Chapter 13
Sustainability Certifications and Labels for the Fashion Industry: Selection Guidelines

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Abstract In recent years, bigger and bigger attention is addressed towards the sustainability concept at all levels of the fashion supply chain. One of the main triggers of this trend is the increased awareness of the final consumers whose needs and wishes are translated in new requirements for the supply chain actors, from downstream to upstream, in a life cycle perspective. At the same time, there is a flourishing of certifications and labels related to different sustainability aspects and, often, it could be difficult to perceive the peculiarities of each instrument. In order to adopt them as a strategic lever in the sustainability management, it would be useful to have some support to make informed decisions about which instruments meet at the best the needs of customers, whilst reflecting the actual performance of a company. This paper develops a set of guidelines that could support companies belonging to the fashion supply chain in identifying which tool, certification or label, is the most appropriate considering the specific context. Available tools have been first identified and, then, classified mapping and assessing them against a set of criteria that resulted to be relevant in the fashion environment. Though the research takes advantage of the authors' experience in the field, the paper is mainly of a conceptual nature. Empirical validation of the guidelines is the necessary next step to refine and complete the proposed guidelines.

13.1 Sustainability and Fashion

In recent years, the attention towards sustainability issues has hugely increased in the fashion industry from both environmental and social perspectives. The industrial attention is aligned with the growth of the related scientific fields on the sustainable practices and approaches adopted in the fashion supply chain. Focuses of research contributions are several, to name a few of the most covered topics: analysis of

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eco design and sustainable manufacturing practices (see for example Cimatti et al. 2017; Moon et al. 2013); reduction of specific type of impacts (see for example Grappi et al. 2017); deployment of corporate social responsibility (Li et al. 2014) or sustainable practices at the supply chain level (see for example Turker and Altuntas 2014; Winter and Lasch 2016; Caniato et al. 2012). The vast body of literature reflects the increasing need of supporting tools that could guide companies in making the most out of the attention paid towards sustainability issues.

At the same time, practitioners are more and more interested in implementing instruments that could support the structuring of the company's approach towards the sustainability management or the maximization of the communication efficacy to stakeholders, namely certifications and labels. Yet, it is often difficult for managers new to the topic to orient themselves in the plethora of existing certifications and labels, both general or sector specific. In fact, some tools can differ from each other for their scope: the focus could be on a single dimension of sustainability (i.e. environmental or social), or it is even more specific and looks at a single factor (i.e. water depletion or toxicity); in some cases the object of analysis is the product, in other cases the processes. Also the type of support provided by the tools varies: either they help companies to implement sustainability-related concepts, or the main aim is to guide the communication of the achieved results. Considering that the implementation of a certification or a label requires efforts in terms of both time and costs and that the selection of the right tool could not be trivial, it would be advisable to provide some support to companies to address directly the most proper instrument depending on the specific needs. Lo et al. (2012), for example, investigate the impact of environmental management systems, and in particular of the ISO 14000, on fashion companies' financial performance.

Aim of this paper is to present a first step of a research aimed at developing guidelines that could support fashion companies to identify the most proper certification-like tool that, one the one hand, fits at the best with the ongoing initiatives, thus making the most out of them; whilst, one the other hand, allows the company to meet the partner's and customers' expectations and requests. In order to achieve this aim, this paper is organized as follow: in the next section the research approach followed to develop the guidelines is presented before listing the main certifications and labels that can be used in the fashion industry. Then, a set of relevant criteria and contextual factors driving the selection of the right instrument is characterized and the identified fashion-related instruments are mapped against them. Some managerial implications for the use of the proposed classification are highlighted. Finally, some conclusions are drawn.

13.2 Research Approach

The piece of research presented in this paper is mainly of a conceptual nature and relies on an extensive search in the field of sustainability certifications and labels. Scientific papers have been analyzed as well as standard contents and specialized

literature on the topic. The main steps carried out to develop the guidelines can be summarized as follows:

- identification of the certifications and labels considering both fashion specific instruments and general ones that could be applied to the fashion industry;
- development of a set of criteria and contextual factors that can have an impact on the selection of the right instrument based on the expertise of authors and on the support of a company belonging to the industry;
- developing of the guidelines by mapping and assessing the certifications and labels on the criteria and contextual factors;
- drawing of considerations on the use of the guidelines from a managerial point of view.

It has to be noted that by fashion industry in this paper it is meant the entire supply chain since the implementation of sustainability concepts implies the adoption of a life cycle perspective and the contribution of each single actor has to be taken into consideration. Whenever an instrument is applicable to a specific phase of the supply chain, it will be pointed out, thus providing also hints on the certifications and labels to be adopted by partners.

13.3 Sustainability-Related Certifications for the Fashion Supply Chain

Sustainability certifications and labels have a twofold scope: on the one hand, they are meant to assist the introduction of the sustainability thinking in company practices, starting from planning and strategies definition, passing through the actual implementation and monitoring of the obtained results; on the other hand, they could support a company in communicating environmental and social performance related to operations and products.

The number of certifications and labels has rapidly grown in the last decade: more than hundred labels are currently addressing the textile sector (http://www.ecolabelindex.com). Out of them, a short list has been extracted in order to identify the ones that meet the most common requests in the field and that are suitable at the beginning of the sustainability journey. Also, it has been avoided to introduce too many labels replicating the same information and the same certification pattern (for instance only a couple of environmental labels compliant with Type I ISO 14024 have been considered, only one concerning Type III ISO 140025). Even if the following list of certifications and labels is not exhaustive, it could represent a good starting point including certifications addressing both products and production processes. In particular, the majority of product certifications that has been included in the list addresses environmental impacts since most often the supply chain partners requests are related to manufacturing operations, used substances used or consumed resources.

In what follows the selected certifications and labels are briefly introduced clustering them in two blocks relating, respectively, to product (10 items) and processes (9 items).

13.4 Certifications and Labels Addressing Products

- **Blue Angel (Der blaue Engel)**: it is a governmental certification issued by the German Environmental Ministry considering more than 100 categories of products and services. The certification is an Eco Label of type I and promotes products and services whose environmental and social LC impact is lower than the average product on the market.
- **Bluesign**: it was born from an independent industrial initiative launched in 2000 as an answer to the growing request of sustainable textiles. The certification takes into account five principles: resources productivity, consumers' safety, air emissions, water emissions and health and safety of workers.
- **Cradle to Cradle**: this certification evaluates product safety with respect to people and environment by considering the whole product lifecycle. Five criteria are taken into account to evaluate the processes: material health, material reuse, renewable energy, carbon and water management and social fairness. According to lifecycle performances five certification levels are provided.
- **Environmental Product Declaration (EPD)**: it is a document that provides registered, verified and comparable information about product lifecycle environmental impact according with ISO 14025 and calculated through LCA methodology. Its central objective is to provide a comparison mean for products belonging to the same category; this is the reason why the rules of assessment must be compliant with internationally accepted Product Category Rules.
- **EU Ecolabel**: it is a voluntary certification system intended to encourage companies at EU level to commercialize environmentally aware product and services. The evaluation criteria to obtain this certification rely on lifecycle analyses updated each three years.
- **Global Organic Textile Standard (GOTS)**: this is a standard that defines requirements useful to guarantee the organic state of textile products by assessing the whole product lifecycle under environmental and social indicators. To obtain the certification, at least 70% of fibres must be produced through organic cultivation.
- **Global Recycle Standard (GRS)**: this is a standard meant to monitor the quality of products manufactured with recycled materials by analysing the whole supply chain and introducing environmental and social evaluation criteria.
- **NATURTEXTIL iVN certified BEST**: this standard, developed by iVN (International Association of Natural Textile Industry), promotes the analysis of the whole supply chain of a textile product through the assessment of environmental and social indicators.
- **Nordic Swan**: known also under the name of 'Nordic Ecolabel', is a volunteer, Type I labelling system that evaluates the environmental impact of products within

their lifecycle, analysing the associated energy and water use, chemicals adopted, recycling and waste products generated.

- **OEKO-TEX Standard 100**: this is a Standard originally developed as a certification of environmental aspects related to the textile sector, with particular focus on safety of consumers and on possible negative reactions deriving by product use. This Standard is one of the three ones included in the whole tool: (i) OEJO-TEX Standard 100, certifying products safety from chemical point of view; (ii) STeP by OEKO-TEX, certifying sustainable textile production (also included in the following section being it focused on the process); (iii) Oeko-Tex Standard 100plus, a combination of the aforementioned standards.

13.5 Certifications and Labels Addressing Processes

- **ISO 14001:2015 and Environmental Management Systems**: it requires the development of an efficient and structured Environmental Management System (EMS). It has been first published by ISO organization in 1996 and is intended to enable a company to: (i) identify and control the main environmental aspects of their activities, products and services; (ii) comply with legal requirements related to the activity; (iii) continuously improve environmental performances; (iv) define a systematic approach towards the definition of environmental objectives.
- **STeP by OEKO-TEX**: STeP defines environmental requirements for the management of the whole production process by certifying an excellent production site management from environmental and social points of view. STeP applies to the whole textile sector and is provided through the assessment of six modules certifying chemicals management, environmental performances and management, social responsibility, quality management, health and safety. Within these modules, several levels of performance can be reached.
- **Corporate Accounting and Reporting Standard del Greenhouse Gas Protocol**: developed by the World Resources Institute (WRI) and by the World Business Council for Sustainable Development (WBCSD), it defines how to globally measure, manage and communicate the emission of greenhouse gases.
- **Detox by GreenPeace**: Greenpeace is active, from 2011, in reducing the introduction within water of hazardous chemicals by textile sector. The campaign defines eleven substances that should be deleted from processes.
- **Zero Discharge of Hazardous Chemicals (ZDHC)**: answering the Detox campaign, few relevant textile companies developed the ZDHC campaign in order to eliminate the discharge of hazardous chemicals by 2020.
- **Sustainable Apparel Coalition (SAC)**: the coalition was born as a desire of Walmart and Patagonia with the willing of making more sustainable the current clothing, footwear and home textile sectors. The main objective is the formalization of the Higg index, an instrument of standardization for the assessment of environmental and social impacts related to manufacturing and sale of product and services along the whole supply chain.

- **OHSAS 18001**: the Occupational Health and Safety Assessment Series is an international standard intended to support companies in the definition of formal procedures for the management of health and safety of workers.
- **SA 8000**: it identifies an international standard intended to certify aspects of the Corporate Social Responsibility. It maintains the formal structure of an ISO standard and covers the whole supply chain.
- **ISO 50001**: this certification promotes the sustainable use of energy through the introduction of an Energy Management System addressing the following aspects: (i) development of efficient energy use policy; (ii) define targets for the developed policy; (iii) use data to support decision making; (iv) measure results; (v) evaluate the results of policy implementation; (vi) continually improve the Environmental Management System.

13.6 Classification Dimensions

The sustainability dimensions presented hereinafter have been identified to characterize and classify the certifications and labels according the most relevant claims related to sustainability requested by the supply chain partners and customers. Mapping the certification and labels presented in the previous section against these criteria allows a company to identify the most suitable tool depending on the criteria that have to be fulfilled case by case. The set of criteria are presented in what follows.

- *Energy*: this dimension considers how a certification or label may support a company in managing the energy resources that are analyzed in terms of quantity (energy efficiency) and quality (renewable vs. not renewable). The energy use is evaluated along the whole product lifecycle and along the production steps that are directly or indirectly managed by the company. Since the direct link existing between the two aspects, energy management is usually associated to carbon management and carbon footprint issues that are meant to evaluate the greenhouse gasses emissions occurred during the company operations.
- *Water*: this dimension evaluates how the certification may address the efficient exploitation of the resource water considering the water withdrawal policies, the use and reuse of water and the quality assurance of the resource. It takes into account both the quantity and the typology of the emission occurred in this specific medium.
- *Chemicals and hazardous substances*: this dimension concerns the management policy of chemicals substances identified as acceptable, restricted, forbidden, considering, for the production point of view, their storage and manipulation, the risk management and the preparation to emergencies, and from the product point of view, the customer safety by controlling the substances content in the final product.
- *Emissions*: this dimension is meant to address how the certification may support the management of the pollutant emissions into the different environmental

compartments such as air, soil and water that could be harmful to the ecosystem and the human being.
- *Health and Safety of the workplace*: this dimension addresses the management of the health and safety of the workplace, concerning both the regulatory requirements and the voluntary ones. The certification has to support a proper management beyond the company boundaries, extending the scope also to the supply chain partners.
- *Social Responsibility*: under this umbrella concept various sustainability themes are included that have not been covered by the previous dimensions and that mainly focus on social issues. It considers how social themes such as child labor, forced labor, working hours, wages or freedom of associate are managed all along the supply chain.

In addition to the dimensions derived from the market requests, four further dimensions have been added for the selection scope meant to better characterize the certifications from the implementation point of view. The additional dimensions are:

- *Widespread adoption*: this dimension is meant to evaluate if the certification is accepted and accredited considering both the geographical dimension (is it widespread at national, continental or worldwide level?), and the sectorial one (is it extensively adopted by the fashion industry?)
- *Implementation support*: this dimension is meant to analyze the availability of instruments and guidelines that could support the certification deployment. These tools may be specifically developed for the certification or may be more general tools that can be applied also in the specific context.
- *Labelling availability*: this dimension evaluates if the certification is supported by the presence of a recognized label that could support the marketing and communication issues.
- *Implementation easiness*: this dimension is meant to qualitatively evaluate the implementation effort needed to integrate the tool into the company's managerial system. It considers, for example, the possible impacts on the corporate operations or the need to involve partners and stakeholders to get it.

13.7 Developing Selection Guidelines

In order to select the most appropriate certification to be implemented that may better support the sustainability activities of a company, easing, at the same time the compliance to the information claims coming both form partners and customers, a ranking system has been proposed. First, the selected certifications and labels have been qualitatively evaluated under the aforementioned relevant sustainability dimensions. The assigned rating is *Covered* (C), *Not Covered* (NC) or *Well Covered* (WC), except for Market acceptance that is rated under *Low*, *High* or *Medium* and the Implementation easiness that is rated under *Easy*, *Medium* or *Challenging*.

	Certification	Widespread adoption	Energy	Water	Chemicals & hazardous	Emissions	Health & Safety	Social Responsibility	Implementation tools availability	Labelling availability	Implementation easiness
Product	Blue Angel	Low	x	o	-	-	-	-	x	Existent	Challenging
	Bluesign	High	-	o	o	o	o	-	o	Existent	Medium
	Cradle to cradle	Medium	o	o	o	o	-	x	x	Existent	Medium
	EPD	High	-	-	-	-	x	x	-	Existent	Challenging
	EU Ecolabel	Medium	-	o	o	x	x	x	x	Existent	Challenging
	GOTS	High	-	-	o	-	-	-	o	Existent	Easy
	GRS	Medium	-	-	-	-	-	-	o	Existent	Easy
	Naturtextil IVN	Low	x	-	o	x	x	-	x	Not Existent	Medium
	Nordic Swan	Low	-	o	o	-	-	-	-	Not Existent	Challenging
	Oeko-Tex Standard 100	High	x	x	o	x	x	x	o	Existent	Easy
Process	ISO 14001:2015 & EMAS	High	-	-	-	-	x	x	o	Existent	Easy
	STeP	High	-	o	o	o	-	-	-	Existent	Medium
	Corporate Accounting GHG	High	x	x	x	o	x	x	x	Not Existent	Medium
	Detox	High	x	o	o	o	x	x	o	Not Existent	Challenging
	ZDHC	High	x	o	o	o	x	x	o	Not Existent	Challenging
	SAC	Medium	-	-	-	-	-	-	o	Not Existent	Challenging
	OHSAS 18001	High	x	x	x	x	o	x	o	Not Existent	Easy
	SA 8000	Medium	x	x	x	x	-	o	o	Not Existent	Easy
	ISO 50001	High	o	x	x	x	x	x	o	Not Existent	Easy

Legenda:		
	Covered	-
	Well Covered	o
	Not Covered	X

Fig. 13.1 Evaluation of product and process certifications through sustainability dimensions

Figure 13.1 shows the qualitative evaluation of the selected certifications and labels with reference to the classification dimensions.

To support the use of the table presented in Fig. 13.1 an assessment system has been defined in order to select the most proper certifications. Each classification is assigned a value depending on the relative importance of the different dimensions for a specific company. In this way a ranking of the existent certifications is derived pointing out which ones maximize the company's needs. The ranking system has been developed though the following classification function:

$$R = k \cdot [1/18 \cdot (a + b + c + d + e + f + g + h + i)]$$

where:

- R = certification value. The value is included between 0 and 1, with 1 as the higher possible rank, thus indicating a very supportive certification.
- k = *Widespread adoption*. This parameter can assume the following values: 1 if it is considered a certification with "*high*" widespread adoption, 0.5 if "*medium*" widespread adoption and 0.25 if "*low*" widespread adoption.
- $a, b, c, d, e, f, g, h, i$ = factors that are meant to measure in a quantitative way how much the analyzed certification is able to support a specific dimension. This

Table 13.1 Evaluation of the Bluesing certification against the relevant dimensions

Relevant dimension	Value
k Widespread adoption	1
a Energy	1
b Water	2
c Chemicals and hazardous substances	2
d Emissions	2
e Health and Safety of the workplace	2
f Social Responsibility	1
g Implementation tools availability	2
h Labeling availability	2
i Implementation easiness	1
Certification value	0.84

parameter can assume the following values: 2 if the dimension is "*Well covered*", 1 if it is "*covered*" and 0 if it is "*Not covered*". The parameters stay for: (a) *Energy*, (b) *Water*, (c) *Chemicals and hazardous substances*, (d) *Emissions*, (e) *Health and Safety of the workplace*, (f) *Social Responsibility*, (g) *Implementation tools availability*, (h) *Labeling availability*, (i) *Implementation Easiness*. In the case of factor (i), the three quantitative levels correspond to: 2 if the dimension is "*Easy*" meaning that it is easy to be implemented with low impacts both on company and suppliers, 1 if it is "Medium" meaning that it is easy *to be implemented by the company, more challenging for the suppliers* and 0 if it is "*Challenging*", meaning that it has a high impact both for the company and its suppliers.

- *1/18* = is a weighting factor that, in the present version of the formula, is equally attributed to all the parameters considered in the ranking.

As an example, let's try to assess the Bluesing certification assuming that the nine dimensions have the same weight. Table 13.1 shows the values of relevant dimensions assigned to this certification according to the classification of Fig. 13.1 and then the final value for the certification (0.84) is calculated. The process can be repeated for all the certifications to be evaluated, preparing a ranking that could address the specific company needs and vision by adjusting the weights.

To sum up, in order to assess the usefulness or appropriateness of a certain certification or label a company should:

- assign a quantitative value for the Widespread adoption dimension.
- assign weights to the other dimensions according to the specific needs;
- evaluate the certification value.

13.8 Managerial Implications

The increasing pressure towards the implementation of sustainable practices forces managers to identify proper tools to meet the supply chain partners' and market's requests, whilst paying attention to implement efficient solutions that could be seamlessly integrated into the operations.

The guidelines proposed in the previous sections can make easier for managers to identify the most proper certification or label. The use of the proposed procedure is multifold:

- the adequateness of an already implemented certification can be assessed in absolute terms or by comparing it with possible alternatives;
- the level of coverage of a tool with reference to a specific dimension can be assessed;
- if a new tool is needed, the guidelines allow to rank different tools so to identify the one the at the best match the company's needs;
- kind of a what if analysis can be carried out by changing the relative weight of dimensions so to select the certification that allows to be more flexible in case the relative importance of dimensions is expected to change in the future.

The guidelines here proposed can thus support the choice of certifications and labels by reducing the time needed to understand how the single tool works and what is the main focus. In fact, the number of certifications and labels is always increasing and it is difficult to keep the pace with the all the new tools. A quick look at the guidelines, kept properly update, could be very useful to keep an eye on innovation without losing too much time for searching and analysis activities.

13.9 Conclusions and Next Steps

In this paper a critical analysis in the shape of a set of guidelines of existent sustainability-related certifications and labels to be implemented in the fashion supply chain has been presented. These guidelines are meant as a support for practitioners who feel the need to implement certifications and labels, but get lost in the selection phase due to the vastness of the field that is evolving every day.

The used methodology to develop the classification and assessment is flexible enough to allow the addition of further certifications or other tools that have been neglected in this phase or that will be introduced later on. The list of criteria being the same, the assessment weights can be adapted depending on the interest of the specific company.

Some more research steps are advisable in the future to complete the guidelines and improve their quality. One the one hand, a more detailed analysis is advisable to better characterize the field of use of the process certifications, by introducing further criteria that reflect the different nature of those tools compared to the product-related

ones. Another necessary step is the empirical validation of the guidelines to test their actual value for a company and to make sure that all the relevant criteria have been included. The list of certifications and labels can be also extended to include more tools and, of course, need to be kept update with possible new entries that become relevant for the fashion industry. Ideally, it would be interesting to develop an online tool guiding the selection.

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