, their products are made.

¹⁷ Rankabrand website,

¹⁸ Ferrigno, Simon. *Cotton Horizons: cotton standards, sustainability schemes and regional programmes*, West Yorkshire: MCL Global, 2014.

¹⁹ *Ibid.*

²⁰ Sustainable Apparel Coalition,

²¹ Greenpeace, "The detox catwalk 2016", Greenpeace.org,

²² Fashion Revolution website, ; accessed January 2017.

²³ Ethical consumer website,

²⁴ Fashion Revolution, *Fashion Transparency Index*; Fashion Revolution CIC, 2016.

2. MAPPING THE TEXTILE/APPAREL VALUE CHAIN

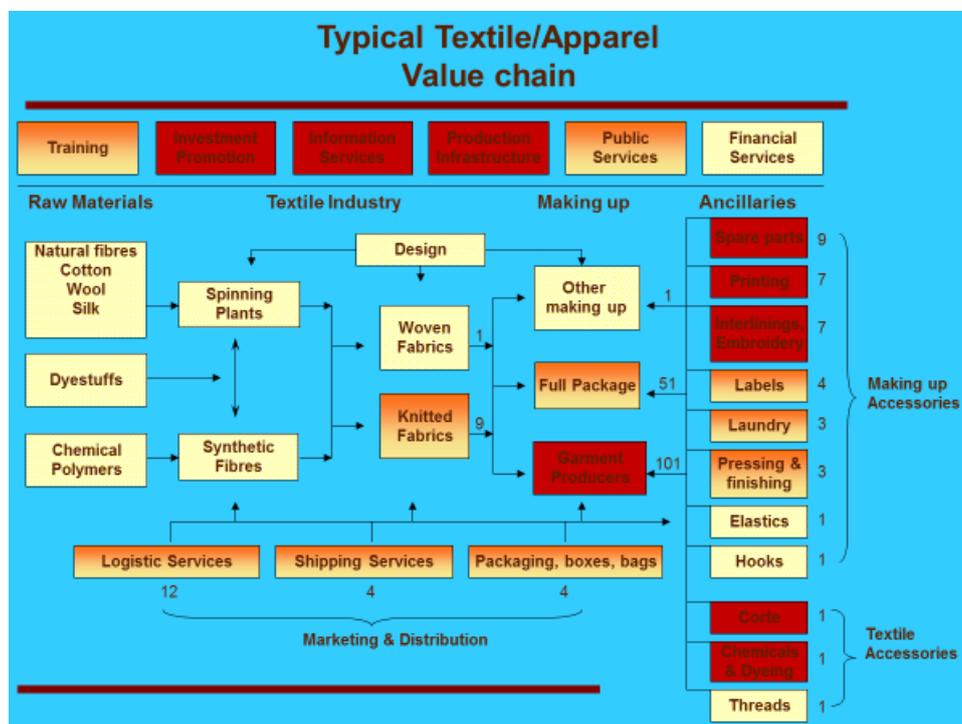
The textile/apparel industry is the world's oldest consumer goods manufacturing sector. Its complex structure covers the entire production chain of transforming natural and chemical fibres (such as cotton, wool, and polyester) into finished garments. It has long been a key element for LDCs and other developing countries to attract investment, enter a manufacturing sector capable of diversifying economic growth, and providing employment for large numbers of a semi-skilled workforce.

2.1 STRUCTURE OF THE GARMENT VALUE CHAIN

The garment value chain has an extremely complex structure that includes product design; multiple suppliers of textile fibres; intermediate materials; ancillary processes; outsourced workers, part-time workers, undocumented workers, production subcontracting at several different levels and the logistics involved in moving the intermediate and finished products on a global scale to reach thousands of retail destinations across the planet.

There are several possible schematic representations to show the interrelated elements of the Textile/Apparel value chain. Figure 1 shows a representation elaborated by R. Richero in 2014, during a previous study²⁵.

Figure 1 Schematic Representation of the Textile/Apparel value chain



As depicted in the preceding figure, textile manufacturing involves natural fibres such as wool, silk, linen, cotton and hemp, and man-made ones, the most common of which are synthetic fibres (polyamide, polyester, acrylic) made from oil based chemicals. Most of the clothes in our wardrobes contain polyester, elastane or Lycra. These cheap and easy-care fibres are becoming the textile industry's miracle solution. However, their manufacture has an impact on the environment and causes pollution. Furthermore, they are hard to recycle (for example, polyamide takes 30 to 40 years to decompose).

The complex nature of textiles and apparel products resides not only in the raw materials that go into their production, but also in the processes carried out along the value chain, as illustrated by Figure 1. Negative impacts of the textile/apparel value chain on the environment are several and of different types. They affect air quality during spinning and weaving operations. Dyeing and printing consume vast

²⁵ Richero, Raul. *Marketing Study of Knitwear consumption in European Countries*.

amounts of water and hazardous chemicals, and release numerous pollutants in waste water effluents as well as volatile agents into the atmosphere that are particularly harmful to our health²⁶.

Figure 2 Relative market share of textile fibres in the manufacture of Apparel

Figure 2 shown in Appendix III underlines the complex and varied nature of the raw materials that go into apparel production. Synthetic fibres represent 63% of all textile fibres used in apparel manufacture, while cotton makes up 31%, viscose and acetate rayon, 4%, wool and other animal fibres 2%.

Global production of textile fibres has increased from 38,000,000 tons in 1995, to 93,000,000 tons in 2015. Synthetic fibres produced from fossil fuels have experienced a substantial increase over the period, while world cotton production is in decline and can also become unsustainable at its present levels. This growing trend in fibre consumption will not stop. Various studies have demonstrated that consumers in emerging Asian markets tend to follow the behavioural patterns of consumers in developed countries. As they become more affluent, they will consume more fashion products.

The overall trend in the textile/apparel value chain shows that production of textile fibres will continue to increase, while fibre mixtures in garments will also increase. These facts show that traceability systems for the garment value chain cannot be limited to the production and processing of organic cotton.

Cotton is a natural fibre native to tropical and subtropical regions around the world, including the Americas, Africa, and Asia. Current world production of cotton is about 25 million tons. Because it is mostly farmed in less developed countries, the options of land usage between food production and fibre production is a crucial one that influences the development of those societies.

Polyester and other synthetic fibres are not degradable. All the polyester ever produced is still in the planet, most of it ending up as loose fibres in the oceans of the world. Furthermore, manufacturing all the polyester fibre consumed by the textile industry each year, some 60,000,000 tons, according to IWTO²⁷, generates more GHG emissions than all the commercial flights flown over the same 12-month period.²⁸

Cellulosic fibres have many desirable properties for apparel use and they are obtained from cellulose paste, the same raw material used for paper. Forest plantations to produce cellulose paste have increased considerably around the world.

Cellulose paste production is now based on organised forest sowing and harvesting under controlled sustainable conditions²⁹

Wool and other animal fibres (cashmere, alpaca, vicuna) are natural fibres valued for their properties. They are free from harmful chemicals and the environmental impact of their production is minimal. Recent concerns about animal welfare have led wool organisations to establish guidelines regarding humane treatment of animals. One such organisation has been IWTO³⁰. They constitute 3% of fibres used in apparel.

The environmental impact of textiles and clothing processing is being more carefully addressed due to the growing number of laws and regulations imposed by the EU and other developed countries regarding the use of energy, greenhouse gas (GHG) emissions, nutrient releases and ecotoxicity from washing (water heating and detergents) and drying of textile products.

All stakeholders in the garment value chain must assume their part in reducing the environmental footprint of textile/apparel products. Fibre producers, whether they be cotton farmers or manufacturers

²⁶ Challa, Lakshmi, *Impact of Textiles and Clothing Industry on the Environment*, Bangalore: Bangalore University, 2015.

²⁷ Poimena Analysis, and Delta Consultants, *IWTO Market Information – 2015 Edition*, IWTO, 2015.

²⁸ Retail Forum for Sustainability, "Sustainability of textiles", European Union, August 2013,

²⁹ Chemicals Technology website,

³⁰ IWTO, *The IWTO Guidelines for Wool Sheep Welfare*, International Wool Textile Organisation, 2013,

of oil-based industrial polymers are amongst the principal generators of environmental impacts, together with dyeing, printing and finishing of fabrics and garments.

2.2 HUMAN EMPLOYMENT IN THE GARMENT VALUE CHAIN

Notwithstanding technological developments, garment manufacturing starting from textiles yarns and fabrics is still a labour-intensive activity based on a traditional assembly line principle. A garment assembly line consists of a large number of workers, each carrying out a narrowly defined operation. Products progress along the line until the necessary number of operations to produce a finished garment have been completed. The number of operations required depend on the type of garment being produced. A woven fabric made up as a fully sleeved jacket, may take up to 120 operations between cutting and packing.

Productivity is measured on the number of minutes required for each operation and the line's overall productivity is accounted by the cycle time; i.e., the time required by the line to deliver a finished product. Industries in LDCs focus more on minimizing delivery costs than in labour productivity, because of the easy availability of cheap labour.

Nearly 80 million people are currently employed in the textile, clothing and footwear industry worldwide³¹, most of them in LDCs or other developing countries and up to 75% of all workers are female. These industries employed only 20 million people in the year 2000, which indicates an increase of over 50 million people in 16 years.

Many garment workers (particularly women and migrant workers)³² in developing countries work in what is known as the informal economy. Whilst there is no universal definition of the informal economy, the ILO³³ has identified some key factors: informal workers '*are not protected under the legal and regulatory frameworks*' and are, '*characterised by a high degree of vulnerability*'. Some groups such as WIEGO³⁴ are working to promote increased recognition of the rights of informal workers.

The key to this sudden global explosive growth lies in the dismantling of the Multi-Fibre Arrangement (MFA) that had governed the world trade of textiles and clothing from 1974 to 2004, imposing quotas on the amount developing countries could export to developed countries.

The dismantling of the Multi-Fibre Arrangement (MFA) that had governed the world trade of textiles and clothing from 1974 to 2004 introduced a major change in the international trading environment and one of its main consequences was to change the geographical distribution of global apparel production as well as the lives of workers involved in this sector.

From 01/01/95, trade in textile and clothing products is governed by the general rules and disciplines embodied in the multilateral trading system.³⁵

Such an important change was coincidental with a period of swift dissemination of new IT technologies that became easily available to the corporate world and to the onset of cheap online communications that facilitated long distance management of industrial processing.

All these converging factors accelerated the relocation of textile/apparel manufacturing capacity away from the more developed countries and provided an opportunity for LDCs to become important players in the textile/apparel international trade, almost overnight. There has been a vertical disintegration of the apparel manufacturing chain, driving costs down, often without regard to sustainability, social working conditions and environmental impact of the production processes.

Research carried out during the implementation of the present study indicates that major fashion brand owners, multi store retailers and garment importers have started to engage on sustainability regarding

³¹ ILO, "Textiles, clothing, leather and footwear sector";

³² Ascoly, Nina. "The Global Garment Industry and the Informal Economy: Critical Issues for Labour Rights Advocates. Discussion Paper", p 7-12, , accessed 9 January 2017.

³³ ILO, *Decent Work and the Informal Economy*, International Labour Organisation, 2002.

³⁴ Women in Informal Employment: Globalizing and Organizing website, accessed 24 February 2017.

³⁵ WTO, "Agreement on Textiles and Clothing",

its economic, social, and environmental dimensions, but a lot more needs to be done. Good practices are not yet widespread among the garment supply chains³⁶.

A large number of manufacturing jobs have been lost in developed countries while the increase of employment in the garment sector has grown exponentially in developing countries in general and in Southeast Asia in particular. The implications for a greater economic development in producing countries are obvious. However, working conditions for garment workers are still far from acceptable in many producing countries.

Improving the social conditions of textile/apparel manufacturing involves establishing fair working conditions, setting social standards; minimum wages; occupational safety; banning child and forced labour and ensuring gender equality in an industry whose labour force is 75% composed by female workers.

2.3 THE ROLE OF RETAIL DISTRIBUTION IN THE GARMENT VALUE CHAIN

The retail/distribution sector constitutes the last segment of the textile/apparel value chain. It is also the segment which has direct access to the final consumer. Retailers can now measure consumer attitudes in real time. They have also developed the complex logistics that are involved in sourcing materials and labour from several different countries with just in time methods, moving the intermediate and finished products on a global scale and stocking thousands of retail destinations across the planet at the right time and in the right quantities.

Retailers used to be the customers of the textile/apparel industry. However, with globalisation they have become “manufacturers without factories” designing and marketing—but not making—the branded products they order³⁷.

The changes mentioned in the preceding sections of this report provided fashion brands and multi-store retailers of the developed world with the opportunity to buy textiles, garment components and semi-finished products anywhere in the world. Yarns or fabrics obtained from one country, can be further processed in another country and finally converted into garments in a third (or fourth) country.

Globalisation has given companies in this sector a powerful edge over all the preceding elements of the supply chain and has made the distribution sector the most powerful segment in the value chain³⁸.

Having the technology to measure final consumer attitudes and preferences in real time, is the ultimate key to success in an industry that is largely dependent on design, aesthetics, fashion and intangible decision motivations.

Fashion brand owners and multi-national retailers have become the major driving force in the textile/garment value chain, occupying a dominant position that for two hundred years until the end of the twentieth century, belonged to the large yarn and fabric manufacturing companies of Europe, North America and Japan. Speed of response to consumer behaviour, market conditions and reliability of delivery have become key success factors for the apparel global industry³⁹.

³⁶ Stotz, Lina and Kane, Gillian. “Facts on the Global Garment Industry” Clean Clothes Campaign, 2015,
³⁷ Richero, Raul. “Competitiveness in Central America’s Garment value chains”, Inter-American Development Bank, 2007.
³⁸ Richero, Raul. “Developing Mongolian knitwear exports to EU markets”, Inter-American Development Bank, 2013.
³⁹ Richero, Raul. “Improving competitiveness of Colombia’s Textile/Apparel Cluster”, Inter-American Development Bank, 2010.

Figure 3 Country origin of main apparel imports to the EU in 2015

Figure 3 in Annex IV clearly shows that the vast majority of the garments consumed in the developed world are presently produced in LDCs, largely under conditions that have a negative impact on the environment, on sustainable development and on the human rights of workers involved in the production chain.

More than 70% of EU imports of textile and clothing come from Asia. Many Asian workers must work in sweatshop conditions, but the issue appears in global media only when major fatal accidents occur, like that at Rana Plaza in Bangladesh, in 2013.

Long working hours, low wages, lack of regular contracts, and systemically hazardous conditions are often reported. Trade unions, even when allowed access, are unable to protect workers.

Not all Asian countries exporting textiles and clothing to the EU have ratified Fundamental ILO conventions and their concrete application is far from the norm. UN Guiding Principles on Business and Human Rights, and OECD Guidelines for Multinational Enterprises provide good standards of corporate social responsibility for Western brands operating in such countries, but are not binding and do not provide for sanctions if not applied. In practice, they have failed to defend workers' rights.

Several measures have been suggested to change this situation, including in repeated European Parliament resolutions. Such measures would require action by Asian governments, international brands and the importing countries. They include greater union rights, more regular work, brands doing more due diligence when dealing with contractors, efficient and more cooperative audits, more stable purchasing practices, making some guidelines and principles legally binding, and putting pressure on Asian authorities to have workers' human rights better respected.

2.4 MOBILITY WITHIN THE GARMENT SUPPLY CHAIN

In today's world, knowledge and information have global reach. Workers living in LDCs know how much consumers in the developed world pay for the garments they make. Workforces in lower paid segments invariably try to evolve to better working conditions and living standards. Professional associations become stronger in defending their members, NGOs, the ILO, the EU⁴⁰ and the OECD⁴¹ are committed to better corporate responsibility, the ban of child labour and healthier working environments.

Companies in the retail/distribution segment are much better positioned than any others in the supply chain to remain profitable and to take full advantage of the needs of LDCs to provide employment to their populations and promote investments into the garment industry as a first stage, labour-intensive, manufacturing sector. Brand owners can modify their supply network with relative ease, keeping ahead of the rising costs of labour, brought about by improved social conditions in work places. Garment manufacture requires very little capital investment and only basic training for new workers.

The global character of the garment value chain allows fashion brands to search for the most favourable geographical profile of their supply chains. Lower manufacturing costs, coupled with skilled workforces, are key elements in the geographical search for suppliers.

The textile and garment sectors in the East African Community (EAC)⁴²: Kenya, Tanzania, Uganda, South Sudan and also in Ethiopia⁴³ are showing signs of sustainable growth and have advantages that make sourcing for clothing and textiles attractive. Among them, duty free access to Europe and the US and plentiful, cheap and skilled labour

Major fashion brands can use state of the art technology to measure consumer behaviour and predict fashion, style and price changes⁴⁴. Upstream purchasing orders and commercial conditions are tailored

⁴⁰ Council of the European Union, "A New Global Partnership for Poverty Eradication and Sustainable Development after 2015 – Council Conclusions", European Union, May 2015, [_](#)

⁴¹ OECD, *Due Diligence Guidance for Responsible business conduct Responsible Supply Chains in the Garment and Footwear Sector*, OECD, 2017.

⁴² Sourcing Opportunities in East Africa Fast Pack; Business Sweden in Nairobi: October 2016

⁴³ ILO, "Decent Work and Sustainable Development in the Textile and Garment Industry in Ethiopia", February 2016,

⁴⁴ Richero, Raul, *Study of the Bangladesh Readymade Garment Sector*, World Bank.

to take such data into account. Sustainability of the garment supply chain requires that purchasing conditions should be in harmony with the respect of workers' rights and social conditions along the entire chain.

The ILO (International Labour Organisation) estimates that more than 110 million children are engaged in child labour for the garment and textiles industry around the world⁴⁵. Gender inequality and gross violation of human rights still make a substantial part of working conditions in several LDCs major exporters of garments⁴⁶.

2.5 CONSUMER ATTITUDES REGARDING APPAREL PRODUCTS

Euromonitor International⁴⁷ is a leading independent provider of market information. They carry out detailed surveys for textiles, clothing and many other consumer articles targeting single countries or larger areas like the EU. In the case of garment consumption trends, the authors have had access to reports showing outerwear garment consumption, but not to overall apparel consumption. Figure 3 shows results of their overall survey on outerwear consumption in the EU countries.

Figure 4 Outerwear consumption in the EU countries (2012-2016 in Million Euros)

	2012	2014	2016
Germany	52,600	57,000	59,500
UK	43,500	48,700	49,500
Italy	41,200	43,000	44,600
France	34,400	35,200	36,600
Spain	19,300	19,450	20,800
Netherlands	9,050	9,500	10,100
Belgium	6,900	7,300	7,600
Austria	6,100	6,500	6,750
Sweden	5,900	6,450	7,100
Greece	5,400	5,300	5,700
Poland	5,100	4,450	4,700
Portugal	4,300	4,500	4,750
Denmark	3,800	3,800	4,100
The rest	21,738	23,136	29,684
EU TOTAL	261,300	276,300	293,500

Source: Euromonitor Retail Market Reports

All European countries are mature markets with ageing populations. Growth of personal expenditure in clothing has been in single digits for several years. Most Europeans have a personal stock of clothes greater than what they can expect to wear out in their remaining living days. Expenditure in clothing becomes a low priority when faced with the competition of electronic paraphernalia, personal entertainment, exotic holidays and even latest generation cars.

There are several factors influencing consumer trends and expectations in developed countries and research is inconclusive regarding which of them have greater influence. Fast fashion has become less expensive over the last decade. However, it is now possible to observe in European consumers, a growing concern for corporate social responsibility, the sustainability of textile production in empathy with the environment and morally acceptable working conditions for workers in exporting countries. Consumers in Europe are buying 40% more clothing items than 20 years ago, but spending only a fraction per item of what they used to pay in 2001⁴⁸. Final consumers in developed countries have enjoyed several years of ever decreasing prices for fashion apparel⁴⁹. These attitudes fuel considerable complexity and opacity in the supply chains. Disposable fashion is not a sustainable form of consumer behaviour, major changes are needed to the way global retailers and fashion brands operate their supply chains.

⁴⁵ ILO, "Child labour statistics",

⁴⁶ Schultze, Emilie. "Exploitation or emancipation? Women workers in the garment industry",

⁴⁷ Euromonitor, "Apparel and footwear", (access restricted to paying customers)

⁴⁸ Euromonitor retail reports, 2015

⁴⁹ Mellino, Cole. "The True Cost of Cheap Clothing", 27 May 2015,

The most important element influencing fashion consumers up to now is the message transmitted by the apparel brands and the major retailers:

- Fashion is affordable
- Fashion is disposable
- Fashion is fast: trends quickly become short-lived and obsolete.
- Fashion brands continuously present new "must have" styles.
- Styles and designs now have a very short transition from catwalk to final consumer.

Fashion brand owners and global retailers already have detailed information about behaviour of their target consumers, their style preferences, their purchasing habits and their apparel budgets. They access all this information in real time and use it to make design decisions, product pricing, stock collections and regulate the pace and change of garments through to point of sale.

At the same time, there is still scant precise information about the size of the market for ethical fashion, whether among major brands (what share of their sales are sustainable or ethical?), small and medium sized retailers and brands, or even the specialist, niche eco-fashion sector. Surveys on consumption have been done by organisations such as Mintel or the Cooperative Bank in the UK, but other surveys are by NGOs and other non-specialist or campaign groups.

The UK market for ethical clothing is reported to have reached 203 million Euros by 2009⁵⁰ in a total market consumption of 43,000 million Euros (7 times higher than another survey showed for 2003⁵¹), but the UK organic market alone has more than tripled since 2009 just for products certified by the Soil Association⁵².

Mintel (2009)⁵³ report that 35% of Britons have no interest in ethical clothing, with 23% seeing price as a barrier, 20% mentioning availability and 11% concerned about the truth of labels. This shows little progress from 2001, at which time 4 out of 5 shoppers claimed to be concerned by ethics, but only once out of every 6 buys did this become an ethical purchase⁵⁴. The same report suggested Germany's ethical market was 1-2% of the textiles market, and was the largest in Europe. One suggestion given here for the failure of ethical and sustainable clothing compared to food, is that clothing has no direct health or allergy risks for the consumer⁵⁵.

More recent data reported by the Ethical Fashion Forum (2011)⁵⁶ show an increase in ethical personal consumption, with clothing as one of the fastest growing sectors. Women are more concerned about company behaviour, but design and style are the major decision factors in actual purchases. This report also includes results of a survey that identified two types of ethical fashion consumer. One is 35 to over 40, established supporters of social and environmental issues, but not fashion followers, while others are between 20 and 40, new to sustainability, but fashion aware. This group will spend more on fashion. Both groups are predominantly female, have disposable income, and have some ethical awareness. An NRI⁵⁷ study in 2001 found a figure of 11% willing to pay more, so there is some movement here, but the 26% of sceptics seems stubborn, as do those who don't believe their action can make a difference (28%).

Bray et al,⁵⁸ suggest the gap between 'do and say' is also a problem: while 30% of people claim to care, only 3% of purchases are ethical. This is the ethical purchasing gap. They suggest the factors are cost, that consumers are disconnected from the issues by distance and experience; are more motivated

⁵⁰ Mintel, "Ethical clothes sales go from rags to riches", 4 April 2009,

⁵¹ Ferrigno, Simon, *Moral Fibre A Beginner's Guide to the UK Market*, London: PAN UK, 2004.

⁵² Mathews, Brett. "UK Report Suggests Growth in Textiles", *Ecotextiles News* online, 21 February 2017, .

⁵³ Mintel, *Ibid*

⁵⁴ Quoted in Ferrigno, *Moral Fibre*, 2004.

⁵⁵ Ferrigno, *Moral Fibre*, 2004.

⁵⁶ Ethical Fashion Forum, "The market for ethical and sustainable fashion products. Briefing report 2011", London: Ethical Fashion Forum, 2011.

⁵⁷ Tallontire, Anne, Rentsendorj Erdenechimeg and Mick Blowfield. "Ethical Trade: A Review Of Current Literature", NRI Policy Series 12, Greenwich: University of Greenwich, 2001.

⁵⁸ Bray, Jeffery, Nick Johns, and David Kilburn. "An Exploratory Study into the Factors Impeding Ethical Consumption." *Journal of Business Ethics* 98, no. 4 (2010): 597-608. doi:10.1007/s10551-010-0640-9.

by negative reports of problems than stories of positive impacts and differences in quality between ethical and 'conventional' products, and plain cynicism.

The Ethical Fashion Consumer Monitor⁵⁹ reports that apparel consumers' attitudes are very diversified. *'Consumers would pay 10% more for clothing with an eco-label while they are willing to pay 25% extra for tailored clothing'*. However, surveys do not always reflect the attitudes of most consumers, and this survey also highlights that 40% of consumers are disengaged, and 27% unmotivated, which leaves 67% of consumers not acting. Many assume that it is up to business and regulators to act, even if companies that communicate their commitment are more attractive, at least to those who are interested in ethical consumption, the report suggests.

In general, increased consumer interest and demand for more sustainable products is reflected by events such as the Ethical Fashion Show Berlin which presents more than 120 sustainable labels during the Berlin Fashion Week, last held in January 2017. The number of participating brands and eco-fashion labels increased fourfold since the first Ethical Fashion Show in 2012.⁶⁰

A 2015 consumer market study on environmental claims on non-food products, commissioned by the European Commission, showed that across the EU and across all non-food sectors:

- Environmental claims are widespread on both product packaging and in advertising. 76% of all the products assessed in shops contained an environmental claim, i.e. a message or suggestion that a product, or its packaging, has certain environmental benefits.
- Most of the environmental claims take the form of a logo, however also many textual messages as well as more implicit environmental claims (such as images and colours) were found.
- Consumers have a low level of understanding of green claims. 61% of consumers state that they find it difficult to understand which products are truly environmentally friendly, and 44% indicate that they do not trust this type of information. Consumers also appear unable to understand the meaning of environmental logos, and make no distinction between non-certified (self-declarations) and third party certified labels.
- Almost 60% of the respondents stated that they prefer to buy a product with an environmental label. Half of the consumers also look specifically for environmental information on the packaging when purchasing a product.
- A sample of claims was analysed against the Unfair Commercial Practices Directive to determine whether consumers are provided with clear, accurate and reliable information in relation to environmental claims in non-food products. Overall, the assessment pointed to possible non-compliance with EU legal requirements, as many of the analysed claims used vague terms and did not meet the requirements of accuracy and clarity. In addition, some claims seemed to contain untruthful statements.⁶¹

2.6 MARKET SEGMENTATION FOR APPAREL PRODUCTS

The European apparel market is very well developed and segmented. It is also a saturated market with negative growth and diminishing purchasing power.

Classic market differentiation methods identify 6 or 7 different segments in terms of product quality, price and consumer preferences⁶².

Figure 5 Classic Market Segmentation of Fashion Brand Consumers

⁵⁹ Ethicologist, "Ethical Fashion Consumer Monitor Consumer Profiles (Mini Report)", Ethicologist.com, 2016,

⁶⁰ Ethical Fashion Show website,

⁶¹ GFK, "Environmental Claims for Non-Food Products", 2014,

⁶² Richero, Raul. Own elaboration based on Euromonitor retail intelligence and research findings, 2014, ADB Commissioned Market Study.



The range of apparel products goes from High-end Luxury Designer Brands, to Low-end street market products, with several upper-middle and lower-middle segments in between. Consumers at the high-end segments are better informed about conditions in the garment supply chain and are more likely to make buying decisions for products that can be identified with ethical and socially responsible stakeholders of the supply chain. These consumers are more likely to maintain brand loyalty despite higher product prices in line with sustainable production methods, organic traceability and a more transparent supply chain. Consumers at the low-end market segments are less well informed and more likely to base buying decisions strictly on the cost of products. Apparel retailers in the crowded middle market are fighting over the same target groups and apparel preferences within a saturated market.

The EU market has witnessed the relentless growth of clothing multiple chains and franchised outlets, leading to the decline of the formerly strong independents' sector. This trend will be continued in the coming years.

The ageing of the EU population will bring about a decline in apparel consumption over the coming years⁶³.

⁶³ Swiss Import Promotion Programme (SIPPO), "Europe Outerwear", 2010.

3. THE STATE OF TRACEABILITY AND TRANSPARENCY

3.1 TRACEABILITY & TRANSPARENCY IN THE GARMENT SUPPLY CHAIN

3.1.1 Traceability

The International Organisation for Standardisation (ISO 9000-20015)⁶⁴ defines traceability as the ability to trace the history, application or location of an object. And within the notes: *“it can relate to: — the origin of materials and parts; — the processing history; — the distribution and location of the product or service after delivery.”*

The UN Global Compact⁶⁵ (2014) defines traceability as: The ability to identify and trace the history, distribution, location and application of products, parts and materials, to ensure the reliability of sustainability claims, in the areas of human rights, labour (including health and safety), the environment and anti-corruption.⁶⁶

EU law refers to traceability in the food value chain: “traceability” means the ability to track any food, feed, food-producing animal or substance that will be used for consumption, through all *stages of production, processing and distribution*.

Several other definitions are available from various organisations which are not included here for reasons of space. They are, however, included in the list of references in the Appendix.

The GS1 Global standards⁶⁷ provide a common language to identify, capture and share supply chain data, ensuring important information is accessible, accurate and easy to understand. They define business process and system requirements for full supply chain traceability, although the standards developed so far do not include the garment supply chain.

‘Traceability is a need across the sustainable value chain, allowing information to flow on demand and involving market projections, quality requirements, investment needs and real impacts⁶⁸’.

It is important to distinguish between traceability, and sustainability schemes that offer some traceability and due diligence. In this section, we refer to traceability as a distinct process, and sustainability schemes as the production of products to certain standards.

The OECD Guidelines for Garments and Footwear (2017)⁶⁹ define “due diligence” as the process through which enterprises identify, prevent, and address actual and potential adverse impacts.

Due diligence is essentially third level traceability. It goes beyond inventory management and supplier management to process and impact management and monitoring⁷⁰.

Traceability includes Due diligence when it addresses the integrity and sustainability of a product and not just the management of logistics, stocks and sales. On the other hand, the OECD Guidance document defines traceability as a tool to help an enterprise gain information on upstream actors, but that due diligence requirements go beyond this, including preventing and mitigating harm.

Identifying risks in a supply chain can allow the chain components to seek solutions with suppliers or other stakeholders in order to solve the problem or diminish the risks. Risks will be lower using suppliers assessed or verified by a sustainability scheme.

3.1.2 Transparency

Transparency requires relevant information to be made available to all elements of the value chain. Effective transparency allows companies to act to manage risks more effectively. It is also a primary

⁶⁴ ISO, “ISO 9000:2015. Quality management systems – Fundamentals and vocabulary”, <https://www.iso.org/obp/ui/#iso:std:iso:9000:ed-4:v1:en:term:3.6.13>

⁶⁵ United Nations, “United Nations Global Compact”,

⁶⁶ *Ibid.*

⁶⁷ GS1, “Standards”,

⁶⁸ Ferrigno, Simon. *An insider's Guide to Cotton & Sustainability*, West Yorkshire: MCL Global, 2012.

⁶⁹ OECD, *Due Diligence Guidance*, 2017.

⁷⁰ Ferrigno, Simon. *Due diligence in cotton sourcing*, West Yorkshire: MCL Global, 2016.

requirement of due diligence practices, as defined in the OECD Guidelines on Garments and Footwear⁷¹.

At present, relevant information is limited to the owners of the product. This means that garment producers working in the CMT system have no access to information regarding upstream supplies (fabrics, yarns, etc.) and no information of what happens to the products once they deliver them.

Risks are also managed by the owners of the products with minimal disclosure to other stakeholders.

3.2 TRACEABILITY OBJECTIVES FOR THE GARMENT SUPPLY CHAIN

It is not easy to assess what stakeholders involved in the garment value chain want from traceability as no company discloses what internal systems they use. The 2016 Rank-a-Brand report commissioned by WWF, PAN UK and Solidaridad, showed few companies scoring highly on traceability criteria⁷².

What is known is the traceability offered by some sustainability standards, as well as that offered by specialist companies like Historic Futures or Check Organic. Following the Rank a Brand report, one brand reported⁷³ that its own internal standard and other activities on chemicals plus increased use of organic cotton would lead it to implement labelling reflecting 'reduced environmental impact and more sustainable materials'⁷⁴.

Current traceability systems come in two forms. One is offered by a sustainability initiative, and the other by specialist companies offering their own software (See Section 4.7). Systems used by the first group can be in-house or tailored by a software company.

The certification company SGS⁷⁵ suggest risk management is critical in making a choice, including identifying sources of risk and their consequences (due diligence) followed by using IT systems that are 'able to store, monitor, manage and report/communicate information' and are monitored and updated as needed.

Overall, the discussion shows that traceability goes beyond the Global Compact view that sustainability standards are also traceability systems. They may set an approach to traceability, but they are not by themselves traceability systems. What the Global Compact is referring to is really chain of custody. Traceability gives visibility to processes, and allows additional checks beyond the product, into the suppliers, the business environment, and the corporate social responsibility.

3.3 STANDARDS WITH ELEMENTS OF TRACEABILITY AND TRANSPARENCY

The International Trade Centre (ITC) Standards Map⁷⁶ lists some 58 standards relevant to textiles. Some of these are actual standards verifiable by certification, while others are simply guidelines covering specific areas but do not offer any evidence for products. While many of the latter are relevant to transparency, and disclosure, they do not allow traceability of sustainability claims as covered here, i.e., evidence of a product's impacts.

Many standards are private or NGO initiatives, while multi-stakeholder initiatives bring together public and private organisations, among them, Global Compact⁷⁷ under the aegis of the UN. or other multi-lateral bodies (OECD). Sometimes a private standard may be adopted as legislation, such as the organic standards. The EU has developed EU Ecolabel⁷⁸. So far, data managing software for traceability is always private.

⁷¹ OECD, *Due Diligence Guidance*, 2017.

⁷² Holland, Richard *et al. Sustainable Cotton Ranking*; PAN UK, Solidaridad and WWF, 2016,

⁷³ Ferrigno. "Cotton Horizons", August 2016.

⁷⁴ Quoted in Ferrigno, Simon, "Cotton Horizons" in *Ecotextile News July-August 2016*, West Yorkshire: MCL Global, August 2016.

⁷⁵ SGS, "Supply Chain Risk Management: Understanding the Value of Traceability in the Supply Chain", ; accessed February 2017

⁷⁶ ITC, "Standard Map",

⁷⁷ United Nations, "United Nations Global Compact",

⁷⁸ European Commission, "EU Ecolabel", <http://ec.europa.eu/environment/ecolabel/>

The EU Ecolabel⁷⁹, the Global Organic Textiles Standard(GOTS)⁸⁰ and the Fairtrade Textiles Standard⁸¹, have elements that approach traceability implementation for textiles, with the Ecolabel covering the widest range of products (111). The Global Organic Textile Standard (GOTS) is recognised as the world's leading processing standard for textiles made from organic fibres. It defines high-level environmental criteria along the entire organic textiles supply chain and requires compliance with social criteria as well.

Full supply chain standards with traceability include the EU Eco-Label, the Global Organic Textiles Standard (GOTS)⁸² and the Fairtrade Textiles standard⁸³. These all include at least elements of the triple bottom line. The Ecolabel probably allows the widest choice of fibres, while GOTS and Fairtrade allow some diversity, but have restrictions based on impacts.

Some traceability systems already offer full supply chain traceability off the shelf (for example String 2.0 and 3.0 from Historic Futures)⁸⁴ that can integrate with other systems, and support a range of connections to other data systems for information sharing (e.g., the Open Corporate database, or SEDEX)⁸⁵.

Furthermore, there are some national and regional standards, often covering social and labour issues, including the textile industries in China, India and Brazil, three important countries for textiles and garments (Brazil has a social standard for cotton production and a life-cycle based eco-label applicable to textiles).

There are also standards and systems that may have a full standard across the supply chain but only allow a single or limited choice of raw material, such as the TE recycled content standard.

There are guidelines or multi-stakeholder initiatives focussed on a single issue (chemicals, Oeko-Tex 100) or one part of the supply chain (Fair Wear). Others still offer traceability through the supply chain, but focus on either a single material and single type of production (organic), or verify or certify only one stage in the chain.

Due diligence for all processes could be standard practice in textile/garment supply chains, from the ways in which raw materials are processed, through spinning, weaving, dyeing, making up and retail. Good due diligence can show environmental impacts (chemicals, water), economic impacts (fair rewards), and social impacts (no forced labour, no child labour) are addressed properly⁸⁶. It is not easy to stop certain practices overnight, as it might be with a damaging chemical. Due diligence is a common approach to almost all labour focused initiatives and standards⁸⁷. With due diligence, actions can be traced and linked to products or processing stages, improving transparency.

3.4 LIMITATION OF CURRENT APPROACHES IN TEXTILES

The research identifies multiple standards, guidelines and multi-stakeholder initiatives with different focus on various elements of the value chain. All this works against having a single traceability system in the garment global chain. The use of a single guideline or standard for the contents of traceability systems will require the support of fashion brand owners and global retailers as the more powerful elements within the value chain

The support of the Sustainable Apparel Coalition (SAC)⁸⁸ would be essential. Together with Sedex, (a data repository)⁸⁹ it could provide both the focus for data of all kinds and the platform for collaboration,

⁷⁹ *Ibid.*

⁸⁰ Global Organic Textile Standard website,

⁸¹ Fairtrade Foundation, "New Fairtrade Textile Standard And Programme Aim To Protect Workers In The Textile Industry", *Fairtrade.net*, 22 March 2016, <http://www.fairtrade.org.uk/Media-Centre/News/March-2016/Textile-Standard>

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⁸³ Fairtrade Foundation website,

⁸⁴ Historic Futures website,

⁸⁵ SEDEX website,

⁸⁶ OECD, *Due Diligence Guidance*, 2017.

⁸⁷ Ethical Trading Initiative, "Human rights due diligence framework",

⁸⁸ Sustainable Apparel Coalition website,

⁸⁹ SEDEX website,

including protocols for data management, comparable indicators and so on. Data management protocols could cover both how data is gathered, how privacy is handled (e.g., protecting the identity of respondents), and how data is then assessed, evaluated and reported. This would address a concern of brands about the comparability of data they receive from different sources, be they suppliers, standard promoters and so on. Data ownership may be a concern, and is not mentioned in the GS1 traceability standard, but an open source/sharing approach would be ideal. The Global Compact suggests a focus on a limited number of common issues and going for a system on which it is easy to add-on other specifics as needed.

The issue of system costs must be addressed. Garment brands are always mindful of cost issues. They also move carefully about exposure to responsibility for problems they can currently claim are invisible. Traceability costs will diminish the larger the number of brands to adopt it.

That said, the EU has supported an online risk assessment system for CSR risks aimed at SMEs with the involvement of some standards⁹⁰. It has been developed by consultants SPIN360 backed by IndustriAll Europe, the Trades Union and Euratex, the European Textiles Industry Association. The tool covers human rights, labour practices, environment, fair operating and consumer issues.

In Italy, Pigni, F. et al.⁹¹ investigated the adoption of Radio Frequency Identification technologies (RFID) with the potential of totally redefining traceability in supply chains. However, the exploratory nature of the research and the low rate of present adoption of RFID systems in the textile sector, prevented any real advance and was limited to analysing cases documented in literature.

⁹⁰ Its descriptions are "

⁹¹ Pigni, Federico, and Servane Crave. "Traceability in the Textile and Clothing Industry: Issues and Implications for RFID Adoption", Paper presented at the Mediterranean Conference on Information Systems Conference, Venice, October 2007

4. ESSENTIAL ELEMENTS FOR AN OPERATIONAL TRACEABILITY SYSTEM

Some presently available traceability systems can be affordable and universal: they can plug in to other software; are adaptable to various stages; are risk based (not everything is verified, unless a risk is identified), and can carry additional data as required⁹².

The difficulties lie with the tracking methods and standards. There is a wide range of software options available that could even allow direct communication between final consumers and stakeholders in the supply chain⁹³. The same would apply to communications between brands and workers or farmers⁹⁴.

Lot traceability and component traceability do not allow much detail on materials or processes. Source traceability goes back to the raw materials in different components and processes⁹⁵.

The State of Sustainability Initiatives report (2014)⁹⁶ views traceability systems as the link between sustainability initiatives and claims: '*Traceability systems help ensure the integrity of claims by providing accountability between standard-compliant products produced and sold.* It identifies four methods:

Book and claim (certification of production volumes but no traceability or ownership of the product);
Mass Balance (product is tracked but may not be sold with the certificate);
Segregation (product is followed and present at all stages) and
Identity preservation (product is individually identified at each stage).

While the first two offer some guarantee on the sustainable product they do not know what else is in the supply chain, or even who, in the first case. Adding due diligence and a robust, data carrying traceability system would allow more risks to be identified, and more transparency too.

More complex chain of custody traceability offers more opportunity to check what is really going on⁹⁷.

Ultimately, brand reputation preservation may force companies to act on traceability, especially as '*from an IT perspective anything can be done. It all depends on your requirements which flow from the traceability option and chain of custody you have chosen to implement*⁹⁸.

Another requirement for traceability is data, especially from a brand perspective, but many initiatives do not provide much, and this may be limited to their scope of activities. Brands already thinking about this require not just data on what they are doing, but data that allows their activities to be comparable to others: '*If the consumer asks difficult questions about products, for example about sustainable content, then we must be able to answer: yes, no or don't know. It needs transparency to be able to say yes. There is a question of credibility and cost, but can be no trade-off.*⁹⁹. However, we come again up against the problem of scale, because until it is reached, good traceability means costs; only more people doing it on more products will lead to lower costs. Full disclosure can alleviate the problems associated with illegal or migrant labour, but the amount of data to be managed and analysed can be daunting. Further questions might then be about the validity of data. However, organisations can and should make use of experts in the sectors concerned via advisory boards or services, as some organisations and companies already do. The GRI reporting standards and those of the ISEAL alliance codes of good practice also offer useful tools¹⁰⁰.

⁹² Ferrigno, Simon, "Cotton Horizons", *Ecotextile News February 2015*, West Yorkshire: MCL Global, 2015.

⁹³ Ferrigno. *Cotton Horizons: cotton standards*, 2014.

⁹⁴ Cotton Conversations: a report on the pilot project funded by Hivos December 2011 - June 2012

⁹⁵ Ravasio, Paolo. "Material Traceability: get going for apparel and textiles", *Texsture.com*, 2014,

⁹⁶ Potts, Jason *et al.*. *The State of Sustainability Initiatives Review 2014. Standards and the Green Economy*, Manitoba: International Institute for Sustainable Development, 2014,

⁹⁷ La Chappelle, Jason. "Making Sense of Chain of Custody", ISEAL Alliance, 16 October 2013, , accessed February 2017

⁹⁸ Quoted in Ferrigno, 2016.

⁹⁹ *Ibid.*

¹⁰⁰ ISEAL alliance, "Our Codes of Good Practice",

4.1 CONSUMER PROTECTION

Previously cited EU Regulation 1007/2011 on fibre names and related labelling and marking of the fibre composition of textile products establishes¹⁰¹: '*When such indications are used, they should enable consumers to be fully aware of the origin of the products they purchase, to protect them against fraudulent, inaccurate or misleading claims of origin*'. The statement can be taken as a first step in requiring garment manufacturers to trace products.

A Matrix Insight case study commissioned by the EC DG Enterprise & Industry¹⁰² indicates that the general view among stakeholders is that new technologies, such as **electronic labelling** should be integrated as soon as feasible. However, there is also broad consensus that this point has not yet been reached. However, WTO rules will have to be carefully assessed: '*...origin labelling systems including requirements for traceability should be carefully designed in order not to impose unreasonable burdens on economic operators from other countries.*' (Matrix Insight, *ibid.*).

A legitimate business concern refers to costs and benefits, with estimates that traceability and labelling will bring additional costs (including translation). WTO case law requires that 'no unreasonable burdens' should derive from traceability schemes. We should also add that traceability information does not have to be communicated by labelling, and if done as part of due diligence, costs may be minimised while business risks are reduced.

Other relevant EU legislation is the Unfair Commercial Practices Directive¹⁰³, that addresses the potential misleading of consumers by action or omission, including the provision of 'false information', or information presented in a way that might deceive the consumer: The UCPD is relevant for questions of country of origin, traceability, environmental and social labelling in as far as certain uses of such labels and information can be misleading to consumers. While the UCPD does not provide for any formal requirement to indicate the geographical or commercial origin, composition or environmental and social aspects of a product, any such claims could be misleading under the UCPD, if false or deceiving information is likely to make the consumer take a purchase decision he would not have taken otherwise.

In 2016, an updated Guidance on the application of the Unfair Commercial Practices Directive was adopted by the European Commission¹⁰⁴ addressing, among other issues, the problem of unsubstantiated environmental claims. The Guidance includes specific elements to make green claims more trustworthy and transparent, and integrates the input from a multi-stakeholder group on environmental claims consisting of representatives of national authorities, European business organisations, consumer associations and environmental NGOs¹⁰⁵.

Lastly, the Commission proposal for a Regulation on consumer product safety of 13 February 2013 (2013/0049 (COD)) included a provision on mandatory origin labelling, but the negotiations between the co-legislators on this file have been blocked since 2014.

4.2 IMPROVING THE EFFICIENCY OF BUSINESS TRANSACTIONS

Increasing business efficiency is part of the goals of traceability systems. If the brands who want full physical traceability of their products are to be joined by most of their rivals, then it must be so, especially as many brands are worried about integrity and public communication: '*Everyone also has their own message, which confuses consumers, ... It is a risk. Other schemes than organic raise concerns among some brands, especially mass balance approach with public communication*'¹⁰⁶.

¹⁰¹ Regulation 1007/2011 of the European Parliament and of The Council of 27 September 2011 on textile fibre names and related labelling and marking of the fibre composition of textile products and repealing Council Directive 73/44/EEC and Directives 96/73/EC and 2008/121/EC of the European Parliament and of the Council.

¹⁰² European Commission, *Study of the need and options for the harmonisation of the labelling of textile and clothing products. Final Report*; European Union, 2013.

¹⁰³ Directive 2005/29/EC of the European Parliament and of the Council of 11 May 2005 concerning unfair business-to-consumer commercial practices in the internal market and amending Council Directive 84/450/EEC, Directives 97/7/EC, 98/27/EC and 2002/65 /EC of the European Parliament and of the Council and Regulation (EC) No 2006/2004 of the European Parliament and of the Council, <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2005:149:0022:0039:en:PDF>

Guidance on the Implementation/Application of Directive 2005/29/EC on Unfair Commercial Practices, European Union, 2016.

¹⁰⁶ Quoted in Ferrigno, 2016.

Traceability can improve business efficiency by building relationships between the different stages of the supply chain; increasing overall knowledge and improving conditions for pricing negotiations. Business sustainability will also be enhanced, especially when using due diligence approaches (Rank a Brand 2016, OECD 2017).

This can be particularly important for farmers, producers and suppliers in low-income producing countries as they do not have access to relevant information or tools to manage their transactions. Efforts are needed to promote and sustain their participation in global value chains, and support efforts to handle data in the first place and informing about the business case of sustainable business practices. Using development funding for capacity building, and finding easily accessible and scalable solutions that do not overburden these actors in terms of human and financial resources, would be needed to avoid excluding them from the market.

Supply security is the biggest factor in adoption of sustainable product sourcing¹⁰⁷. Data also gives added security on product flows, and on certification, especially if using a system like Check Organic which can check for duplicate certificate numbers with external databases¹⁰⁸. Many brands are looking to the Higg Index from the SAC as a '*source for data and metrics*', and others to the Sustainable Clothing Action Plan in the UK¹⁰⁹.

Full traceability could be expensive, or restricted to larger organisations. Some small brands presently use traceability as a unique selling point, such as Rapanui Sustainable Fashion¹¹⁰. This firm can do so by building a bespoke supply chain and presenting the full information on supply and product to customers. Any moves in the textiles and garment industries to require traceability or use of data systems like the Higg Index need to make it possible for smaller brands to succeed, as is indeed a requirement in the OECD Due Diligence guidelines¹¹¹.

4.3 BETTER DATA MANAGEMENT

A traceability system that links to other corporate systems (like logistics, or relationship management) can help improve a company's knowledge and efficiency, and data management, with identification of the better suppliers or origins as well as their impacts, and sustainability performance. It can help reporting and the bottom line. For example, how a supplier performs on energy use, or how a farmer performs on pesticide use can help others to improve if the information is shared¹¹².

Again, actors in developing countries might lack the capacity for participating in such data collection and reporting efforts, and would need support.

4.4 IMPROVED CONSUMER INFORMATION

In theory, a major benefit of the implementation of improved traceability and transparency would be better informed consumers. However, fashion brands often report that consumers don't care about more information¹¹³.

The evidence from different surveys is non-conclusive. That includes statements linked to fashion brands internal researches (rarely published). Even the previously cited EC commissioned study (Matrix Insight, *ibid*), states that: 'Traceability information is generally useful for market surveillance authorities rather than for consumers.'

At present, apparel purchasing decisions may be influenced by supplier ethics, standards or corporate responsibility only in the higher segments of the apparel market. Some reports suggest that short term impacts on sales and stock value have direct connection with news such as the factory collapse of Rana Plaza. However, Primark, a mass market apparel UK retailer, enjoyed year on year sales increases at that time. This is in line with other recorded attitudes of apparel consumers in the lower segments of

¹⁰⁷ *Ibid.*

¹⁰⁸ Ferrigno. "Cotton Horizons" in *Ecotextile News*, February 2015.

¹⁰⁹ Ferrigno. *Cotton horizons: cotton standards*, 2014.

¹¹⁰ Rapanui website,

¹¹¹ OECD, *Due Diligence Guidance*, 2017.

¹¹² Ferrigno, Simon. *Sustainable Cotton Market Analysis: A review of the markets and current situation of organic, Fairtrade, Better Cotton and Cotton made in Africa*, Solidaridad, WWF and PAN UK, 2016.

¹¹³ Richero. "Developing Mongolian knitwear exports", 2013.

the market. In general, fewer than a third of apparel consumers are willing to pay more to avoid a potential sweatshop product.

More recently, Keller et al¹¹⁴., 2014 identified trends indicating that the global fashion market will generate double digit growth until 2020, with much of this growth coming from developing markets, notably from the exploding buying power among Asian consumers. According to these researchers, by 2025, 28% of sales in luxury Womenswear will come from emerging markets (up from 7% in 2011). In the middle market segments, mature markets will only account for 45% of sales (down from 63% in 2011).

The EU also looked further at green claims after the dialogue¹¹⁵. This reports on data from the Eurobarometer survey that shows European consumers are willing to pay more for environmental products, except that they do not trust such claims. How can traceability close this gap? It seems to mean more disclosure, not just meeting standards, and must include gaps and weaknesses and how the business is meeting them (again, this brings us back to due diligence, but also to the extra risk based approach of String 3.0, or the extra checks in Check Organic).

The study premise does agree with what many businesses say¹¹⁶: that they need to have claims that are '*clear, accurate, reliable and as far as possible comparable*'¹¹⁷.

Companies could check data in other systems against guidelines. The UK's ASA offers a service to companies wanting to check claims, and making sure software is compatible would make this easier and cheaper. Improving the use or comparison of data would of course not help by itself reduce confusion to consumers, but could help brands select what to communicate and ensure it is factual. Outside the EU, there is also an ISO standard on environmental labels and declarations (14021), and the ISEAL Alliance (2010) also provide guidance through a code of good practice.

This is all good but makes navigating difficult for brands and consumers – what model to use, which standards to adopt, how and what to report and communicate? For consumers, it is also difficult to know how to judge a garment, even where it may be certified and labelled, especially as sustainability is rarely a factor in point of sales purchases, which are often impulsive in any case, especially for fast fashion items.

Many consumers declare they are worried about the environmental footprint of fashion collections, or the conditions of women workers in Asia. But there are often significant differences between behaviour proposals and actual buying decisions.

It is not possible to make blanket statements about what influences consumer decisions, when buying fashion items. Consumers in different market segments react differently to brand value; ethical questions and product information¹¹⁸. However, consumer education in ethics of garment production and environmental impacts of the supply chain is a long-term commitment that should not be abandoned.

4.5 REDUCED BUSINESS RISKS

Knowing what is in the supply chain and understanding the risks of sourcing locations, sourcing partners, raw materials, social conditions and environmental impact is useful for companies to make risk assessments, investment decisions and business plans.

Good traceability systems should provide sufficient data, allowing, in some cases, access to non-competitive information of other stakeholders. A further benefit of knowing the supply chain and building relationships within it, is being able to secure supply¹¹⁹.

¹¹⁴ Keller, Carsten et al. "Succeeding in tomorrow's global fashion market", *McKinsey.com*, September 2014.

¹¹⁵ GFK, "Environmental Claims for Non-Food Products", 2014.

¹¹⁶ See Ferrigno 2016 and 2014

¹¹⁷ GFK, "Environmental Claims for Non-Food Products", 2014.

¹¹⁸ Euromonitor retail data, November 2015

¹¹⁹ Ferrigno. *Cotton Horizons: cotton standards*, 2014.

4.6 SOFTWARE SOLUTIONS

The first software for textiles traceability was launched over a decade ago by Historic Futures, a British software company with a grand vision of enabling full textiles traceability and data management. The system is now in its third version (String 3.0)¹²⁰, but it has not yet changed the textiles sector. String 3.0 is the next generation system from the company. It forgoes much of the clumsiness of earlier systems which are data and admin heavy in favour of a more risk based and interactive approach.

The company describes it as a system that '*enables conversation, with questions asked through the supply chain as needed, depending on what users want: it operates as a series of black boxes, with questions and information flowing but identities protected, to preserve client confidentiality*'.

It allows some verification, and some core data is included such as order numbers and dates. It also checks against other sources, such as the Open Corporate database, and its own directory of companies. Companies are ranked by how responsive they are to clients. String 3.0 complements the goals of traceability to improve supply chain communication and efficiency.

Other options include Source Trace (India), and Chain Point, a Dutch company offering components for sustainability standards. The complexity of the textile/apparel chain seems to present some insurmountable problems for these systems. Coop¹²¹ is experimenting with transparent initiatives in flower production (still a long way from the apparel chain).

In terms of sustainability standards, the Better Cotton Initiative's¹²² Better Cotton Tracer is a system developed with Chain Point since July 2013. It follows cotton from farm to gin and trader level. This is a bale tracing system, recording volumes of Better Cotton traded; its visibility is into the tiers of suppliers and countries of origin. It is essentially a system for managing Mass Balance. The Better Cotton Tracer provides recorded balance of Better Cotton between different traders and between traders and spinning mills. The system helps to determine the volume based fee paid to BCI by users. Data is verified, with some random, risk based physical checks including third party audits¹²³.

Cotton made in Africa (CmiA)¹²⁴ is a private standard developed and promoted by the Aid by Trade Foundation¹²⁵, a foundation set up by the German Otto Group, a multichannel, multi-product retailing organisation. It offers a mass balance system in a custom-built traceability system, and offers options for identity preservation for those who want it and those using its CmiA-organic option. The system is meant to support demand creation, '*so mass balance activates at the mill after bales are received. Data comes from traders and goes through to spinners, tracking bale numbers. Sales are then reported by retailers. ...Country of production is also recorded, as are product destinations (e.g., mills, retail)*'. Any discrepancies are investigated, and there is third party verification. CmiA says that the system can be linked to external data sources and systems¹²⁶.

The system is meant to support demand creation. Mass balance starts after bales are received at the mill. Data comes from traders and goes through to spinners, tracking bale numbers. Any discrepancies are investigated, and there is third party verification¹²⁷.

A Swiss scheme called Textrace¹²⁸ offers textile brands a garment secured label providing product history information. It can integrate RFID providing information on garment manufacturing through logistics to sales and after-sales management.

Check Organic¹²⁹ is a 12-year-old partnership whose unique approach is to offer a real-time worldwide source of certification data including data from certification bodies independent of their location, of

¹²⁰ Historic Futures website,

¹²¹ Kitson, Lawrence. "The Provenance alpha: building trust from transparency", 30 January 2017,

¹²² Better Cotton Initiative website,

¹²³ Ferrigno. "Cotton horizons", in *Ecotextile News*, February 2015.

¹²⁴ Cotton Made in Africa website,

¹²⁵ ISEAL website,

¹²⁶ Ferrigno. "Cotton horizons", in *Ecotextile News*, February 2015.

¹²⁷ *Ibid.*

¹²⁸ TexTrace. "White Paper – RFID Brand Label is Key to Transparency and Sustainability 2016", TexTrace AG, 2016,

¹²⁹ Check-Organic website,

national, regional or international scope as well as from already existing national data bases. It is an information hub for improving transparency and organic integrity and a valuable tool for preventing fraud¹³⁰. It prevents paper fraud, or multiple uses of the same certificate number or product volume. There is a mass-balance verification of inputs and outputs¹³¹. It is compatible with common software systems for company and goods management.

There are overlaps with CRM type systems, and it can be complementary to SAP. Current users include HiPP Organic, as well as the Marine Stewardship Council and FloCert. It is decoupled from paper trails, and it checks internally and externally for duplicate paperwork or sales for the same product. An example of it in use is in the Italian grain trade, where all certifiers provide information to the DataBio database. Data starts from the farm and batches are traced and labelled in stores: '*In this model, companies save money on additional audits and on certifiers, who also save. Some of the verification fee goes back to data providers, and there is also a gain in consumer trust*'¹³². It also offers a supply chain mapping function.

The International Cotton Association in Bremen is working on a traceability system based on fibre testing, including proof of the type of cotton (e.g., pima, organic) and identification of its origin (e.g., India, or Better Cotton) and tracking of volumes. The system uses a marker placed at the gin in the fibre using Advanced Particle Technology (APT – cellulosic marker fibres (CMF)), which is said to be able to detect and quantify different types of cotton: '*The technique can be used at different levels, marking only a little cotton to authenticate an origin, or all of it to make volume or content claims*'. The markers are read by hand held scanners (ICA 2016). Technology such as this is limited to fibres only¹³³. None of these systems allow full supply chain traceability bringing in data from other parts yet, apart from String.

A Swiss scheme called Textrace¹³⁴ offers textile brands a garment secured label providing product history information. It is able to integrate RFID providing information on garment manufacturing through logistics to sales and after-sales management. RFID can greatly add to traceability options¹³⁵. For example, allowing quick scanning of incoming materials for document and data checking, real-time fraud checking with external sources and databases, and so on – simply by speeding up the process and allowing more real time data flow. It also allows for more consumer information if used at point of and post-sale.

Software developed to reduce fraud in the organic sector (and now also used in the sustainable fisheries sector and Fairtrade, the company report¹³⁶) can also be adapted. Check Organicis described as an information hub for increasing transparency. Any certified product can be replaced by any marked/numbered product as an input that is then traced through the supply chain (and checked with external sources in real time)¹³⁷. The systems' ability to use APIs (software connectors that allow the system to talk to other systems) means additional data can be added. Thus, such a system can potentially become a full supply chain monitoring tool, and this is becoming more common across all software providers. As one respondent said in a 2016 survey¹³⁸, with software, anything can be done. It is more that brands to date are choosing not to do it.

The main elements for an efficient traceability system are shown in a summary table, in **Appendix VI**.

¹³⁰ Ferrigno, "Cotton horizons" in *Ecotextile News*, 2015.

¹³¹ *Ibid.*

¹³² *Ibid.*

¹³³ ICA Bremen. "Traceability of Cotton: From field to finished product based on specifically marked Cellulosic Fibres (CMF)", ICA Bremen, 2016.

¹³⁴ TexTrace. "White Paper", 2016.

¹³⁵ Probst, Laurent, Laurent Frideres, and Bertrand Pedersen. "Traceability across the Value Chain. Advanced Tracking systems", European Union, 2015.

¹³⁶ Ferrigno. "Cotton horizons", in *Ecotextile News*, February 2015.

¹³⁷ *Ibid.*

¹³⁸ Quoted in Ferrigno. *Sustainable Cotton Market Analysis*, 2016.

5. CONCLUSIONS

A first observation on transparency and traceability arising from the research, is that most references found in the literature, Internet websites and reports, all refer to either agriculture or food products. These sectors, of course, can use simple systems of traceability because they mostly refer to single products that undergo little transformation or additions until they reach the final consumer. Many of the organisations that have dealt with agriculture products have branched off into other product areas, some of them into textiles and garments, where different apparel products are submitted to a wide spectrum of processes involving chemical and physical changes. During their passage through the production chain, apparel products can be dyed, printed, bleached, stone washed, degraded, shrunk and felted, to name but a few. Traceability requirements for the garment value chain are quite special, and cannot use off the shelf solutions given the particularities of the supply chain.

A second general observation is that apparel products destined for European consumption travel through several countries along the production chain. This imposes added constraints on any traceability system aiming at recording the different stages of the supply chain.

Full traceability along the entire value chain, will include information on every stage: textile fibre origins and production methods, textile processing, chemicals employed, sewing threads, buttons, accessories, environmental footprint, social conditions and distribution information. That mass of information will have to be conveyed to the final consumer, to see before purchasing, in a practical way. A considerable problem for everybody involved.

The evidence gathered indicates that traceability for the garment value chain is a complex problem to which different organisations propose different solutions. There is, however, little consensus regarding the adoption of a single system (or standard for traceability systems) that would satisfy all stakeholders.

Some standards cover the whole supply chain and a mix of environmental, social and economic areas, but they are not connected, and few in numbers. Fairtrade has launched its new sourcing model to try and make it easier and cheaper for brands to source Fairtrade cotton, as well as its full textile standards. Certification could be used at several different stages, based on an assessment of risks and/or the benefits the system might offer.

Eventually, it might be possible to combine standards covering different areas and parts of the supply chain; however, this could become complicated and expensive for users, and for the connecting of their traceability systems and methods (although some traceability software has APIs allowing cross-compatibility).

Companies are very reluctant to respond positively to initiatives that will improve transparency of labour conditions. Many of the researched companies are members of collaborative initiatives, but none of them present policies to combat labour rights violations at farm level for its entire cotton supply. Notably, several companies, regardless of their overall performance, avoid (or claim to) buying cotton from some countries with well-documented rights violations.

Cotton traceability, and standards adopted to improve it, is one part of the traceability problem in the textile/apparel chain. Tracking organic cotton is already available using several tools, but the problem becomes more complex due to the variety of different fibres entering the garment production chain.

However, sustainable garment production does include sustainable fibre production. Organic cotton requires 30% more land use to achieve the same volume of production as ordinary cotton. Deciding if land should be used for cotton or for food crops is also part of the ethical conundrum of garment production. It may also be argued that the environmental impact of producing oil-based synthetic fibres is unsustainable in the long term. Polyester fibres cannot be destroyed or degraded, they remain in the environment forever, many of them in the planet's oceans.

The environmental impact of garment cutting and sewing is minimal, when compared to the impact caused by textile processing.

Traceability and tracking can go a good part of the way to linking raw materials to intermediary products and to track those through different stages of processing. In today's global garment production chain, global brand and multiple store retailers are the owners of the products in 85% of the articles that reach

the global consumers. Working conditions at the various points of labour inputs are determined by the price points set by the merchandise owners, and they are the main engines to bring about changes.

These changes can be helped by standards and guidelines such as the OECD due diligence guidelines that apply across the whole supply chain. Such standards and guidelines can also improve data flow and communications. When linked to other management systems and software, they can contribute to cost management and to gauge the magnitude of problems in different parts of the chain.

Fashion brands can implement a due diligence approach, linked with a good traceability system. This will improve the information and data brands have about product level traceability and production environment along the supply chain. In short: they will have information about elements that presently they do not want to know about.

Consumer behaviour towards purchasing apparel fashion plays an important, but not exclusive, part in the ethics involved in apparel production. The most important element influencing fashion consumers up to the present are included in the following messages, transmitted by the apparel brands and the major retailers:

- Fashion is affordable
- Fashion is disposable
- Fashion is fast: trends quickly become short-lived and obsolete.
- Fashion brands continuously present new "must have" styles.

The transition period of styles and designs from the catwalk to the final consumer has become very short, thus creating a continuous need for renovation and change.

Fashion brand owners and global retailers already have detailed information about behaviour of their target consumers, their style preferences, their purchasing habits and their apparel budgets. They access all this information in real time and use it to make design decisions, product pricing, stock collections and regulate the pace of change of garments through point of sale.

Moving towards a more ethical and sustainable consumer behaviour requires persuading retailers, and fashion brand owners to be more transparent about environmental impacts and social conditions along the textile/garment supply chain. Such information will be disclosed only if fashion brands feel sure it will not damage their own image. They already have the power to take the necessary action and implement changes along the supply chain. Improved traceability and more transparency will be key elements to achieve that change.

The major issues affecting the sustainability of the textile/garment value chain can be summarised as follows:

- The garment supply chain has become buyer-driven.
- There are marked power asymmetries between suppliers and global buyers: because of their direct contact with final consumers, global buyers manage the supply chain from a position of greater strength with respect to suppliers.
- There is insufficient transparency between different stakeholders in the supply chain.
- Subcontracting and dubious commercial practices are still abundant along the value chain.
- Workers involved in the supply chain are disadvantaged and tend to have their rights ignored.
- The concept of "Fast Fashion" has become contrary to sustainability of garment production.
- Apparel consumers in the developed world are slow to adopt more ethical behaviour.

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2	Chanel -	http://www.chanel.com
3	Dolce & Gabbana	http://www.dolcegabbana.com/
4	GAP	http://www.gap.com/
5	Gucci	https://www.gucci.com
6	Hermes	http://spain.hermes.com
7	H&M	http://www.hm.com
8	Hugo Boss	http://www.hugoboss.com/
9	INDITEX	http://www.inditex.com
10	Levi's	www.levi.com
11	M&S	http://www.marksandspencer.eu
12	PRIMARK	https://www.primark.com/en/homepage
13	Prada	http://www.prada.com
14	WALMART	https://www.walmart.com/
15	American Apparel & Footwear Association	https://www.wewear.org/
16	American Society of Mechanical Engineers	https://www.asme.org/
17	BCI (Better Cotton Initiative)	http://bettercotton.org/
18	Business & Social Rights Resource Centre	https://business-humanrights.org
19	Business for Social Responsibility (BSR)	https://www.bsr.org/
20	Carbontrust	https://www.carbontrust.com
21	Clothes Aid	http://clothesaid.co.uk/
22	Clean Clothes Campaign;	https://cleanclothes.org/
23	Chainpoint -	https://www.chainpoint.com/
24	EU Ecolabel	http://ec.europa.eu/environment/ecolabel
25	Fairtrade Foundation	http://www.fairtrade.org.uk/
26	Fashion Revolution	http://fashionrevolution.org/
27	Global Action through Fashion	http://globalactionthroughfashion.org/
28	Global Organic Cotton Community Platform	http://www.organiccotton.org/
29	Global Reporting Initiative	https://www.globalreporting.org/Pages/default.aspx
30	Green Choices Org.	https://www.greenchoices.org/
31	ISO Standards Organisation	http://www.iso.org/iso/home.html
32	IWTO (International Wool Textile Organisation)	http://www.iwto.org/

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- 43 **WIEGO (Women in Informal Employment)** <http://wiego.org/>

Annex II Textiles/Garment Value Chain – a selection of standards and initiatives

Global Organic Textile Standard

Private supply chain standard. Fully traceable from spinner to finished product for certified organic fibre (70 to 95%) Organic or low impact processing. T is labelled for consumers.

Nature	Transparency	Traceability	Environment	Economy	Society	Labour	Human rights	Due diligence/risk assessment	Supply chain stages
Private standard	Public database	Yes (by user)	Yes	Yes	Yes	Partial	No	No	Natural fibres & small %synthetics

EU Ecolabel

EU standard and consumer label covering textiles and the environment including criteria for processing methods and raw materials. Some social and economic criteria.

Nature	Transparency	Traceability	Environment	Economy	Society	Labour	Human rights	Due diligence/risk assessment	Supply chain stages
Government/Institution	Basic (user could do more)		Yes	No	Yes	Basic		no	All

Fairtrade textiles

Focuses on the textiles supply chain and includes business practices. It has a consumer label. Restrictions apply to countries of production, and sub-contractors are covered.

Nature	Transparency	Traceability	Environment	Economy	Society	Labour	Human rights	Due diligence/risk assessment	Supply chain stages
Private standard (non-profit)	Basic (users can do more)	yes	Partial	Yes	Yes	Yes	Yes	yes	All

TE Organic Content standard

Private, non-profit standard designed to trace volumes of organic cotton in supply chain and certify them at end use. There are two versions, one for 5% and one for 95% organic content. Only raw material is covered.

Nature	Transparency	Traceability	Environment	Economy	Society	Labour	Human rights	Due diligence/risk assessment	Supply chain stages
Private NGO	No	Yes	Yes	no	no	no	no	no	Full for traceability

Better Cotton Initiative

Private standard multi-stakeholder initiative bringing together industry, farmers and NGOs attempting to achieve mass change in the cotton sector. Limited to cotton fibre production.

Nature	Transparency	Traceability	Environment	Economy	Society	Labour	Human rights	Due diligence/risk assessment	Supply chain stages
Private standard	No	To spinning only	yes	no	yes	yes	no	no	Farming & ginning

w

CmiA Organic

As CmiA, but covering organic standards too, and with traceability of the full supply chain.

Nature	Transparency	Traceability	Environment	Economy	Society	Labour	Human rights	Due diligence/risk assessment	Supply chain stages
Private standard	no	yes	yes	yes	yes	yes	partial	no	Farming & ginning

Good Weave

Private supply chain standard for hand-knotted carpets. Focuses on child labour.

Nature	Transparency	Traceability	Environment	Economy	Society	Labour	Human rights	Due diligence/risk assessment	Supply chain stages
Private NGO	Buyer choice	yes	no	no	no	yes	yes	no	Hand weaving

Yarn Ethically and Sustainability Sourced

YESS, developing NGO initiative aimed at eliminating slavery, forced labour and child labour from spinning production. Based on OECD due diligence framework.

Nature	Transparency	Traceability	Environment	Economy	Society	Labour	Human rights	Due diligence/risk assessment	Supply chain stages
NGO	yes	TBD	no	no	yes	yes	yes	yes	All

Fair Wear

Foundation working on labour standards and human rights, focusing on garment making industry.

Nature	Transparency	Traceability	Environment	Economy	Society	Labour	Human rights	Due diligence/risk assessment	Supply chain stages
Private non-profit	no	no	no	no	partial	yes	yes	no	Making up

OECD due diligence guidelines for textiles and footwear

Multilateral set of guidelines focusing on promoting business due diligence at every stage in supply chains.

Nature	Transparency	Traceability	Environment	Economy	Society	Labour	Human rights	Due diligence/risk assessment	Supply chain stages
Multilateral	yes	Not product	yes	yes	yes	yes	yes	yes	full

BSCI

Labour focused code of conduct. It includes some elements on the environment and business ethics.

Nature	Transparency	Traceability	Environment	Economy	Society	Labour	Human rights	Due diligence/risk assessment	Supply chain stages
Business association	No	discretionary	yes	no	yes	yes	yes	yes	all

UN Global Compact Guide to Traceability

Guidance for companies to increase sustainability through more product traceability.

Nature	Transparency	Traceability	Environment	Economy	Society	Labour	Human rights	Due diligence/risk assessment	Supply chain stages
Multi-stakeholder public-private platforms	Discretionary	Yes	Standard dependent	yes	Standard dependent				

Global Reporting Initiative

Multi-stakeholder initiative promoting common sustainability reporting standards.

Nature	Transparency	Traceability	Environment	Economy	Society	Labour	Human rights	Due diligence/risk assessment	Supply chain stages
Multi-stakeholder, public-private	no	no	yes	yes	yes	yes	yes	no	

United Nations Guiding Principles on Business and Human Right

UN guidelines covering business and human rights.

Nature	Transparency	Traceability	Environment	Economy	Society	Labour	Human rights	Due diligence/risk assessment	Supply chain stages
UN principles	yes	Not product					yes	yes	all

GS1 Global Traceability standard

Private set of guidelines covering processes in sustainability It can help a company determine the implementation of traceability in its supply chain or the design of a software system.

Nature	Transparency	Traceability	Environment	Economy	Society	Labour	Human rights	Due diligence/risk assessment	Supply chain stages
Private	no	yes	no	no	no	no	no	no	all

String 3.0

Traceability software developed by Historic Futures (UK private co.). It allows product traceability and risk assessments in the supply chain.

Nature	Transparency	Traceability	Environment	Economy	Society	Labour	Human rights	Due diligence/risk assessment	Supply chain stages
Private	discretionary	yes	discretionary	discretionary	discretionary	discretionary	discretionary	Yes (risk assessment)	All

Check Organic

German-Austrian partnership offering traceability software to support sustainability. It has a focus on fraud prevention and allows linkages to many data sources and business software tools.

Nature	Transparency	Traceability	Environment	Economy	Society	Labour	Human rights	Due diligence/risk assessment	Supply chain stages
Private	discretionary	yes	discretionary	discretionary	discretionary	discretionary	discretionary	no	all

Higg Index

Reporting system developed by the multi-stakeholder platform Sustainable Apparel Coalition. It is a self-assessment tool allowing users to collate, analyse and report on their supply chains.

Nature	Transparency	Traceability	Environment	Economy	Society	Labour	Human rights	Due diligence/risk assessment	Supply chain stages
Private multi-stakeholder	Partial (no obligation for public reporting)	no	yes	yes	yes	yes	yes	no	all

Organic fibres

Two of the standards for organic fibres are regulated by the EU and the US. The existing regulations only cover environmental issues, but the IFOAM standard is more comprehensive. These standards apply to fibre production and not to processing

Nature	Transparency	Traceability	Environment	Economy	Society	Labour	Human rights	Due diligence/risk assessment	Supply chain stages
Government	no	yes	yes	no	no	no	no	no	Raw material through supply chain
IFOAM	no	yes	yes	yes	yes	yes	no	no	Raw material through supply chain

Cotton Leads

Cotton leads is a private led national programme in the USA promoting US cotton as sustainable

Nature	Transparency	Traceability	Environment	Economy	Society	Labour	Human rights	Due diligence/risk assessment	Supply chain stages
Private	no	no	yes	no	no	yes	no	no	fibres

Oeko-Tex 100

The International Association for Research and Testing in the Field of Textiles and Leather Ecology is an association of Textiles Institutes in Europe and Japan. It offers 7 different standards for environmental testing in textiles. Oeko-Tex 100

Nature	Transparency	Traceability	Environment	Economy	Society	Labour	Human rights	Due diligence/risk assessment	Supply chain stages
Private	No	Partial	yes	no	no	no	ni	no	all

Oeko-Tex made n green (MyStep)

Nature	Transparency	Traceability	Environment	Economy	Society	Labour	Human rights	Due diligence/risk assessment	Supply chain stages
Private	no	no	yes	no	no	no	no	no	Not fibres

Step by Oeko-Tex

Nature	Transparency	Traceability	Environment	Economy	Society	Labour	Human rights	Due diligence/risk assessment	Supply chain stages covered
Private	no	partial	yes	no	no	no	no	no	Fibres only if non-agricultural

ABNT Ecolabel (Brazil)

The Brazilian Ecolabel is run by the Brazilian standards organisation, and is a life cycle based voluntary scheme covering environment questions.

Nature	Transparency	Traceability	Environment	Economy	Society	Labour	Human rights	Due diligence/risk assessment	Supply chain stages covered
Public	No	yes	yes	no	no	no	no	no	all

WRAP

The Waste and Resources Action programme is a UK initiative bringing together government, business and experts. Its focus is on environmental issues.

Nature	Transparency	Traceability	Environment	Economy	Society	Labour	Human rights	Due diligence/risk assessment	Supply chain stages covered
Public-private multi-stakeholder	no	no	yes	no	no	no	no	no	Excludes fibres

Bluesign

Private standard focusing on chemicals used in textiles processing.

Nature	Transparency	Traceability	Environment	Economy	Society	Labour	Human rights	Due diligence/risk assessment	Supply chain stages covered
Private	No	No	Yes	no	no	no	no	no	Manufacturing

Carbon Trust Certification (carbon, water, waste, supply chain)

Private standard focused on energy, greenhouse gases and water use.

Nature	Transparency	Traceability	Environment	Economy	Society	Labour	Human rights	Due diligence/risk assessment	Supply chain stages covered
Private	no	no	yes	no	no	no	no	no	Mainly manufacture, raw material possible

Ethical Trade Initiative

Organisation focused on labour and human rights standards in the supply chain. Members includes companies, trades unions and NGOs.

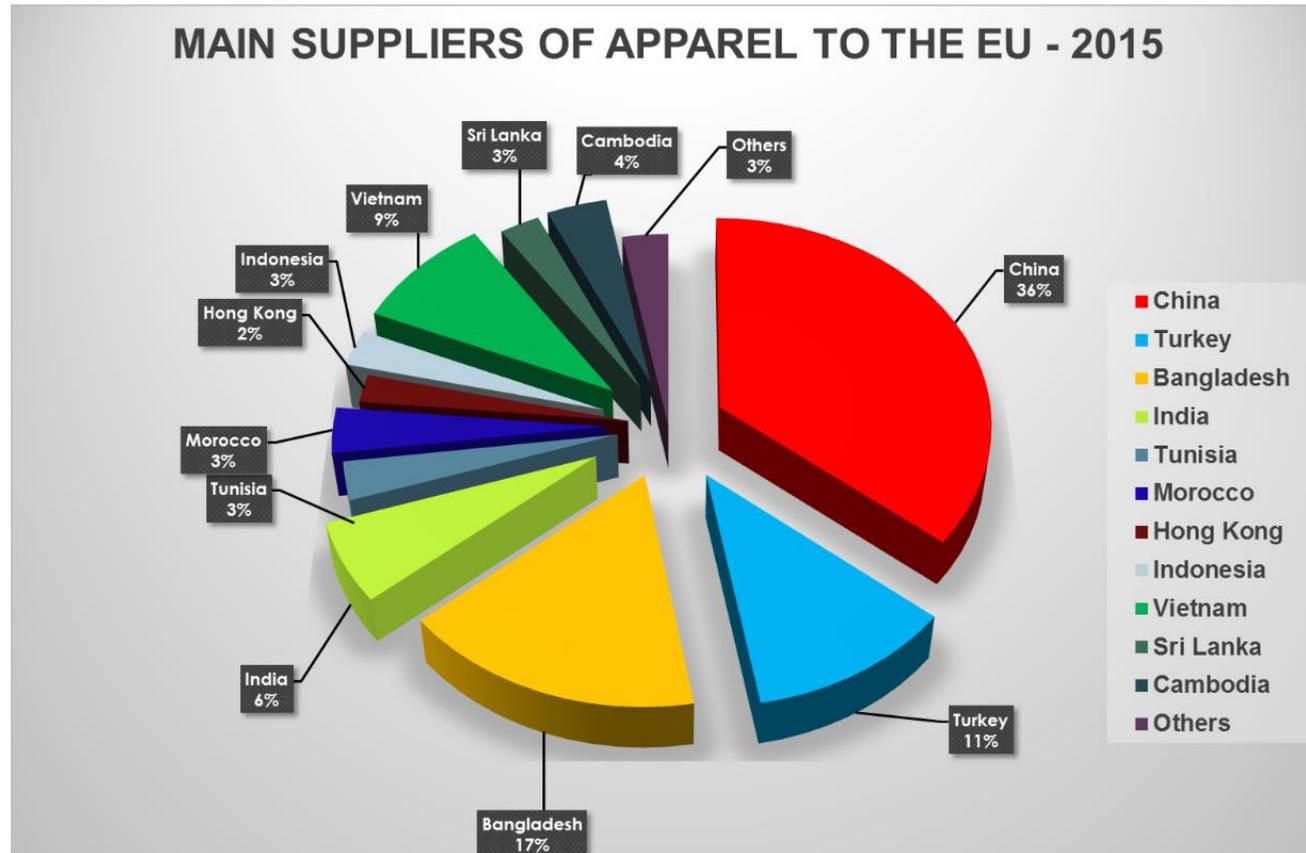
Nature	Transparency	Traceability	Environment	Economy	Society	Labour	Human rights	Due diligence/risk assessment	Supply chain stages covered
Membership platform	no	no	no	no	yes	yes	yes	yes	Manufacturing

Chain Point

Private company providing traceability software modules.

Nature	Transparency	Traceability	Environment	Economy	Society	Labour	Human rights	Due diligence/risk assessment	Supply chain stages covered
Private	no	yes	discretionary	discretionary	discretionary	discretionary	discretionary	no	discretionary

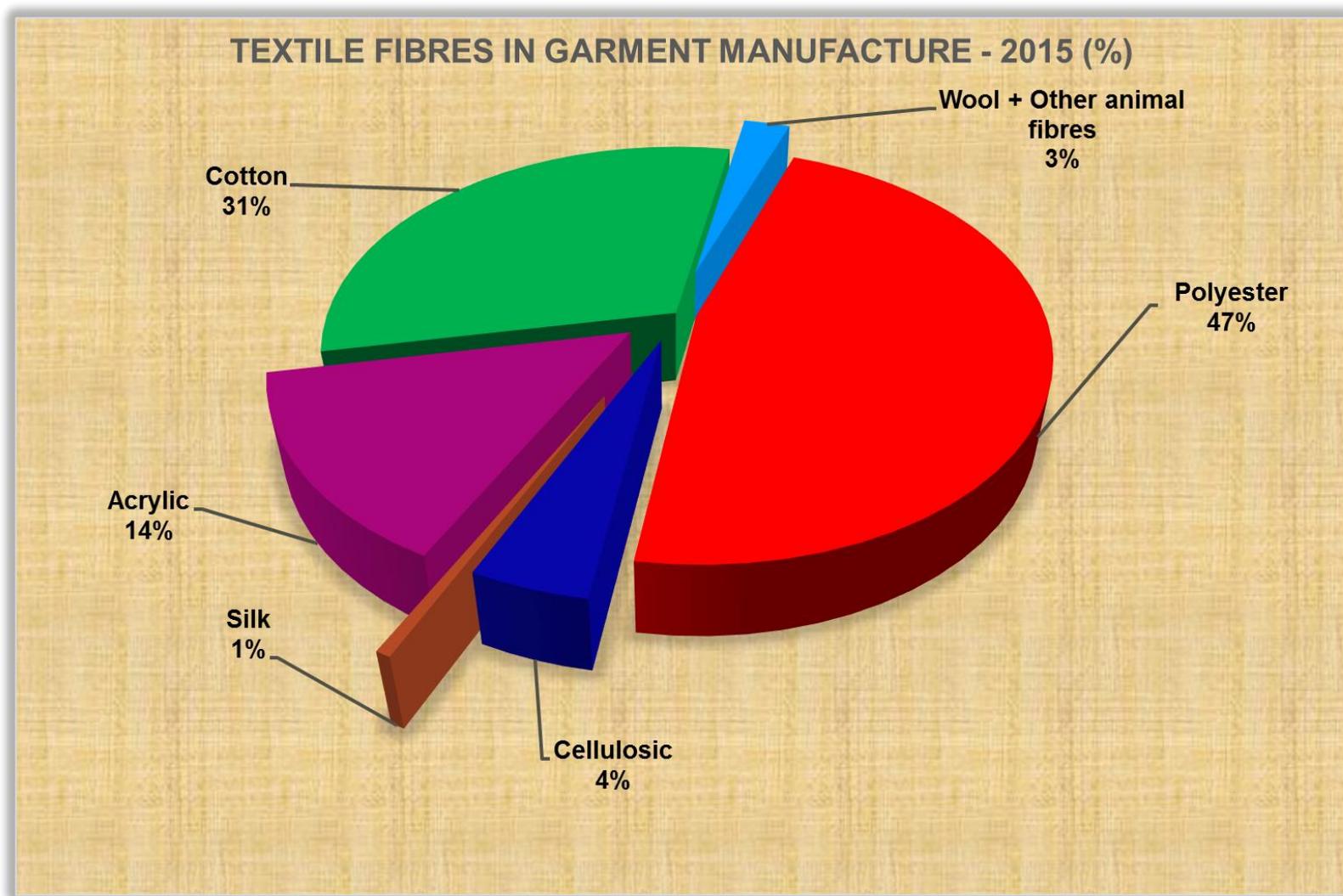
Annex III Textiles/Garment Value Chain – Country origin of main apparel imports to the EU in 2015¹³⁹



Source: R. Richero, elaboration based on Eurostat figures

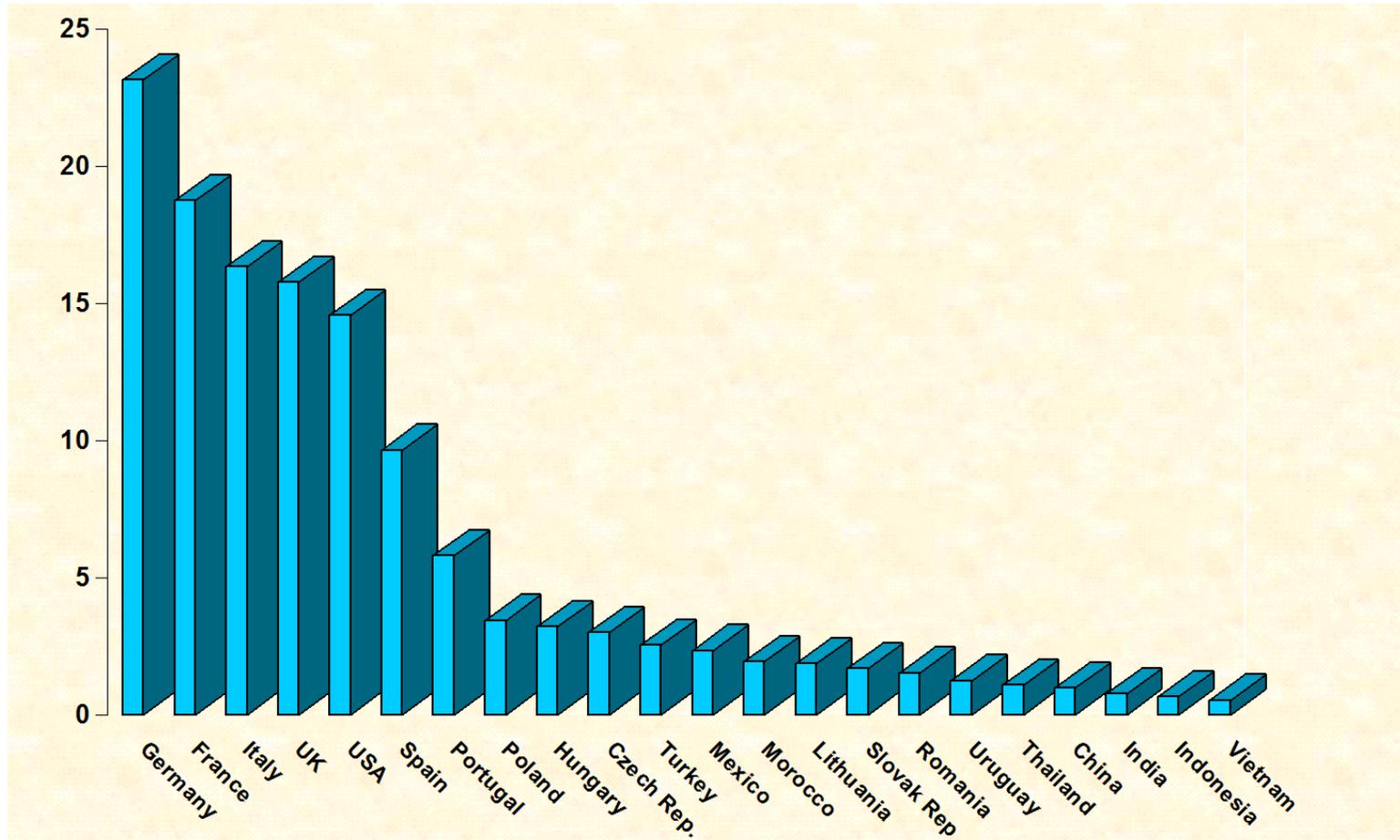
¹³⁹ <http://ec.europa.eu/eurostat/data>

Annex IV Relative Market Share of Textiles Fibres Used in Garment Manufacture



Source: IWTO: 2015 Market Report

Annex V Labour Costs in the Garment Industry in 2013 – US\$ / Hour



Source: Werner International, Comparison of Labour Costs – 2013 Survey

Annex VI Essential elements for a traceability system in textiles and apparel

Essential elements for a traceability system in textiles and apparel		
Item	Description	Responsible parties
Willingness of data holders	Companies, supply chain partners and others must be willing to share non-competitive data into a system	Supply chain partners, brands, any certifiers or auditors
Willingness of brands and retailers	Brands and Retailers must make good use of the data to improve supply chain traceability and transparency in a non-competitive way	Brands and retailers
Compatibility	With other systems: traceability, logistics, customer relations, external verification sources, data sharing, common standard and design framework	Software developers and promoters, data holders
Depth	Traceability systems must be able to go beyond stock management and logistics tracking. A system needs to handle Impact data, reports, communications, questions and handle a growing volume of data, with analytical tools and tools to connect to other software systems, without requiring big additional burdens.	Software developers; data managers in other actors.
Risk assessment/due diligence	Traceability systems must be able to help companies manage and assess risk, and be in line with other requirements such as due diligence. This includes being able to share information – e.g., audits, or risky sourcing locations, investments, partners (links to SEDEX) – but maintaining anti-trust status.	Brands and retailers; software developers.
Transparency and communications aids	Software systems to support transparency and traceability need to be designed to support efforts to Inform, educate supply chain and consumers, with public, accurate and verifiable data	Software developers, brands and retailers
Efficiency gains	Improve relationships, identify performance of partners, improve knowledge, pricing and cost management, document and data management, more secure supply, improved ordering, stock management, certification and audits.	Software developers, other stakeholders (brands, supply chain partners)
Robust	Beyond book and claim and mass balance. Some elements of physical traceability are needed.	Software developers, brands. Push perhaps needed from legislators.
Compliant	To regulation and legislation, standards, norms, other requirements	Software developers
Adaptable	To incoming data, to different requirements, to new capabilities (like RFID)	Software developers
Neutral	Systems must do as required, as little or as much as needed, not fixed to one part of the supply chain but to all or any	Software developers
Affordable	To all types of company, with costs fairly shared among supply chain partners and data users	Software developers