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SUSTAINABILITY INTEGRATION IN LUXURY FASHION SUPPLY CHAINS:
AN EMPIRICAL INVESTIGATION OF LEATHER AND TEXTILES IN ITALY

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Preface

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- Karaosman, H., Morales-Alonso, G. and Brun, A. (2017), "Strike a pose: Luxury for sustainability", in Gardetti, M.A. (Ed.), *Sustainable Management of Luxury*, Springer, Singapore, pp. 145–162.
- Karaosman, H., Morales-Alonso, G. and Brun, A. (2016), "From a Systematic Literature Review to a Classification Framework: Sustainability Integration in Fashion Operations", *Sustainability*, Vol. 9 No. 1, p. 30.
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'There is no beauty in the finest cloth if it makes hunger and unhappiness' – Gandhi

My intention was to create a body of work that would use scientific research as an instrument to capture the profundity of sustainability in fashion by giving a voice to some of our struggles and by learning from the past not to repeat the same mistakes. This work invites everyone to the act of empathy and to start changing our minds to spread sustainability, accountability, love and kindness across fashion supply chains.

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Abstract

This study explores the extent to which both environmental and social sustainability is integrated in luxury fashion supply chains producing textile garments and leather shoes in Italy. Firstly, a systematic literature review was conducted in order to categorise environmental and social sustainability practices implemented in fashion operations. Subsequently, from a natural resource-based view perspective, a multiple case study method was adopted, covering ten companies located at multiple stages of Italian textiles and leather supply chains. To investigate sustainability integration in luxury fashion supply chain management, industrial practices were systematically decomposed into product, process and supply chain levels in accordance with the three dimensional concurrent engineering framework. Hazardous chemical elimination and organic material use appeared to be the emergent product-level practices that deliver operational benefits such as cost reduction and market benefits such as improved product quality. Process-level practices, on the other hand, mainly focused on water and energy reduction due to cost reduction strategies rather than environmental stewardship. Supply chain-level practices encompassed traceability and supplier audits but only to a limited extent as a consequence of a lack of supply chain visibility. Furthermore, the study investigated the factors impeding sustainability in luxury fashion supply chain management. Lack of knowledge, lack of awareness, lack of supplier engagement, and competing commercial pressures impede sustainability and make it difficult to translate sustainability objectives into daily based activities. Results reveal that supplier engagement, collaboration, innovativeness and knowledge sharing are greatly needed across supply chains in order to advance transparency and supply chain traceability. Lastly, the study concludes that relational and technical components must be developed and deployed across supply networks and that sustainability must be embedded in the business philosophy to embark on rather radical strategies to truly embrace sustainability in luxury fashion.

Keywords: Sustainable supply chain management, luxury fashion, sustainability, qualitative study, luxury fashion supply chain management, sustainable luxury

Astratto

Questo studio esplora la misura in cui la sostenibilità ambientale e sociale è integrata nelle filiere della moda nel lusso (tessuti di moda di lusso e scarpe di cuoio fatti in Italia). In primo luogo, è stata condotta una revisione sistematica della letteratura al fine di classificare le pratiche di sostenibilità ambientale e sociale implementate nelle operazioni di moda e affrontate nella letteratura manageriali esistente. Poi, dal punto di vista di una prospettiva basata sulle risorse naturali, è stato scelto un metodo di studio di più casi che copriva dieci aziende in differenti fasi del tessile e catene di fornitura di pellami per studiare l'integrazione della sostenibilità nella gestione delle operazioni. A tal fine, le pratiche industriali sono state sistematicamente scomposte in livelli di prodotto, processo e catena di fornitura in conformità con la struttura ingegneristica tridimensionale concomitante. L'eliminazione delle sostanze chimiche pericolose e l'uso di materiali organici sembrano essere le pratiche emergenti a livello di prodotto che offrono benefici operativi come la riduzione dei costi e vantaggi sul mercato come una migliore qualità del prodotto. Le pratiche a livello di processo, d'altra parte, si sono concentrate principalmente sulla riduzione di acqua ed energia a causa di strategie di riduzione dei costi piuttosto che di gestione ambientale. Le pratiche a livello di supply chain comprendevano la tracciabilità e gli audit dei fornitori, ma solo in misura limitata come conseguenza della mancanza di visibilità della catena di approvvigionamento. Inoltre, lo studio ha valutato i fattori che ostacolano il miglioramento della sostenibilità. La mancanza di conoscenza, la mancanza di consapevolezza e la mancanza di un quadro di traduzione della sostenibilità in attività quotidiane, oltre a pressioni commerciali elevate ma spesso concorrenti, sono emersi come i principali ostacoli. Pertanto, i risultati rivelano che il coinvolgimento dei fornitori, la collaborazione, le capacità innovative e basate sulla conoscenza sono di grande importanza per essere sviluppati e implementati attraverso le reti di approvvigionamento al fine di promuovere la trasparenza e la tracciabilità della catena di approvvigionamento. Infine, lo studio finisce che le elementi relazionali e tecniche devono essere condivise tra le reti di approvvigionamento e che la sostenibilità deve essere incorporata nella filosofia aziendale. Questo è fondamentale per intraprendere strategie piuttosto radicali per abbracciare veramente la sostenibilità.

Parole chiave: gestione della sostenibile catena di fornitura, moda del lusso, sostenibilità, studio qualitativo, gestione della catena di fornitura dei beni di lusso, lusso sostenibile

Resumen

La presente tesis doctoral explora en qué medida las sostenibilidades ambiental y social se integran en las cadenas de suministro de las marcas de moda de lujo que producen textiles (ropa) y zapatos de cuero en Italia. En primer lugar, se realizó una revisión sistemática de la literatura para categorizar las prácticas de sostenibilidad ambiental y social implementadas en las operaciones de moda y abordadas en la literatura existente. Posteriormente, desde un punto de vista de resource-based view o visión basada en recursos naturales, se optó por un método de estudio de casos múltiples al cubrir diez empresas ubicadas en múltiples etapas de las cadenas de suministro de textiles y cueros italianos para investigar la integración de la sostenibilidad en la gestión de operaciones. Con este fin, las prácticas industriales se descompusieron sistemáticamente en los niveles de producto, proceso y cadena de suministro de acuerdo con el marco teórico de la ingeniería centrada en las tres dimensiones del negocio. La eliminación de sustancias químicas peligrosas y el uso de material orgánico parecían ser las prácticas emergentes a nivel de producto que ofrecen beneficios operacionales tales como la reducción de costos y los beneficios del mercado, como una mejor calidad del producto. Las prácticas de nivel de proceso, por otro lado, se enfocaron principalmente en la reducción de agua y energía debido a las estrategias de reducción de costos en lugar de la administración ambiental. Las prácticas de nivel de cadena de suministro abarcaron la rastreabilidad y las auditorías de los proveedores, pero solo de forma limitada como consecuencia de la falta de visibilidad de la cadena de suministro. Además, el estudio investigó los factores que impiden que la integración de la sostenibilidad avance en la gestión de la cadena de suministro de moda de lujo. La falta de conocimiento, la falta de conciencia y la falta de un marco de traducción de la sostenibilidad en las actividades cotidianas, además de presiones comerciales altas, pero a menudo competitivas, surgieron como los principales obstáculos. Por lo tanto, los resultados revelan que la participación del proveedor, la colaboración, las capacidades innovadoras y basadas en el conocimiento son muy necesarias para desarrollarse y desplegarse en las redes de suministro a fin de avanzar en la transparencia y la trazabilidad de la cadena de suministro. Por último, el estudio concluye que los componentes relacionales y técnicos deben compartirse a través de las redes de suministro y que la sostenibilidad debe estar integrada en la filosofía empresarial a fin de emprender estrategias más bien radicales para abrazar verdaderamente la sostenibilidad.

Palabras clave: gestión sostenible de la cadena de suministro, moda de lujo, sostenibilidad, estudio cualitativo, gestión de la cadena de suministro de moda de lujo, lujo sostenible

1. INTRODUCTION

Supply chain (SC) refers to a complex set of nodes and arcs interconnected by information, cash and material flows (Persson, 2011). During the 1990s, individual companies became members of larger networks and independent units were transformed into integrated chains (Caniato et al., 2012; Vachon and Mao, 2008). Globalization and increasing dependence upon SC relationships require the use of supply chain management (SCM) to enhance competitiveness (Liu et al., 2017). SC management (SCM) thus appears to be the management of interconnected businesses involved in ultimate delivery of product and service bundles demanded by the end consumers (Harland, 1996). Accordingly, SCM is considered the management of physical, logical, and financial flows in networks encompassing intra- and inter-organizational relationships (Mentzer et al., 2001).

In today's global yet very competitive environment, a company's ability to reallocate resources to new courses of action could determine whether the company could generate competitive advantage faster than its competitors (Gelhard and von Delft, 2016). In a traditional business use, the bottom line refers to profit or loss. Companies in highly competitive industries might favour economic performance over social and environmental issues; yet, there exist various environmental and social issues taking place globally dispersed SCs (Freise and Seuring, 2015). SCM entails some challenging aspects in terms of human and natural resource utilisation. As such, SCM significantly effects the exploitation of renewable and non-renewable resources (Srivastava, 2007). Further, companies need to highlight the human aspects of their SCs to be able to sustain a competitive edge on the global front (Mani et al., 2015).

Triple bottom line, to this end, encourages companies to pursue an accounting framework by encompassing three pillars of environmental consciousness, social justice and economical concerns. In SCM, the most critical issues are often generated by suppliers located in the second tier or further upstream (Tachizawa and Wong, 2014). However, the actions of suppliers might be affected by price and/or lead-time related pressures coming from buying firms in production networks. For example, the Laura Ashley brand requested from their suppliers a 10 per cent discount on cost price with immediate affect (Perry et al., 2014). Negative implications for environmental and social sustainability could thus emerge, resulting in some ethical misbehaviour and/or environmental irresponsibility.

Smaller companies might not be subject to global critique for their irresponsible behaviours (Carrigan et al., 2017), nevertheless suppliers acting unethically could actually damage a buying firm's sustainability performance (Sancha et al., 2016). Hence, it is articulated that one company cannot be considered more sustainable than its suppliers (Sancha et al., 2016). It is pivotal to improve the performance of not only own operations but also the suppliers' (Fritz et al., 2017) because such socially unsustainable practices can cause significant damages (Huq et al., 2016). Accordingly, sustainability exceeds the organizational boundaries and appears to be of direct relevance and importance to SCM (Marshall et al., 2015).

Sustainability needs to be taken into account in a global, cultural and political sense where number of stakeholders compete, collaborate and produce outcomes (Marshall, McCarthy, McGrath, et al., 2015). Implementing sustainability practices and advancing sustainability performance can earn a company increased capabilities to engage in continuous learning (Kainuma and Tawara, 2006; Sino-german, 2012) and to generate new organizational as well as operational performance improvements (Lee and Farzipoor-Saen, 2012; Vachon and Mao, 2008). Nonetheless, earlier results suggest that companies find it difficult to identify best practices for social and environmental sustainability and there exist challenges impeding companies to translate sustainability to upstream suppliers.

Unquestionably, sustainability conversations must be spread across supply networks, and measurement must get closer to where the real impact is generated along the chain (Beske-Janssen et al., 2015). Nevertheless, combining concepts and methods is not enough to deliver specific decision-support (Stindt, 2017). It is also not quite clear how an ideal profile of sustainability collaboration could be drawn at the chain level (Blome et al., 2014). The majority of the debate surrounding sustainable SCM (SSCM) is restricted to the typical buyer-supplier level (Wu and Choi, 2005) rather than a proper focus on the entire chain (Yawar and Seuring, 2017). Existing lacks of information about how to achieve internal and external integrations could impede sustainability integration in SCs (Wolf, 2011). There exist many issues happening outside the companies' operational boundaries (Conlon, 2017; Lembke, 2017); thus, there is a need to explore the issues across the chain rather than investigate buying firms with its immediate suppliers (Yawar and Seuring, 2017). There is a research call to understand what types of activities are required to engage suppliers beyond tier one (Quarshie et al., 2016) and to examine how sustainability practices could translate to second movers or to an entire industry (Pagell and Wu, 2009).

Earlier studies provide ample evidence in terms of environmental sustainability in SCM (Caniato et al., 2012; Laari et al., 2017; Lee and Klassen, 2008; Vachon and Klassen, 2006; Wu and Pagell, 2011; Zhu and Cote, 2004). As for social sustainability, although the recognition of social responsibility as a business activity goes back to the launch of ISO 26000 in 2010 (Perry and Towers, 2013), very limited attention has been paid to social sustainability thus far (Fritz et al., 2017; Huq et al., 2016; Missimer et al., 2017a, 2017b; Quarshie et al., 2016; Sancha et al., 2016; Winter and Lasch, 2016; Yawar and Seuring, 2017). Albeit some noticeable studies including social responsibility and consumer trust (Castaldo et al., 2008), sustainability reporting (Lozano and Huisinigh, 2011), sustainable supply management (Ageron et al., 2012), and supplier selection problems (Jia et al., 2015), there is a lack of empirical and theoretical investigations pertaining to social sustainability (Eizenberg and Jabareen, 2017). This would also imply that companies find it more difficult to identify best practices in social sustainability compared to environmental sustainability.

On the one hand, social sustainability is observed being oversimplified in extant theoretical constructs (Missimer et al., 2017b); on the other hand, even less studies emerge in which both social and environmental practices are explored (Marshall et al., 2015). There are studies using sustainability as a single concept in which environmental and social dimensions are brought together (Parmigiani et al., 2011). However, there is evidence suggesting that not only do social and

environmental sustainability have their own antecedents and individual concepts, but also that environmental sustainability are introduced at the expense of social sustainability which result in causing trade-offs among these practices (Marshall et al., 2015).

There are significant links amongst ecology, societies and companies. Therefore, sustainability could become a corporate strategy, which could become an important strategic resource for the company. Company resources are important when they are valuable, rare and inimitable (Lloret, 2016). Resource based view (RBV) accordingly suggests that a company could reach a competitive advantage by the generation of difficult to imitate, difficult to substitute, rare and valuable resources (Blome et al., 2014; Grant, 1991). RBV proposes a theoretic conceptualization of SSCM as a catalyst of valuable inter-firm resources, and accordingly inter-firm competitive advantage (Gold et al., 2010).

RBV is a significant theoretical lens largely utilised to investigate manufacturing, operations and SCM (Schoenherr, 2012; Vachon and Klassen, 2008). Yet, such difficult-to-imitate and already complex resources are suggested to be firm specific (Teece et al., 1997). In this vein, these resources are not supposedly to be shared among firms. However, traditional RBV could actually misidentify the long-term competitive advantage in dynamic markets (Eisenhardt and Martin, 2000). Consequently, the focus of RBV is shifted from competitive advantage to sustained competitive advantage by involving a long term perspective underlining past and future positions (Miemczyk et al., 2016).

The natural resource-based view (NRBV) emerges as an extension of RBV by taking into consideration natural environment, and by proposing a dynamic view of resources (Hart, 1995). Establishing environmental management strategy on resources could enable companies to create sustained competitive advantage (Vachon and Klassen, 2008) and that working together with suppliers could develop a set of resources leading to better environmental results (Sancha et al., 2016). This study is utilising NRBV as its theoretical lens since resource transferability is considered vital.

Natural resources can be fully applicable only when social sustainability based objectives and related capabilities are equally reflected (Wagner, 2015). Though, notwithstanding earlier contributions built on the use of NRBV in SCM (Gimenez et al., 2012; Schoenherr, 2012), there is a need for further development with a focus on the inter-organizational learning elements and the definition of competitively valuable resources in this context (Miemczyk et al., 2016). More empirical evidence is also called out on social sustainability and on their antecedents (Marshall, McCarthy, McGrath, et al., 2015) and on what could enable SSCM in SCs (Köksal et al., 2017). Sustainability has grown in importance for both academicians and practitioners. But there exist knowledge gaps regarding how environmental and social SC sustainability can be ensured, how sustainability can be spread beyond tier one suppliers and which are factors impeding and enabling sustainability integration in SCM that companies need to consider throughout strategic decision making processes.

The adoption of some of the practices could be limited due to existence of some contingencies Pagell and Wu (2009). In-depth evaluations within various industries could therefore be necessary (Stindt, 2017). Future research is thus called out to focus on a variety of company and industry specific investigations (Laari et al., 2017). Focusing on one specific industry could provide the advantage of being able to control the differences in processes and materials that is not feasible in cross-industry settings Winter and Lasch (2016). Research of SSCM has been mostly conducted in manufacturing industries. Yet, industrial breakdown addresses that studies on clothing, fashion, textile and cotton industry are not well investigated (Ansari and Kant, 2017). It is seen that sustainable fashion management studies must go beyond single company studies (Ho and Choi, 2012) or studies based on secondary resources (Turker and Altuntas, 2014; Yang et al., 2017). There is an imperative need to explore the connections between product, production and SC levels through a multidisciplinary approach (Curwen et al., 2013a).

The luxury in fashion refers to personal goods associated with premium quality, design excellence, uniqueness, craftsmanship and exclusivity. Luxury fashion has not been linked with environmental and social concerns to the same extent as mid-market fashion industry. As such, investigations into the state of sustainability in luxury fashion SCs has not been well covered in comparison with mid-market fashion SCs (Towers et al., 2013). Nevertheless, the democratization of luxury by which luxury brands extend themselves to affordable offerings (Cristini et al., 2017) result in implications for cost, volume, lead times and environmental as well as social sustainability.

Sustainability management in luxury SCs has become more critical since luxury fashion companies increasingly encounter pressure from mid-market fashion companies, including downward price pressure, low predictability and high product variety (Perry and Towers, 2013). Furthermore, luxury fashion emerges as a critical industry whose SC stages entail significant environmental and social footprint. For example, over two thirds of carbon emissions in luxury occur in raw material production and processing (Crowley et al., 2015). Social consequences are equally important at the present time. The competition with Eastern Europe and Asia becomes a barrier pulling down the wages in Italy, to say the least. There are also severe situations in which hidden subcontractors emerge as a response to the price competition (Theuws, 2015).

Furthermore, there are misuses of legally protected 'Made in Italy' labels since some of the world's most iconic fashion houses are found producing elsewhere while attaching 'Made in Italy' labels to their final products (Conlon, 2017; Lembke, 2017). Yet another very critical social scandal associated with luxury fashion pertains to hazardous chemical use. In the EU, there are restrictions on certain uses of nonylphenol ethoxylates (NPEs) by industry since 2005. Nevertheless, one investigation tested 27 children's products that were manufactured by eight major luxury brands, and results show that 16 of these 27 products tested positive for one or more of hazardous chemicals (Greenpeace, 2014). Such examples underline that luxury fashion costs significantly in terms of environmental and social consequences.

Luxury fashion is dependent upon raw materials and a human skill base. Italy, in this sense, emerges as a key country. That is, the Italian tanning industry is the global leader, accounting for 11.6% of the global tannery sector and 13% by value of all leather goods items exported globally (Conseil National du Cuir, 2017). Further, Italy is associated with high service levels, product excellence and country of origin (Brun et al., 2008) and with distinctive operational strategies in terms of sourcing, production and distribution (Caniato et al., 2011), which are critical for the luxury fashion industry.

Therefore, investigating social and environmental SC sustainability across Italian luxury fashion supply networks could uncover some characteristics that would help provide further implications for SSCM. With a driven focus toward SSCM in Italian luxury fashion, this study focuses on two SCs producing textile garments and luxury leather shoes.

The objective is to identify the underlying theoretical and managerial perspectives to better understand sustainability integration in luxury fashion SCM. In accordance with the three dimensional concurrent engineering framework (3DCE), social and environmental sustainability are systematically investigated at product, process and SC levels. There are a number of conceptual benefits of integrating the 3DCE framework with sustainability, as the framework was appropriately used to study sustainability issues in the fashion industry (Caniato et al., 2012; Karaosman et al., 2016). In agreement with Pal and Torstensson (2011), decomposing sustainability practices into product-oriented, process-oriented and SC-oriented practices could help better conceptualise SC sustainability. Research questions were formulated in accordance with knowledge gaps emerged from a review of prior research.

Objective 1: To develop taxonomy for sustainability in fashion operations

RQ1: Which are the environmental and social sustainability practices implemented in fashion operations and reported in the managerial literature?

Objective 2: To explore sustainability integration in luxury fashion SCs

RQ2.1: How does a 'Luxury Textiles SC' integrate environmental and social sustainability?

RQ2.2: How does a 'Luxury Leather SC' integrate environmental and social sustainability?

Objective 3: To uncover barriers and enablers impacting sustainability in luxury fashion SCs

RQ3a.1: How do barriers (internal and external) influence sustainability implementation in the 'Luxury Textiles SC'?

RQ3a.2: How do barriers (internal and external) influence sustainability implementation in the 'Luxury Leather SC'?

RQ3b.1: How do enablers (internal and external) influence sustainability implementation in the 'Luxury Textiles SC'?

RQ3b.2: How do enablers (internal and external) influence sustainability implementation in the 'Luxury Leather SC'?

Objective 4: To identify critical issues in sustainability in luxury fashion SCs

RQ4a: Which are the critical issues in sustainability in luxury fashion SCs?

RQ4b: How do such issues influence sustainability in luxury fashion SCs?

Objective 5: To provide implications for SSCM in the luxury fashion industry

RQ5: How can SSCM be advanced in the luxury fashion industry?

The research structure and the research framework are displayed in Figure 1.

Figure 1 Research Structure and Research Framework

This rest of this study is organised as follows. First, theoretical background is given in Section 2 in which knowledge gaps and theoretical development are provided. Subsequently, Section 3 displays the research questions and the research framework. Section 4, on the other hand, provides methodology adopted and pursued throughout this study. An analysis of the within case study results are given in Section 5 and followed by the results of the cross case study results. Not only are the current trends in sustainability in luxury fashion SCs revealed, but also critical issues surrounding the luxury fashion industry is critically analysed. Section 5, on the other hand, specifies the theoretical discussion of this study in which the final theoretical model is drawn. Finally Section 6 delivers the conclusion by not only answering each research question and bringing it back to theory but also by providing theoretical, practical and social implications for the study. Limitation and future research avenues are lastly provided closing remarks of this study.

Executive Summary of the Results

Research Objective 1:

To develop taxonomy for sustainability in fashion operations

Research Question 1:

- Which are the environmental and social sustainability practices implemented in fashion operations and reported in the managerial literature?

Research Method Applied:

Systematic Literature Review

Results:

Taxonomy encompassing 101 sustainability practices in fashion operations

- Product Level: 16 environmental sustainability and 7 social sustainability practices
- Process Level: 29 environmental sustainability and 6 social sustainability practices
- SC Level: 17 environmental sustainability and 23 social sustainability practices

Research Objective 2:

To explore sustainability integration in luxury fashion SCs

Research Question 2:

- How do luxury fashion SCs (textiles and leather) integrate environmental and social sustainability?
-

Research Method Applied:

Cross Case Study Method

Results:

Similarities and dissimilarities between two SCs were elaborated. The main sustainability trends observed in luxury fashion operations were categorized as follows.

- Product Design: Life cycle thinking, Chemical reduction
- Operations Management: Water management, Energy efficiency
- Sourcing Management: Traceability, Audits
- Organizational Commitment: Multi-stakeholder dialogue, Community of practice development

Research Objective 3:

To uncover barriers and enablers impacting sustainability in luxury fashion SCs

Research Questions 3:

- How do barriers (internal and external) influence sustainability implementation in luxury fashion SCs?
- How do enablers (internal and external) influence sustainability implementation in luxury fashion SCs?

Research Method Applied:

Cross Case Study Method

Barriers	Leather SC				Textiles SC						Total Count
	L1	L2	L3	L4	T1	T2	T3	T4	T5	T6	
Lack of knowledge	X	X		X	X	X		X		X	7
Lack of awareness	X	X	X	X	X	X		X			7
Lack of a framework for	X	X	X		X	X			X		6

sustainability integration											
Higher investment costs		X	X			X	X		X	X	6
SC complexity	X	X			X	X	X				5
Lack of information		X	X	X						X	4
Lack of financial resources		X	X	X				X			4
Competing priorities				X		X				X	3

Enablers	Leather SC				Textiles SC						Total Count
	L1	L2	L3	L4	T1	T2	T3	T4	T5	T6	
Supplier engagement and collaboration	X	X	X		X	X	X	X	X	X	10
Knowledge dissemination		X	X		X	X	X	X			6
Innovation		X	X		X			X	X		5
Senior management support	X	X			X		X				4

Research Objective 4:

To identify critical issues in sustainability in luxury fashion SCs

Research Question 4:

- Which are the critical issues in sustainability in luxury fashion SCs?
- How do such issues influence sustainability in luxury fashion SCs?

Research Method Applied:

Cross Case Study Method

Results:

- Supplier traceability
- SC transparency
- Industrial collaborations
- SC power distribution
- (Lack of) Material component knowledge
- (Lack of) Raw material visibility
- Multi-tier audit and appraisal strategies
- Technical capability development

Research Objective 5:

To provide implications for SSCM in the luxury fashion industry

Research Question 5:

- How can SSCM be advanced in the luxury fashion industry?

Research Method Applied:

Cross Case Study Method

First Construct: Internal Sustainability Integration

Organizational Strategy

- Foster top management support
- Develop corporate education modules
- Embed sustainability among functions

Operational Strategy

- Deploy technical capabilities
- Integrate sustainability management systems
- Invest in process innovation
- Incorporate sustainability in product / process / SC stages

Second Construct: External Sustainability Integration:

Upstream SCM Strategy

- Ensure SC transparency
- Trace suppliers beyond tier 1
- Select suppliers based on sustainability criteria
- Develop capabilities across the network
- Establish stable relationships

Downstream SCM Strategy

- Promote sustainable products
- Increase awareness for sustainable luxury
- Integrate stakeholders' expectations
- Create multi-stakeholder dialogue
- Drive industrial collaborations

2. THEORETICAL BACKGROUND

2.1. SUSTAINABLE SUPPLY CHAIN MANAGEMENT

2.1.1. Sustainability Development

The industrial revolution led to an exponential increase in the resource consumption. During the 1930s, business models were established based on non-renewable resources. Following very challenging periods, such as the World War II, the newly developed world experienced an escalating growth. However, environmental impact began to be acknowledged due to increasing levels of the fossil fuel use. The world's disappearing mineral supplies, forests and other exhaustible assets resulted in demands for regulations. Products that were exploited at a rapid rate as a consequence of their extreme cheapness gave rise to the conservation movement (Hotelling, 1931). Oil and energy crises, which occurred in the 1970s, showed that the global community was heavily depending on non-renewable sources. Neo-institutional approach in the late 1970s addressed the importance of expressing behaviours in compliance with the standards and the rules as well as the organizational efficiency while analysing the ability of an organization to achieve survival (Czinkota et al., 2014).

The last four decades experienced many actions with attempts to recognize the need of sustainability. Figure 2 depicts the historical timeline of sustainability. First and foremost, the United Nation's World Commission on Environment and Development released the influential 'Our Common Future' report in 1987 in order to acknowledge that development would be inevitable yet it would be sustainable (WCED, 1987). Though, after all these years it is still debatable if the humanity has taken enough actions. As depicted in, the 2000s was a period for the attempts supporting sustainability initiatives. For example, the Johannesburg Declaration of 2002 and the REACH Regulation of 2006 were transformative arrangements. The UN Conference on Sustainable Development (also known as Rio+20), which took place in 2012, resulted in a focused political document containing clear and practical measures to implement sustainable development.

Figure 2 Sustainable Development Timeline

Source: Own development

One dramatic picture could portray the urgent need for a greater action on sustainability. In 1961, almost all countries had more than enough capacity to meet their own demand whereas in today's world many countries could meet their demands only by importing resources from other nations. Atmospheric concentration of GHG could actually reach about 685 parts per million (ppm) CO₂-equivalents by 2050 (Marchal et al., 2011). This is above the concentration level of 450 ppm, which is, according to the UN's Intergovernmental Panel on Climate Change, is what is needed to have a chance to avoid global warming above 2 °C (Neslen, 2016).

Companies heavily depend on achieving financial objectives to remain profitable in the market (Varsei et al., 2014). This consequently suggests that the indispensable aspects are seemingly linked with economic interests. So that one could argue the planet is destroyed in pursuit of the financial growth (Walker et al., 2013). Companies have significant responsibilities toward numbers of stakeholders. Stakeholder theory specifies the extent to which a corporation treats its stakeholders appropriately (Öberseder et al., 2013). For example, companies are obligated to take responsibility for the well-being of those that work in developing countries (Ciliberti et al., 2008a). It is known that companies are assessed by a number of individuals, and the way the company is viewed and evaluated by its stakeholders underlies the subsequent interactions (Riordan and Fairbrass, 2006). Environmental and social demands coming from shareholders as well as other stakeholder groups contribute to the pressure to consider sustainability more seriously (Lee and Farzipoor-Saen, 2012).

Sustainability has gradually become more strategic, and is affecting many organizational facets, including growth, profitability and survival (Reuter et al., 2012). To this end, SCs have started shifting their business models, as they do not solely strive for profit increase but also care for sustainability (Meckenstock et al., 2015). Yet, the great challenge lies in the attempt to demonstrate the current societal contributions as a whole without compromising the possibility for continuous improvements.

Notwithstanding the effort put forward by many companies to recognize and to embrace the concept of sustainability in their business agendas, there are many areas that are in need of further assessment. For example, the richest of 1% of the adults worldwide control 4% of the world's assets while the bottom 50% access only 2% of the assets (Kumar and Christodouloupoulou, 2014). Further, less than 1% of materials used to produce clothing is recycled into new clothing (Ellen MacArthur Foundation, 2017). However, the textiles industry relies on non-renewable sources, that is, 98 million tonnes per year. Due to the inconsistencies and the vague understanding, what sustainability really constitutes and requires must be well understood.

The definition of sustainability

Earlier research addresses four alternative ethics-based theories as relevant, namely stakeholder theory, universal rights, sustainable development and the common good approach (Cetindamar and Husoy, 2007). According to these theories, companies are expected to adopt corporate social responsibility (CSR) practices to do the right things for the good of the societies. CSR means more than promulgating a company's own principles and values. It also depends on understanding the

principles and the values of those who affect, or are affected by, the company's operations (WBCSD, 2000). In this sense, a definition of social responsibility must embody the ethical, legal, economic, and discretionary categories of the corporate performance (Garriga and Melé, 2004). CSR, which was originated in the West, is a term resulting in a wide range of definitions, and concepts.

Even though there is no universally accepted definition of CSR (Wang and Juslin, 2009), according to European Commission, CSR is a concept in which companies integrate environmental and social concerns in their operations and in their stakeholder interactions on a voluntary basis (Commission of the European Communities, 2001). On the whole, CSR is considered being context specific organizational actions and policies, taking into consideration stakeholders' expectations and the triple bottom line of social, environmental and economic performance (Lueg et al., 2013).

Corporate sustainability, on the other hand, was introduced later, and even though corporate sustainability and CSR have been used synonymously, some differences do exist. Lueg et al. (2013) follow the footsteps of prior studies and outline the definition of corporate sustainability pursuant to the World Commission on Environment and Development's definition. That is, the development to meet present generations' needs without endangering future generations ability to satisfy their needs (WCED, 1987). Thus, corporate sustainability addresses the going-concern and long-term business models rather than single events or situations, as does CSR. Sustainable development evidently enriches the older CSR concepts by providing a wider normative anchor and a guiding agenda toward the integration among planet, people and profit based on the international values and the global needs. In the industrial context, sustainable development is accepted to be a means for organizations to survive (Oh and Jeong, 2014).

All in all, sustainability can be defined as a wicked problem. Wicked problems occur in a social context, and the greater disagreement among stakeholders increases the wickedness of the problem (Meckenstock et al., 2015). Unlike problems in normal science, wicked problems are harder to define and rely upon judgements for resolution and require further attention. That is to say, the concept of sustainability could have a completely different perception among those farmers compared to those in the Western countries. The farmers' main concern may be to secure their families' financial circumstances while the values of the Western consumers could diverge on many levels. Hence, the implementation of sustainability grows as a pivotal topic. Companies operating around the world must comprehend global principles and societal values prior to taking bold actions.

The implementation of sustainability

Triple bottom line invented by John Elkington in 1994 refers to an accounting framework encompassing three pillars of environmental, social and economical. In traditional business use, the bottom line refers to profit or loss. Yet, this approach brings environmental consciousness and social justice to the course and offer opportunities in aforementioned three categories. Shared value model, on the other hand, proposes another approach to sustainability development. Coined by Michael

E. Porter and Mark Kramer, shared value refers to a management whereby companies find business opportunities within social problems. Its distinctive feature separates the shared value from philanthropy and/or social responsibility. That is, CSR focus might be on giving back or environmental impact reduction. Shared value focuses on the competitive value maximization by solving social problems, as it strives to develop new ways to achieve economic success (Shared Value Initiative, 2017).

This study follows the footstep of the triple bottom line approach and adopts the definition of sustainability as the development to meet present generations' needs without endangering future generations ability to satisfy their needs throughout long-term business models. To this end, there are international standards and guidelines to implement sustainability within and across the companies.

Voluntary environmental policy instruments including Environmental Management Systems have reached a surge with the publications of regulations and standards, such as the Eco-Management and Audit Scheme (EMAS), leading to a growing number of organizational management systems and certifications (Tourais and Videira, 2016). The International Organization for Standardization has created the ISO 14000 family, which is a group of standards provide guidance with regard to environmental management to respond to the need for sustainable practices. In this regard, ISO 26000 was introduced in 2010 to provide companies with guidance on the implementation of social responsibility initiatives (Kumar and Christodouloupoulou, 2014) through the main components of organizational governance, human rights, labour practices, the environment, fair principles, community involvement and development, and consumer issues.

Most recently, the world leaders adopted the 2030 Agenda for Sustainable Development at the United Nations Sustainable Development Summit in 2015. The Sustainability Development Goals (SDGs) are considered universally applicable and are taking into consideration national characteristics, capabilities and levels of development as well as certain challenges. All countries have a shared responsibility to achieve the SDGs, and all have a significant role to play on the global scale (European Commission, 2017). The 2030 Agenda requires to be implemented in an integrated manner, recognizing that different goals and targets are closely interlinked. There exists a set of 17 global goals and 169 targets to end poverty, fight inequality and injustice and tackle climate change by 2030. The goals and targets, as depicted in Figure 3, aim to stimulate action over the next decade in areas of critical importance for humanity and the planet.

Figure 3 Sustainability Development Goals

The governments decided to develop the SDGs during the Rio+20 by building on the Millennium Development Goals and by including such issues as natural resource management, sustainable consumption and production, good governance and effective institutions (European Commission, 2017). The European Commission took an active part in the development and the adoption of the 2030 agenda by working closely with the Member States to assure determined outcomes.

In this vein, with an attempt to improve the sustainable development, the European Commission has some crucial targets to be met by 2020. In order to accelerate social, environmental and economic progress, the European Union (EU) has set out a strategy for the 21st century. Europe's Growth Strategy: Europe 2020 engages three pivotal priorities (COM, 2010), namely Smart Growth, Sustainable Growth, and Inclusive Growth. Europe 2020 underpins these priorities through (i) developing an economy based on knowledge, (ii) promoting a more resource efficient economy, and (iii) fostering a high-employment economy delivering social cohesion. In order to assure smart, sustainable and inclusive growth, the targets to be achieved by 2020 are as follows:

- The employment rate of the population aged 20-64 should rise to at least 75%
- Investing 3% of the EU's GDP be in research and development
- "20/20/20 targets": Including reducing GHG emissions by at least 20% compared to 1990 levels, 20% increase in energy efficiency, and 20% increase in the share of renewable energy resources.
- The percentage of early school leavers should be under 10%, and at least 40% of the younger generation should reach a tertiary degree
- 20 million less people should be at risk of poverty

The EU has been playing a pioneering role in policy development to promote and communicate sustainability. However, there are severe issues that hinder sustainability from being advanced at large. Natural resources, on the one hand, are insufficient. Social problems, on the other hand, are very critical in the form of lack of resource access, lack of productivity and lack of human capital for traditional industries, such as craftsmanship.

Both developed and developing economies have become strong competitors to Europe. Countries such as India and China gradually invest in R&D. Moreover, global finance and its inconsistent nature, such as short-termism, and speculative behaviours have caused imbalances (Karaosman et al., 2014). How sustainability is to be fully integrated in global business networks remains to be an issue. Furthermore, growing complexity of the European companies' global operations seem to bring further challenges to truly embark on sustainability.

It is vital to recall that a lack of coordinated corporate and/or SC response to pressures exerted by macro environmental incentives could have a negative impact on reputation (Czinkota et al., 2014). To prevent such issues, companies as well as the governments are called out to preserve the consistency of their brands' values throughout their SCs. One of the most profound challenges is to operationalize sustainability and translate it into global operational strategies. What is rather vague is what companies actually mean whilst referring to sustainability, and how this contracts at different levels of the SCs (Meckenstock et al., 2015). In today's picture

of mixed societies, sustainability could be made to mean what one would like it to mean. A clear understanding is required among societies on what is required in the present and what to preserve for the future so as to enable consistent approaches for sustainability.

2.2. THE EVOLUTION OF SUSTAINABLE SCM

During the 1990s, individual companies became members of larger networks that eventually evolved from independent units to integrated chains (Caniato et al., 2012; Vachon and Mao, 2008). Supply chain (SC) emerges as a complex set of nodes and arcs that are interconnected by information flows, cash flows and material flows (Persson, 2011). The concept of operations management has been redefined by using the SC perspective through the inclusion of upstream and downstream partners into the investigation and management boundary (Brandenburg et al., 2014). SC management (SCM), in this sense, emerges as management of the chain of such interconnected businesses involved in ultimate delivery of product and service bundles required by the end consumers (Harland, 1996). Naturally, the concept of SCM could be considered the management of physical, logical, and financial flows in networks of intra-and inter-organizational relationships (Mentzer et al., 2001).

Today's competitiveness, globalization and changing channel influence alongside the growing reliance on SC relationships require the use of SCM for enhanced competitiveness (Liu et al., 2017). A company's ability to reallocate resources to new courses of action can determine if the company could generate competitive advantage faster than its competitors (Gelhard and von Delft, 2016). Hence, in order to sustain a competitive edge on the global front, companies should understand competitive pressures and highlight the human aspects of their SCs (Mani et al., 2015).

Company resources can be considered accretive when they are valuable, rare and inimitable (Lloret, 2016). Nevertheless, companies face environmental and social limitations over time, which require creating and applying strategic actions consistently, and mobilizing all resources proactively. Sustainability exceeds the organizational boundaries and shows a direct relevance and importance for SCM (Marshall et al., 2015) and SCM significantly effects the exploitation of renewable and non-renewable resources (Srivastava, 2007).

Resource based view (RBV) and relational view (RV) proposes a theoretic conceptualization as a catalyst of valuable inter-firm resources, and accordingly inter-firm competitive advantage (Gold et al., 2010). RBV has become a significant theoretical lens largely used to analyse manufacturing, operations and SCM (Schoenherr, 2012; Vachon and Klassen, 2008). It accordingly suggests that a company could reach a competitive advantage in the market by generation of resources that are difficult to imitate, difficult to substitute, rare and valuable (Blome et al., 2014; Grant, 1991). Nonetheless, RBV details that such difficult-to-imitate resources are complex and must be firm specific (Teece et al., 1997), indicating that these resources are not to be widely shared among firms. Yet, collaboration can actually allow partnering companies to build a set of valuable, rare and difficult to imitate resources, which would lead to competitive advantage (Sancha et al., 2016).

That is to say, traditional theories surrounding the core competences and the RBV imply a dilemma for companies seeking to explore collaboration with other partners. It is thus claimed that traditional RBV could actually misidentify the locus of long-term competitive advantage in dynamic markets, and reaches a boundary condition in high-velocity markets (Eisenhardt and Martin, 2000). This perspective could display significant challenges in terms of knowledge dissemination. To this end, RBV has shifted its foci from competitive advantage to sustained competitive advantage by including a long term perspective emphasizing both past and future positions (Miemczyk et al., 2016). It is suggested that developing a sustainable vision for the company could help acquire new capacities and resources based on natural resource limitations.

The natural resource-based view (NRBV) emerges as an extension of RBV by taking into consideration natural environment, and proposes a dynamic view of resources (Hart, 1995), which considers resource transferability an imperative. It is suggested that by establishing the environmental management strategy on resources, companies can lead to sustained competitive advantage (Vachon and Klassen, 2008) and that by working together with suppliers, companies could develop a set of resources leading to better environmental results (Sancha et al., 2016).

SCM has multifaceted aspects for which collaboration, joint learning, innovation, and technical as well as relational capabilities appear to be significant antecedents. Product development stage is an important one where a wide range of important factors is addressed, such as flexibility of delivery issues, size of batches to be processed, stock outs, and total costs of the product development. To address these issues cross functional teams are suitable in which people from different areas are brought together (de Brito et al., 2008). Supplier partnerships, on the other hand, are as pivotal as internal aspects to achieve the best performance. Hence, co-operation as well as collaborations are considered crucial facets for the company success (Bruce et al., 2004).

Some criticalities appear in terms of how to design cross-functional teams, how to collaborate with the actors across the chain, and how to add further value to the products. To illustrate, the global fashion industry is surrounded by a number of challenging issues, including high volatility (Macchion et al., 2015), low predictability and the level of impulse purchase (Bruce et al., 2004) that make quick response and efficiency of absolute importance, increasing pressure in mature manufacturing sectors by emerging economies (Tunisini et al., 2011), growing pressure on delivery times and prices (Theuws, 2015), and increasing time pressure on the order cycles (Hu et al., 2014). In addition to such operational facets, number of environmental contingent variables, including rising commodity prices (Clinton and March, 2015; World Economic Forum, 2015), changing supply patterns, increasing cost volatility and shifting of demand to available materials (CDP, 2016), seriously challenge companies to manage their globally dispersed and growingly complex supply networks. Company performance is known to be based on contingent variables, such as environmental and resource variables, and on management variables, such as planning and decision making models (Caniato et al., 2009). Hence, these factors must be equally considered and embedded in strategic decision making processes.

Separate organizational units used to have responsibility to ensure environmental excellence in product development, process design, operations, logistics, and legislative compliance, however, there is a need for integration of environmental management within ongoing operations (Srivastava, 2007). Systematic issues that exist at the intersection of sustainability and global operations are of paramount importance because arm's length approach is no longer an option.

After the introduction of sustainability development at the end of the 1980s, sustainability definition in SCM grew. Green SCM (GSCM) initially evolved as intra- and inter-firm management of upstream and downstream SC that had the capability to reduce the overall environmental impact of both forward and reverse flows (Yu et al., 2014). During the 1990s, a link between CSR and sustainable development was further established. CSR and corporate sustainability have followed different paths (Ciliberti et al., 2008b). CSR has been considered being related to phenomena of stakeholder dialogue, whereas corporate sustainability has focused on value creation and environmental management. Heretofore, sustainability was meant as environmental issues while CSR was perceived as social aspects. Nowadays CSR focuses on broader aspects in the value creation. Therefore, corporate sustainability provokes the combination of social, environmental and economic behaviours with operational practices adopted by the companies.

The pressure on manufacturing organizations to implement benign processes and to embark on greener products significantly increased over the last decades (Vachon, 2007) because any company might be held responsible for its suppliers' environmental and social performance (Azevedo et al., 2012). In this regard, companies and their chain members gradually face pressure, coming from a wide range of stakeholder groups, including customers, shareholders, governments, non-governmental organisations (NGOs) and public authorities to foster sustainable practices both within the organisations and across the chains (Varsei et al., 2014). The interaction between sustainability and SCs emerges as a critical step (Linton et al., 2007). To this end, focus on environmental management and operations moved from the local optimization of the environmental factors to the consideration of the entire SC, which captures growing concerns over sustainability (Jayaraman et al., 2007).

However, it is vital to simultaneously include sustainability considerations at the entire chain level. It is thus addressed that sustainability integration must go beyond technical optimization toward the inclusion of stakeholder engagement, because, as suggested by Hart (1995), companies adopting product stewardship can indicate the inclusion of external stakeholders in product development as well as planning processes. Relatedly, pollution prevention, product stewardship and sustainable development, as interconnected strategies, are combined with the internal-external boundary spanning aspects between competitive advantage related concerns and broader societal legitimacy (Miemczyk et al., 2016).

Companies call for the implementation of control and monitoring activities to assure that their suppliers act an environmental friendly manner (Vachon and Mao, 2008). Albeit necessary, implementing sustainability policies in SCs is significantly challenging (Oelze et al., 2014). On the one hand, criticalities cumulatively add a

substantial amount of uncertainty while implementing green initiatives. On the other hand, possible adjustments are needed in external and internal operations, which increase the probability of experiencing contrary events across the chain (Wang et al., 2012).

Macro economic and societal axe of sustainability, on the other hand, is rather difficult to apply, and little guidance has been provided in terms of how companies could effectively balance organizational responsibilities among multiple stakeholders, e.g. shareholders, employees and other partners in the chain, as well as other broader stakeholders, e.g. the society and the natural environment (Carter and Rogers, 2012). Besides, there exist companies (especially small and medium sized enterprises (SMEs) operating in developing countries) facing difficulties due to lack of mentorship and skill dissemination, lack of awareness on development opportunities, infrastructure shortage and financial struggles (Ciliberti et al., 2008a). Last but not the least, environmental impact generated throughout one company's SC is prevalent, significant and interrelated. Yet, SCM becomes complicated for global companies especially when regulations lack uniformity (Fiorino and Bhan, 2014).

SSCM is considered a new archetype to meet stakeholder requirements and improve profit and competitiveness whilst increasing ecological efficiency and social responsibility (Gualandris et al., 2014). The definition of SSCM thus includes the management of material, information and capital flows as well as the cooperation between companies throughout the SC while taking goals from all three dimensions of sustainable development (Seuring and Muller, 2008).

Sustainability is inherently ambiguous and, as previously stressed, it is open to interpretation. SC actors might have varying interpretations, and each company could handle sustainability differently. Furthermore, increasing levels of the global operations play an unclear role in relation to social and environmental performance. For example, on the one hand, global sourcing could result in difficulties for companies to assess their suppliers located in different geographies; on the other hand, this complexity might push the companies to adopt SSCM practices more extensively, and accordingly ease higher environmental and social performance results (Gualandris et al., 2014). Companies consequently face strong dilemmas in terms of sustainability, and therefore all SC partners need to align competitive priorities to comply with environmental and social standards (Caniëls et al., 2013). Hence, a consequential coordination between SC actors is pivotal to reach a shared approach toward sustainability (Meckenstock et al., 2015) because SSCM could only be managed successfully if this holistic understanding is ensured. Companies thus require to have strong capabilities in data, governance and process to reach a good position in SC sustainability (CDP, 2012).

Sustainability in SCM should not be perceived as a restriction because it can actually be a way to improve the performance, and it is impacting the competitiveness of a company as well as its SC members (Chardine-Baumann and Botta-Genoulaz, 2011). Table 1 summarizes what earlier research reveals in terms of performance outcomes of sustainability implementation.

Table 1 Performance Outcomes of Sustainability Implementation

Practice	Outcome	Reference
- Environmental, health and safety management	- Increased market share and plant-level productivity	(Kleindorfer et al., 2005)
- Implementation of environmental technologies	- Reduced operational costs and long-term risks	(Bourlakis et al., 2014)
- Environmental management tools and know-how	- Competitive advantage	(Pil and Rothenberg, 2003)
- Environmental management standards (ISO 14001) implementation	- Reduced costs, shorter lead times and improved product quality	(Carter and Rogers, 2012)
- Environmental collaboration with upstream suppliers	- Enhanced operational performance, such as on-time delivery, productivity and enhanced operational performance	(Vachon and Klassen, 2008)
- SC integration		
- Joint environmental management planning		
- Internal and external GSCM	- Operational flexibility, delivery, and reduced production cost	(Yu et al., 2014)
- Sustainability implementation in SCM	- Customer satisfaction, suppliers' innovation capacity, trust, quality, and supplier risk management	(Ageron et al., 2012)
- Green practices	- Quality and customer satisfaction	(Schoenherr, 2012)
	- Positive impact on lean practices	(Dües et al., 2013)
- SC transparency	- Improved legitimacy	(Egels-Zandén et al., 2015)

Despite the existing positive relationship between environmental performance and financial indicators (Vachon and Mao, 2008), sustainability integration must go beyond financial objectives. Companies pursuing proactive sustainability management strategies have distinguishing resources involving physical assets, technology, human capital, organizational capabilities, intangible resources such as reputation and loyalty. Successively, implementing sustainability practices and improving sustainability performance can help increase a company's capability to engage in continuous learning (Kainuma and Tawara, 2006; Sino-german, 2012) and to generate new organizational and operational performance improvements on a continuous base (Lee and Farzipoor-Saen, 2012; Vachon and Mao, 2008). Given that a company's proactive sustainability management strategy could be considered an important strategic resource and there appears to be a link among ecology, the environment, the society and the company, it could subsequently be suggested that social results could also be advanced through SC collaboration.

NRBV remains relevant and proposes an opportunity for empirical research, nonetheless, notwithstanding earlier contributions (Gimenez et al., 2012; Schoenherr, 2012) built on the use of NRBV in SCM, there is a need for further development with a

focus on the inter-organizational learning elements and the definition of competitively valuable resources in this context (Miemczyk et al., 2016). Prior conceptualisations is fragmented not only between social and environmental practices but also between process practices, which emphasize the learning among SC members, and market practices, which generate new markets for products or SCs (Marshall et al., 2015). Furthermore, the breakdown of environmental and social sustainability practices implemented at product, process and SC levels, for example in the fashion industry, is not homogenous and most of the sustainability practices are limited to certain individual functions (Karaosman et al., 2016). In this vein, Seuring (2011) suggest that social and environmental criteria, both for product and process, are usually set and implemented by the buying firm; yet, comprehensive engagements are required for a true sustainability integration. Collaborations with suppliers have been gradually becoming more and more trendy; nonetheless it is vital to move beyond first-tier suppliers, which is often the case in conventional fashion SCs. Though a very demanding yet comprehensive information flow required throughout the chain, supplier development emerges as an essential need to be formed.

Notwithstanding a notable progress made in terms of the buyer-supplier relationship studies during the past decades (Wu and Choi, 2005), a broader perspective is needed. What is still unknown is how sustainability practices could translate to second movers or to an entire industry (Pagell and Wu, 2009). Gualandris et al. (2015) synthesize a model that proposes how firms can address accountability for sustainability issues in their SCs. Inclusivity, scope and disclosure illustrate how SC processes can identify key measures, collect and process data and verify materiality, reliability and accuracy. Nonetheless, it is not clear which stakeholders' presence in SC decision-making can affect the accounting principles.

Lee et al. (2014), on the other hand, investigate the green bullwhip effect and stress that dynamic relationship between buyer and supplier is significant for transferring environmental pressure and for encouraging environmental change within the SC. But the research is called out to expand the study to further upstream suppliers in order to understand the variation in transferring sustainability requirements along the SC.

Combining concepts and methods does not deliver specific decision-support in a structured planning process (Stindt, 2017). Better information quality is therefore required, and measurement should get closer to where the real impact is generated at SCs (Beske-Janssen et al., 2015). Still, it is not clear how an ideal profile of sustainability collaboration could be drawn at the chain level rather than only at manufacturing firms (Blome et al., 2014). In spite of a growing debate on what involves, for example, social sustainability, the majority of the debate surrounding SSCM is restricted to the typical buyer-supplier level instead of than a proper focus on SCs (Yawar and Seuring, 2017).

The lack of SC sustainability integration can partly be due to lacks of information on how internal and external integrations could be achieved (Wolf, 2011). Recent social scandals (Conlon, 2017; Lembke, 2017) demonstrates that there exists a need to critically explore the issues rather at multiple tiers of suppliers across the chain

than only between buying firms and its immediate suppliers (Yawar and Seuring, 2017). On the whole, gaps emerge in terms of an understanding of activities required to engage suppliers beyond tier one (Quarshie et al., 2016), and there is a research call to investigate differences between companies with sustainability orientation and those implementing rather conventional SCM (Beske and Seuring, 2014).

Furthermore, earlier studies provide ample evidence in terms of environmental sustainability in SCM (Caniato et al., 2012; Laari et al., 2017; Lee and Klassen, 2008; Vachon and Klassen, 2006; Wu and Pagell, 2011; Zhu and Cote, 2004). For example, some studies dealing with several environmental issues include sustainable apparel product development (Curwen et al., 2013b), sustainable evaluation and verification in SCs (Gualandris et al., 2015), the role of collaboration in the SC (Vachon and Klassen, 2008), the effect of GSCM (Yang et al., 2013), a business strategy selection of GSCM (Chen et al., 2012), sustainable fashion supply chains (Shen, 2014), carbon accounting for sustainability (Schaltegger and Csutora, 2012), reverse logistics to enhance sustainability of industrial marketing (Lee and Lam, 2012), sustainable fashion SCM (Nagurney and Yu, 2012), and (corporate) sustainability reporting (Kozlowski et al., 2015; Lozano and Huisingh, 2011).

Vachon and Klassen (2008) focus on the impact of environmental chain collaboration on environmental as well as manufacturing performance. Upstream practices emerge to be more closely linked with process-based performance while downstream collaboration appears to be more associated with product-based performance. Drivers, as factors causing a particular phenomenon to develop, were investigated by Caniato et al. (2012). The study reveals how internal, market and legislation-based drivers push fashion companies to implement environmental practices at product, process and SC stages.

Wu and Pagell (2011), interestingly, articulate how organizations deal with short-term pressures to remain economically viable during sustainability implementation and the study delivers noticeable contributions with respect to patterns of decisions concerning business and environmental goals as well as strategic trade-offs encountered between sustainability dimensions. Nishant et al. (2016) attempt to integrate the NRBV and the materiality perspective to explore environmental sustainability practices that Indian companies consider material. The study focuses on 22 companies incorporating materiality in their reporting processes and utilizes a text mining technique to identify GSCM practices based on the companies' publicly available sustainability reports. The findings reveal that companies operating in India consider some practices dominant including reverse logistics, product recycling, and supplier environmental performance improvements. The companies relatedly focus on water, energy, resource efficiency, and supplier integration. However, the study solely covers very broad environmental categories.

Liu et al. (2017) investigate the specific role of SC capabilities in the implementation of green operation strategies. Environmental proactivity is found negatively moderating the effect of internal integration capability on green purchasing. Conversely, the study focuses on only three yet already key operational areas, including green design, green purchasing and green manufacturing, which

neglect not only social sustainability, but also many other equally important environmental practices.

Additionally, a number of studies specifically dealt with social aspects, including fair trade products (Castaldo et al., 2008), inter-linking issues (such as worker health and safety, consumer safety, and climate change) (Lozano and Huisin, 2011), model for sustainable supply management (Ageron et al., 2012), and multi-tier sustainable SCs (Walker and Jones, 2012). Activities cannot be applied independently but rather simultaneously in order to contribute to the efficient sustainability integration in the chain (Yu et al., 2014). Prior research is mostly observed implementing sustainability initiatives by focusing on selected functional areas even though SC actors must be integrated in the implementation of SSCM. SC integration can act as an influencing factor for social responsibility implementation toward a common goal (Perry et al., 2014). To this end, environmental and social sustainability must be integrated and investigated through a holistic approach by involving internal (inside the company) and external (across the SC) levels.

Even though the recognition of corporate social responsibility (CSR) as a business activity goes back to the launch of ISO 26000 in 2010 (Perry and Towers, 2013), social sustainability has received very limited attention thus far (Fritz et al., 2017; Huq et al., 2016; Missimer et al., 2017a, 2017b; Quarshie et al., 2016; Sancha et al., 2016; Winter and Lasch, 2016; Yawar and Seuring, 2017). In spite of some important studies, such as social responsibility and consumer trust (Castaldo et al., 2008), sustainability reporting (Lozano and Huisin, 2011), sustainable supply management (Ageron et al., 2012), and supplier selection problems (Jia et al., 2015), social sustainability is in need of more investigation (Perry and Towers, 2013).

There is a lack of empirical and theoretical investigations pertaining to social sustainability (Eizenberg and Jabareen, 2017). Social sustainability has been oversimplified in extant theoretical constructs and consensus does not seem to exist on what criteria and perspectives should be adopted to define social sustainability (Missimer et al., 2017b). As channelled by Carbone et al. (2012), only 10% of the 191 studies performed between 1994 and 2007 address social issues, whilst more than 73% emphasise environmental aspects. Correspondingly, Ansari and Kant (2017) show that environmental dimension is better revealed in SC research compared to the social dimension.

What is more interesting is even less studies explore both social and environmental practices (Marshall et al., 2015). Yet, as Bruntland Commission indicated in 1987, till the basic societal needs are met it is unlikely that companies and governments could adequately address environmental sustainability problems (Mani et al., 2015). Therefore, there is a necessity to analyse environmental and social sustainability in SCM research since a sustainable SC could be considered the one, which performs well on both traditional measures of profit and loss alongside an expanded conceptualization of performance, integrating both social and environmental dimensions (Pagell and Wu, 2009).

It is known that companies find it more challenging to define best practices in social sustainability (Marshall et al., 2015) and social sustainability performance is

difficult to assess since social indicators might not be easily quantified and might be prone to subjectivity (Beske-Janssen et al., 2015). The difficulty in measuring social performance can also be attributed to the challenges in understanding the dynamic and complicated nature of most of the social issues in SCs (Yawar and Seuring, 2017). The difficulty of quantifying social performance compared to environmental and economic dimensions therefore makes it the most abandoned component of the triple bottom line (Sancha et al., 2016). However, social sustainability could harm the economic performance, as it diverts resources. Consequently, companies incline to implement social sustainability practices to mitigate the negative impact of their operations instead of attempting to build truly sustainable SCs (Rodriguez et al., 2016). Albeit its challenging nature, more research is needed to bring practical support in the field of social sustainability (Missimer et al., 2017b) and to examine SC perspectives in win-win and trade-off circumstances (Mani et al., 2015).

To this end, Yawar and Seuring (2017) provide a conceptual framework in order for managing social issues in SCs. External and internal stakeholders are brought together to embark on responsible actions, such as communication, compliance and supplier development strategies that lead to social, economic, buyer and supplier based performance outcomes. But empirical data is needed to gain further insights on how to manage social issues in SCs. Social sustainability still lacks a coherent, clear and usable definition. It is noticed that even the selection of social sustainability indicators is not grounded in theory but in practical understanding of acceptability and current political schedules. The conceptual framework provided by Eizenberg and Jabareen (2017) aims to reframe a vision toward a more sustainable future by displaying urban forms, safety, equity and eco-presumption as central features of social sustainability. Even though the paper attempts to build knowledge on social sustainability, the paper, in its current form, cannot provide a robust and rigorous discussion to demonstrate how these factors interplay with and influence each other.

It is also revealed that certifications and supplier audits are generally applied for social sustainability, for example in the fashion and apparel industry. But these programs are criticised for making SCs socially less unsustainable (Rodriguez et al., 2016). Collaborating with suppliers, on the other hand, is suggested contributing to improve the suppliers' social performance (Sancha et al., 2016). However, this qualitative study of measures sustainability performance by using self-reported data and this fact questions the objectivity of such indicators measured. Further, buying firms responding the survey to provide their perception about their suppliers' performance makes the study less comprehensive.

There are other types of social sustainability strategies that prior studies have not clearly covered. For example, social audits on working hour controls, career development paths, female workforce protection, prevention of losing skill base, and/or the use of certificate of material origin. All in all, disagreement and discussion on sustainability can be considered inevitable since sustainability is concerned with the fundamental societal needs of the future (Tiainen, 2016). Hence, it is articulated that environmental and social sustainability must be perceived as a process rather than an end state. This entails that sustainability in SCM must be more than a yes-no situation and it needs to involve different levels. This integrated approach consequently unveils an interesting angle for further contributions.

Sustainability requires to be considered in a global, cultural and political sense in which a number of stakeholders compete, collaborate and produce certain outcomes (Marshall, McCarthy, McGrath, et al., 2015). There are studies utilizing sustainability as a single concept involving both environmental and social dimensions (Parmigiani et al., 2011), however evidence is mounting that not only do social and environmental sustainability have their own antecedents and process as individual concepts, but also that environmental sustainability are introduced at the expense of social sustainability, causing trade-offs among these practices (Marshall et al., 2015). Natural resource based view (NRBV) can be fully applicable when capabilities related to social sustainability based objectives are equally reflected (Wagner, 2015). It thus becomes pivotal to look at companies to understand what factors influence strategic sustainability decisions and sustainability outcomes.

Indeed, there is a research call for more empirical research on social sustainability and their antecedents (Marshall, McCarthy, McGrath, et al., 2015) and what could actually enable SSCM in SCs (Köksal et al., 2017). Lack of training, financial constraints, lack of commitment and legitimacy appear to hinder companies from sustainability integration at the organizational level. Respectively, a lack in the understanding on how to address sustainability in purchase and SC operations emerge as a vital barrier as an obstacle that prevents sustainability at the operational level. Comparably, downward price pressures, lack of standards and industry specific barriers are often revealed as some of the external barriers of social and environmental sustainability in SCM (Perry and Towers, 2013; Shen et al., 2015; Walker et al., 2008).

Despite of the fact that companies in highly competitive industries might favour economic performance over social and environmental issues (Freise and Seuring, 2015), stricter regulations and growing stakeholder pressures require companies to incorporate environmental and social considerations into their SCM (Marshall et al., 2015). An important body of knowledge highlighting a number of environmental, social and ethical issues in SCs have been generated since the early 1990s (Quarshie et al., 2016). Yet, some aspects and practices could be changed and managed in a different manner to achieve sustainability performance (Beske and Seuring, 2014). On the one hand, the majority of the practices making up green SCM models appear to be modifications of existing practices (Pagell and Wu, 2009). But, these programs may not suffice to become sustainable. That is to say, for example, performance improvements reached through incremental changes could hinder companies to launch more radical adaptations to become truly sustainable (Pagell and Wu, 2009). On the other hand, companies having strong sustainability practices in one dimension might have weaker practices on other dimensions (Huq et al., 2016).

The vagueness of what sustainability actually refers to could even enable businesses to claim that they are following sustainability when they can even be the perpetrators of unsustainability (Missimer et al., 2017b). Another issue is that there exists a disconnection amongst the real sustainability problems and what research has covered thus far. To illustrate, some of the very important environmental sustainability concerns, featuring biodiversity issues, natural resource scarcity, deforestation, water management and chemicals, have not received significant

attention yet (Quarshie et al., 2016). Another challenge pertains to the extension of sustainability to other SC actors (Sancha et al., 2016). The lack of knowledge on global SC partners and the willingness to exchange sustainability-related information between SC partners emerge as some of the barriers to a SC wide sustainability assessment. Collaborative relationships re-emerge importantly to attain sustainable development along the chain. For example, the adoption of inter-organisational practices can actually help to improve the sustainability performance of the buying firm (Gualandris et al., 2014). Nonetheless, it is still unknown how sustainable SC members could make decisions whilst there is a variety of products with asymmetric information settings (Govindan et al., 2016).

It is vital to improve not only a company's own operations but also its SC's performance (Fritz et al., 2017), as a company cannot be considered more sustainable than its suppliers (Sancha et al., 2016). There are many environmental and social issues taking place in globally dispersed SCs (Freise and Seuring, 2015) and the most critical environmental and social issues are generated by suppliers located in the second tier or further upstream (Tachizawa and Wong, 2014). However, this controversial debate would require a more critical analysis. Price pressures, lack of frameworks and commercial barriers often emerge as some of the barriers impeding upstream suppliers from advancing sustainability in SCM (Perry and Towers, 2013; Shen et al., 2015; Walker et al., 2008). Pressure placed by the leading buying firms could impede sustainability any further upstream but this actually jeopardizes the buying firm's legitimacy. That is, smaller companies might not be generally subject to global critique when exposed for irresponsible behaviours (Carrigan et al., 2017), but suppliers acting unethically can actually damage a buying firm's sustainability performance (Sancha et al., 2016) and such socially unsustainable practices can cause significant damage to the image of global brands (Huq et al., 2016).

Nevertheless, surprisingly, there has been limited attention paid to the corporate responsibility practices of SMEs in the mainstream corporate responsibility literature (Carrigan et al., 2017). In this sense, the majority of the studies highlighting supplier development strategies and their role in managing social sustainability in SCM do not articulate the firm size despite its importance as a determinant (Yawar and Seuring, 2017). SMEs are pivotal for SCM because they represent more than 90% of all businesses and 60% of the employment rate of all countries (Fritz et al., 2017). For example, in Italy the manufacturing areas are mostly characterized by the collections of SMEs (Froud et al., 2017). Nevertheless, in such industrial districts Chinese immigrants are widespread and the fact of having Chinese migrants who bought up companies and invested, and of being followed by other Chinese workers to make the clothes has developed a new low wage version of Made in Italy Made by China (Froud et al., 2017). Additionally, SMEs often face challenges in responding to environmental pressures due to their limited capabilities and resources (Lee and Klassen, 2008). All in all, while environmental and social consequences of actions taken by individual SMEs could be small, their joint impact becomes very significant.

There might exist a lack of stakeholder inclusiveness throughout a holistic perspective so that truly sustainable SCs do not seem to exist. Earlier research thus suggests using the term, that is, sustainability and SCM (Fritz et al., 2017). A shift from SCM practices to the strategic questions of SC transformation is hence required

(Quarshie et al., 2016). A clear need emerges with regard to a tailored perspective on sustainability integration in SCM by representing both big buying firms and SMEs.

As for the factors that could make sustainability possible, top management commitment, awareness, and employment stability at the strategic level emerge as internal enablers at the strategic level, whilst strategic planning, adoption of green purchasing, adoption of safety standards and eco-design are labelled as operational enablers. When it comes to external ones, regulations and market based features, including customer concerns and satisfaction are revealed as those that enable sustainability integration (Diabat et al., 2014; Faisal, 2011; Lee and Klassen, 2008).

Ho and Choi (2012), on the other hand, conduct their research to explain why fashion companies go green and to evaluate sustainable SCs. The study, though, channels a perspective based on only one company and does not address any sort of differences in terms of factors affecting small and large companies. Carbone et al. (2012), on the other hand, propose that SSCM has a pivotal role in overall corporate responsibility performance. Nevertheless, data gathered from secondary sources indicate neither antecedents nor factors pertaining to governance and/or various SSCM behaviours. There is actually a need to consider the managerial practices' influence on the sustainability and this expects to be extended to SCs (Fritz et al., 2017).

Busse et al. (2016) unveil the contextual barriers encountered by Western buyers in their supplier development efforts for sustainability with suppliers in developing countries. Yet, knowledge gaps require more of the real-world examples in terms of practitioners' understanding to further interpret the concept. The realization of local aspects of sustainability in SCM could also help achieve balanced social development within local eco-systems. Local community is thus an important area to focus, as it can also support a number of community values along with the preservation of physical resource base (Mariadoss et al. 2016). Creating an environmental vision is as important as creating an environment that promotes the effectiveness of cultural orientations. Future research is thus invited to collect data coming from multiple sources within the company and across SCs to better explore sustainability behaviours.

Albeit ample evidence related to sustainability performance, including how to manage and measure sustainability performance (Beske-Janssen et al., 2015; Schaltegger and Burritt, 2014), how to frame sustainability performance of SCs (Varsei et al., 2014), and how to measure corporate sustainability performance (Lee and Farzipoor-Saen, 2012), there is another research call to identify industry specific measures and to assess their usefulness through empirical settings (Winter and Lasch, 2016). However, it is important to note that the adoption of sustainability practices across SCs can be limited due to the existence of some contingencies.

Stindt (2017) proposes a generic planning process based on an extensive literature review. Yet, a need arises in terms of in-depth evaluations of the framework within various industries because results could lead to some necessary in industry-specific adjustments. Pagell and Wu (2009), on the other hand, examine the chain at its entirety by highlighting both environmental and social outcomes and by asking

what unique behavioural patterns are required. Nevertheless, the implementation of the practices is unveiled to be limited and the study hence calls out future studies, which need to explore the role of a specific industry, e.g. the textile industry as suggested in the paper.

It is shown that the adoption of some of the practices could be limited due to existence of some contingencies Pagell and Wu (2009) and in-depth evaluations within various industries could be necessary (Stindt, 2017). Future research is thus called out to focus on a variety of company and industry specific investigations (Laari et al., 2017). Focusing on one specific industry could provide the advantage of being able to control the differences in processes and materials that is not feasible in cross-industry settings Winter and Lasch (2016).

In this vein, Turker and Altuntas (2014) attempt to map the current situation of SSCM in the fast fashion industry by conducting a content analysis of nine companies utilizing the same reporting principle. Yet, the study relies on only a limited number of documents coming from secondary sources. A systematic review on SSCM for a period from 2002 to 2016 further shows that the area of SSCM has been largely conducted in manufacturing industries (Ansari and Kant, 2017). However, academic research into the state of sustainability in luxury fashion SCs are found quite scarce in comparison with the growing research in the field of CSR in mid-market fashion SCs (Towers et al., 2013).

In terms of sustainability and luxury, Yang et al. (2017) develop a model to guide sustainable value creation where conceptual building blocks and specific practices are presented. However, case study depicted with respect to luxury fashion, that is, Stella McCartney, does not take into account any sort of contingent variables, and in its setting, results solely come from secondary sources.

Investigations on sustainability implementation must consider contingencies due to the fact that there could be some inconsistencies in managerial as well as organizational structures (Rodriguez et al, 2016). For example, already limited comprehension of responsible business practices in SMEs is further intensified by a failure to realize differences in SMEs and contextual impacts found in traditional sectors (Carrigan et al., 2017). Therefore, it is required to produce nuanced insights into responsible business practices by considering organizational contingencies that could influence antecedents and factors of sustainability integration. Notwithstanding this valuable body of knowledge, there is a research need for further empirical data to investigate environmental and social sustainability and its associated impellers and/or enablers in a specific yet peculiar industry by moving forward beyond tier one and two. It is thus pivotal to systematically capture the various and often competing elements of sustainability integration at the chain level. By taking into consideration all aforementioned knowledge gaps emerged from earlier studies, the very next section is dedicated to the luxury fashion supply chain management. Hence, not only is this study's specific context elaborated but also its peculiarity in terms of SSCM is highlighted thoroughly.

2.3. LUXURY FASHION: A HISTORICAL OUTLOOK

2.3.1. The Evolution of Luxury Fashion

One must identify the distinction between 'Fashion' and 'Clothing' in relation with what is worn. Fashion, as a popular custom or style, encompasses aesthetic, commercial, philosophical, as well as political values, and therefore communicates individuals' visions within a social context; whereas, clothing, as a material, gives a contextual vision to the fashion. Fashion and clothing is one of the few remaining craft-based industries and manually operated sewing machines are still the principal means by which garments are made (Black, 2012). Luxury is identified in terms of its function as a status symbol, and of its psychological value. It further involves the consumer experience that is strongly congruent to an individual's self-concept (Fionda and Moore, 2009).

Luxury has substantial and historical roots. It takes its origins from the Latin word 'Lexus' meaning exaggerated life, glamour, comfort and wealth (Dubois et al., 2005). In the ancient history, wealth, exclusivity, and power were long associated with luxury. In this sense, Plato and Socrates addressed that luxury was rather a necessity (for the Greeks), which had to be regulated to preserve the harmony (Cristini et al., 2017). From the ancient Greek times and the Roman era to the Renaissance, a wide range of sumptuary laws were governed with an attempt to maintain a certain distinction among societal classes as well as to inspire societies to have local luxury products. Subsequent to the 17th century, economic democratization of the European countries resulted in the reduction of prevailing sumptuary laws.

In the pre-industrial society, clothing became an essential need, the trade boosted and larger segments of population started to afford luxury products (Cristini et al., 2017). As a consequence, luxury moved toward being a satisfaction for individuals' private needs. Prior to the industrialization, the main attributes of textile were linked with limited production, limited labour division and limited number of specialized crafts. Nonetheless, the advent of the industrial revolution changed the market dynamics dramatically. The industrial revolution was a period of constant changes that completely transformed individuals' lives. The first industrial revolution took place in Britain between 1780 and 1830, and Manchester was the world's first industrial city and became rich on cotton. The transition to new manufacturing process was introduced during which hand production methods were transformed to machines, new iron production processes were announced, and the efficiency amplified due to the use of water and steam power.

What is important to note is the fact that the textile industry was the first industry using modern production processes. Furthermore, it was the most dominant industry pursuant to capital access, employment, and value added activities (Landes, 1969). The second industrial revolution followed the first one and took place sometime between 1840 and 1870 during which economical and technological progress were sustained with the increasing adoption of steam-powered railways, the increasing use of machinery in steam-powered factories, and the large-scale manufacture of machine tools (Taylor, 1951).

Toward the end of the 19th century, luxury earned its modern meaning of being enjoyable beyond the necessities of life. Victorian era was expressed in the period between 1830 and 1910 as a cultural transition from rationalism toward romanticism with regard to social values and arts. Hermes leather goods from 1837, Cartier jewellery from 1847, Louis Vuitton luggage from 1853, Burberry raincoat from 1856 were noteworthy examples of this era. In the early 20th century, superior quality, durability, and performance became relevant features, and a reform was witnessed in luxury personal goods in which new looks and utility rationing were further defined. Gucci leather goods from 1906, Mont Blanc pen from 1906, and Rolex watch from 1908 became signature items shaping the personal luxury goods history. Correspondingly, luxury fashion kept on going through substantial transformations. Till the 1970s, the era of exclusivity was experienced where mostly European family businesses centred on craftsmanship.

2.3.2. The Myth of Luxury Fashion Operations

Luxury industry consists of a wide range of companies producing, distributing and selling goods featuring wines and spirits, clothing, leather goods, shoes, accessories, watches, jewellery, cosmetics and perfumes, as well as services including luxury hospitality (Brun and Castelli, 2013). The driven focus of this study is on luxury personal goods including clothing and leather goods. Henceforth, luxury fashion is defined as the industry where design beauty, creativity, and artistic uniqueness are brought together to deliver fashion products that are designed to last and to provide tangible for example premium quality as well as intangible for example emotional attachment value. Luxury must be specifically detached from other traditional industrial sectors, as it encompasses such profound factors as limited supply, human involvement and the value recognition by others (Vigneron and Johnson, 2004).

Luxury brand is perceived to be having a lower ratio between the functionality and the price, and a higher ratio between the intangible and situational utility and the price (Vigneron and Johnson, 2004). Luxury delivers symbolic and experiential value alongside functionality (Grigorian and Espinoza-Petersen, 2014). The legitimacy of luxury hence needs to be accomplished with the excellence in terms of the experience. In this vein, not all contingent variables derived from earlier supply models could be applied to companies operating in the luxury market (Caniato et al., 2011). Instead, there are some critical success factors, which ought to be considered and reflected so as to achieve competitive advantage. Such factors include premium quality, heritage of craftsmanship, exclusivity, emotional appeal, global reputation, recognizable style and design, country of origin, uniqueness, technical performance, and creation of a lifestyle (Caniato et al., 2009). True luxury is expected to go beyond 'luxury at the product level'. Therefore, product line management, customer service management, and channel management, in other words the entire SC, emerge to be relevant for market success in luxury (Brun et al., 2008; Caniato et al., 2009). In other terms, luxury must be thoughtfully supported by a value-driven configuration of sourcing, production and distribution strategies.

Not only does luxury entail premium priced products but it also possesses a number of unique characteristics (Brun et al., 2008). The concept of luxury has changed toward a rather conceptual dimension over the years. There appears to be a fact that luxury is no longer about price or quality but it is rather relevant with the

customer experience and with the perceived value. The luxury market experiences a remarkable growth as the global luxury goods market touched a value of € 1.081B, with a growth rate of 4%, in 2016 (D'Arpizio, 2016). Within luxury, personal luxury goods industry emerges as the biggest segment since it accounts for 30% of the entire market with a significant value of € 249B, which is estimated to reach € 280B by 2020. However, albeit the growth, defining the luxury is becoming difficult due to its perception that becomes more and more context and people dependent.

Some could conceptualize some substantial changes happening within the luxury context. As such, optimized production capabilities and globalization change market dynamics, and expose luxury to a number of different positioning strategies. Relatedly, Burberry represents high-end couture through its signature Burberry Prorsum brand, additionally easy to wear style market has also been served with Burberry London line.

Economic abundance is enabled by economic growth and consequently individuals, regardless of the social segment they belong to, have become wealthier than at any other time in history (Benammar, 2008). Nevertheless, this growing economic abundance has led to inevitable inconsistencies. Among contradictions is the global luxury fashion industry contributes to countries' economic growth, yet it results in unavoidable environmental and social costs. Vintage, another paradigm, becomes more and more significant and it cherishes and acknowledges the craftsmanship, whereas the very idea of 'new' becomes a norm to express personalities (Black, 2012). First and foremost, the main inconsistency lies between production and consumption because today's consumers can, and actually do, buy more than what they need. While helping individuals express their personalities and cherish glamour, luxury fashion provokes quick cycle of seasonal changes through capsule items, cruise collections and/or celebrity endorsed limited editions.

Another shifting dynamic pertains to the number of new items in growingly larger collections showcased during the year. Luxury fashion brands launch an impressive number of items by which collections become wider and more frequent. This results in the percentage of carryover items that seems to be decreasing. Despite the growing number of product configurations, the demand is certainly unknown since customer demand is undoubtedly considered an erratic parameter in luxury fashion (Brun et al., 2017). To this end, estimating the expected target level becomes a predominant topic for designing the distribution chain.

Over the last three decades, luxury companies encounter serious changes in terms of industrial dynamics at SC and brand management levels. Such changes include (i) the integration of traditional marketing initiatives to logistics, production and relationship management (Ponticelli et al., 2013), (ii) increased international trade and foreign direct investment leading to widespread restructuring of manufacturing systems, (iii) commoditization as a crucial factor due to growing difficulty of luxury brands to make the products unique and to sell at higher prices (Riot et al., 2013), and (iv) a constant shift in the emphasis from product brands to corporate brands as a communicator of the corporate image.

In this vein, luxury should not be conceptualized as a set of attributes or characteristics, and coordination must be ensured amongst functional, experiential and symbolic dimensions of luxury (Sjostrom et al., 2016). To this end, knowing that SC strategy must be renewed to ensure competitive advantage (Robinson and Hsieh, 2016), there must be a correlation between back-end synergies, consisting of cost management and efficient resource utilization, and front-end synergies, consisting of the brand portfolio and the maximisation of internal control of company-owned or company-controlled production and distribution channels.

Increasing demands for product variety, changing fashion trends, shorter product life cycles, and fierce competition have altered traditional business models. A fine balance is needed amid internal and external features of the supply networks. Rather than one-size-fits-all approach, there is a need of an accurate implementation of SCM strategies, which shall not be excluded from the identification of context-specific variables (Ponticelli et al., 2013). For example, Tom Ford stopped Gucci's decline because of his version of the business model maximising internal controls pertaining to product sourcing, brand communication and distribution (Moore and Birtwistle, 2004). In the same vein, Louis Vuitton and Chanel adopted a concentrated strategy, which involves in-house sourcing and centralized distribution channels (Robinson and Hsieh, 2016).

In terms of the operational background, SCM is considered causally ambiguous and socially complex; and therefore, not easily imitable by the competitors (Gold et al., 2010). Prior research formulates that the right SC strategy contains SC configurations and SCM practices (Caniato et al., 2011). SC strategy also expects to be aligned with the critical success factors of the considered product and of the market (Brun et al., 2008), which is getting profoundly challenging because of today's rapidly changing luxury fashion dynamics.

Assumptions made over the luxury fashion industry, such as luxury fashion companies avoiding international networks, is too simple to enlighten the complexity of the decision-making. A perceived limited supply of products is believed to be advancing customer value. Such observations are also supported by other findings conveying the importance of uniqueness (Brun and Castelli, 2013). Thus, inherent scarcity and the exclusivity of prestige goods are expected to satisfy the need for uniqueness (Vigneron and Johnson, 1999), and unique characteristics need to be established to distinguish company offerings from their competitors (Bridson and Evans, 2004). However, global production settings and mass-customization policy reduce the exclusive features of luxury brands, their esthetical distinction and their singularity. Moreover, product characteristics entail different requirements; for example a gold bracelet require completely different operational settings in terms of materials, manufacturing process, packaging, delivery requirements compared to leather bags.

The concept of demand chain refers to the whole manufacturing and distribution process as a sequence of events with a goal of serving the ultimate customer (Childerhouse et al., 2002). Thus, an analysis of the direct relationship among brands, customers and suppliers subsequently becomes a prerequisite. To attain the competitive advantage so as to stay unique in this growingly complex

global phenomenon, SC processes must be executed very cautiously (Qi et al., 2017) to deliver an efficient tailored response (Riot et al., 2013) and to add value to the competitive strategy (Robinson and Hsieh, 2016).

What is frantic is the fact that not all luxury fashion companies are equipped to define a clear target and to plan their production as well as distribution channels. Recently, overproduction is considered a growing problem within the industry. Customer demand requires to be managed better to reduce overproduction and collectively to reduce the environmental as well as social impact. For example, forecast optimization, real time replenishment, virtual stock management and overproduction optimization emerge as potential techniques to implement in order for tackling the issue. Premium quality and excellence should be pursued throughout the entire luxury fashion chain; however, it is nearly impossible to formulate a winning strategy in today's global economic uncertainty and business complexity.

The changing issues surrounding luxury fashion SCs are multifaceted, and trade-offs keep on bringing up new issues. Albeit modernization bringing a number of benefits, SC execution is still uptight due to a number of economic and socio-political events, including production fragmentation, rising labour costs, demand unpredictability, supply network complexity, market instability, volatile commodity prices, geographical dispersion, economic crisis, time-based competition, and sustainability. Notwithstanding all advantages presented by today's digitalized environment, luxury fashion intensely contributes to environmental and social issues. As much as current practices are meant to have a structure where corporate behaviour would not be in conflict with natural resources and human rights. There is actually a conflict between sustainability objectives and commercial obligations of price competitiveness and responsiveness (de Brito et al., 2008; Perry et al., 2014).

In today's highly vibrant business environment, new ideas pertaining to materials to be used, manufacturing to be outsourced, and product development to be pursued dramatically increase. This causes significant shifts in fashion SCs (FSCs) by which more and more interdependent systems occur. A typical FSC, including luxury fashion, involves numerous processes, including inbound and outbound transportation management, inventory management, warehousing, sourcing and procurement, packaging, assembly, and customer service (Castelli and Brun, 2010) where material and information flow take place at both upstream and downstream levels to attain the competitive advantage.

Luxury fashion brands offer their quality and excellence based on rare and high-quality materials. Nevertheless, raw materials are acquired from nature-based systems that are constantly affected by climate change hazards such as droughts, biodiversity degradation and water scarcity, and social inequalities such as occupation losses and health and safety issues. Cotton is water intensive and its growing conditions are heavily affected by temperature and soil moisture. Luxury fashion is dependent on cotton, as it is one of the most widely utilized raw materials within the industry. However, water scarcity and drought already reduce cotton yields. Cashmere, on the other hand, is largely demanded by luxury fashion brands for a wide range of products. Yet, cashmere production depends on many factors, including water availability and temperature. Central Asia is where the majority of

cashmere is produced, but this very geography is where climate related conditions are expected to become more challenging. As such, the quality of cashmere fibre is expected to decline due to increased temperatures (Crowley et al., 2015).

Textiles SC operations are depicted in Figure 4 below which briefly description of each stage is given.

Source: Adopted from (Fashion Revolution, 2017)

Textiles SC

Italy is often associated with product excellence, high service levels, and country of origin credentials (Brun et al., 2008) and with distinctive strategies in terms of SC stages, including sourcing, production, sourcing and distribution (Caniato et al., 2011), all of which are highly critical in luxury fashion. In Italy, SMEs are very important for luxury fashion production, as textile manufacturing areas are mostly characterized by SMEs (Froud et al., 2017).

Textile manufacturing is based on the transformation of fibre into yarn, and yarn into fabric. These are subsequently dyed or printed and fabricated into garments. This section aims to briefly describe how the most relevant processes are held in textile SCs to better identify which activities are covered by sample companies.

Figure 4 Textiles SC and related production stages

1. Fibre production or collection: Textiles are made out of fibres, which are divided into two categories.

Natural fibres: Plant based fibres, including linen and cotton, and animal based fibres, including silk and wool. Natural fibres are the most commonly used fibres in luxury products. Pesticides, insecticides and fertilisers are largely used for plant-based fibres, while scouring chemicals are utilized for animal based fibres. Man-made fibres: Synthetic fibres, including polyester. The quality aspect of raw materials is prerequisite for luxury fashion products.

2. *Spinning*: Yarn is made through spinning raw fibres in order to produce long components. Spinning is one of the major parts of the textile industry. Spinning oils are often added to eliminate friction in the spinning process.

3. *Fabric production*: Fabric is a material made through knitting, weaving, spreading or other techniques that is used to produce further goods, such as garments.

4. *Dyeing*: This is a process of adding colour to textile products such as fibres, yarns and fabrics. Protein fibres, such as silk and wool, are dyed with acid dyes, while polyester yarn is dyed with disperse dyes. Cotton, on the other hand, can be dyed with a wide range of dyes. Dyeing can take place at different stages of textile production processes.

5. *Finishing Treatments*: After dyeing the fabric, finishing takes place to improve the look, performance and feel of the finished textile. On the whole, woven or knitted fabric is converted into a usable material.

6. *Garment Making*: Final processes, including cutting, sewing and other practices to finalize the garment. Label is attached onto this finished garment and becomes ready for the packaging phase.

7. *Packaging and Transport*: Finished and already prepared garments are packaged, and then are sent to distribution centres. Finally, garments are sent to the shops, unpacked and stored on the shop shelves.

Leather SC

Italy is a fundamental global sourcing centre for leather products. The Italian tanning industry is known to be the global leader, accounting for 11.6% of the global tannery sector, and 13% by value of all leather goods items exported globally (Conseil National du Cuir, 2017). Skin is the most common source for leather, and calfskin is mostly utilized in luxury products, including coats, gloves, wallets, belts, bags and surely footwear. Calfskin is preferred because of its soft and fine texture of which Europe dominates the international trade. Italy, in this vein, emerges as one of the main countries where calves are mostly raised and cultivated indoors.

Sheep leather is also valued in luxury products due to softness and stretchability. Since it is light, warm and delicate, luxury products often feature sheep leather that comes from all over the world and China emerges as the key producer, while developing countries in Asia and India, Spain, Turkey and Italy are also cited as major producers for sheep and goat leather (Crowley et al., 2015). Nevertheless, sheep is known to be sensitive to temperature extremes and humidity, and desertification, as a growing concern in Mediterranean countries, will likely to pose further hazards.

In addition, luxury products often feature exotic materials and fur. As such, the luxury accessories account for close to €57 billion, and exotic animal skins make up almost 10% of total luxury handbag sales (Renée, 2015), and the demand for exotic skins, including crocodile and snake increases, which represents significant risks for animal welfare.

Leather is a very peculiar material that encompasses a wide range of production processes. Leather production is a major industry for Italy as well as for the entire luxury fashion industry. Nevertheless, due to the heavy chemical use, extensive water use and air pollution as a consequence of the transformation processes, leather is acknowledged with its high environmental impact. As for the operations, leather is known to be a thirsty business since water is an essential element in leather processing. Almost 45 litre water per one kg of skin is utilized by tanneries to process finished leathers (Sundar et al., 2001). Figure 5, accordingly, briefly depicts how relevant processes are executed in leather SCs to better understand the activities performed by sample companies.

Figure 5 Leather SC and related production stages

1. Beamhouse Operations: Animal skin is obtained from slaughterhouses, farms or fur traders. Initially, hides are cured with salt. Curing is a measure to prevent putrefaction of the proteins from bacterial growth. Curing also removes water from the hides and the skins. Process following curing is referred as beamhouse operations. Mechanical and chemical stages, including soaking, liming, and unnecessary tissues removals are performed to prepare hides and skins for the tannery process.

2. *Tannery*: Tannery is where the skins are processed following many chemical and mechanical steps. Tanning is the process to treat skins in order to produce leather. Main tanning processes pertain to chrome tanning, vegetable tanning and natural tanning.

3. *Re-tannery and dyeing*: Re-tannery and dyeing stage is vital to earn leather its aesthetical characteristics. Depending on the product typology, there exist many processes to be implemented in order to reach desired product characteristics and/or performance levels.

4. *Finishing*: Tanned, dyed and dried leather can be further processed. Processes implemented at this stage aim to provide leather with its aesthetic and purposeful characteristics. Subsequent to this stage, leather is finally ready for the assembly.

5. *Assembly*: Pieces are assembled and final leather products are obtained. Within the scope of this study, leather shoes are specifically investigated. Hence, the main components of a leather shoe involve heel, sole and wedge.

6. *Packaging and Transport*: Finished leather shoes are packaged, and then are sent to distribution centres. Finally, shoes are sent to the shops, unpacked and stored on the shop shelves.

An aura around brands was relatedly created to rejuvenate the luxury. For example, 'Haute couture' was associated with exclusivity, uniqueness and premium quality. Heritage and quality could even leverage the fight against global warming, dwindling natural resources, and pollution (Joy et al., 2012). Yet, the democratization of luxury resulted in mass luxury in which luxury brands have extended themselves to more affordable offerings (Cristini et al., 2017). A contradiction thus emerged in terms of luxury whose notion can be considered neither too high-class nor too approachable. The increase in fashion production has certainly come with its own cost. Pertaining to economical sustainability, the delocalisation of production to the Far East and/or Eastern Europe has capsized the economic growth of the fashion and apparel industry in Europe. In terms of environmental sustainability, biodiversity (EFBA, 2010), featuring fur and precious skin as well as exotic materials, intense chemicals and water use (Aiama et al., 2016; WWF, 2014), and carbon footprint (Carbon Trust, 2011a, 2011b) leave significant footprints.

As for the social sustainability, ethical principles and labour conditions are often exploited in luxury fashion companies' supplier facilities (Clean Clothes Campaign, 2015a, 2015b). On the whole, sustainability challenges appear to be concerning the connection of the fashion industry with multiple levels of human activity (Fletcher, 2008). The shift from physical to intangible yet ethical aspects is visible (Joy et al., 2012; Shen et al., 2012). Luxury fashion companies are thus required to move beyond the 'low hanging fruit' philosophy in which there exist only basic practices; and therefore are required to promote a more authentic consideration of quality, style and success while respecting one another and the planet (Bendell and Kleanthous, 2007).

Given that today's market settings have enabled technical reproduction as well as customization, one could appropriately interrogate to what extent commercial drivers have sacrificed the heritage and/or to what extent the chief executive officers are willing to transform creativity into profitability.

Therefore, it would be thought provoking to cross-examine how to utilize luxury fashion as a tool to convey the values of diverse societies from past to present, and to see how it could indeed contribute to the phenomena such as democracy, social harmony and sustainability in today's complex luxury arena.

2.4. LUXURY FASHION AND SUSTAINABLE SCM

2.4.1. Sustainability and Luxury: Are They Contradictory?

Luxury personal goods were designed to be timeless and unique. Luxury was known to be iconic, lasting, inspirational and even sustainable. Luxury production led to less resource consumption while simultaneously sought authenticity, superior quality and durability. However, brand extensions and rapidly growing number of items out of ever increasing fashion collections might have made the pace quicker, and might have forced the global fashion industry to shorten the lead times to promptly respond to changing consumer demands. As hitherto addressed, consumers everywhere at every income level want more luxury, and accordingly luxury is originated from more resources in terms of design and production and is distributed all over the world (Brun et al., 2008).

What once was limited has become widely exposed. Consequently, luxury fashion companies started outsourcing and restructuring their SC configurations (Brun and Castelli, 2008) to remain competitive in a context where the interaction of multiple actors has become increasingly critical (Caniato et al., 2009). Shifting industrial dynamics in addition to resource scarcity jeopardize creativity, quality, authenticity and inevitably sustainability. During the favourable economic situation of the 1990s, individuals as well as companies were reluctant to appropriately respond to concerns over environmental aspects, for example energy (Glover et al., 2014). Though, today's uncertain global, political and business circumstances call out a renewed focus for sustainability.

In this setting, Brun & Castelli (2013) revisit the set of critical success factors to compete in the luxury market and suggest that the list must be extended with recent market trends about ethical aspects. The greatest cultural shift of the 21st century shows a rise in the concerns over social and environmental problems (Bendell and Kleanthous, 2007). Consequently, luxury fashion companies are requested to further embark on environmental and ethical principles. This raises the relevance of multi-tier suppliers and therefore, a more sustainable approach to SCM expects to be assured through an explicit integration of environmental and social objectives in contrast to traditional fashion SCM logic. Remembering that what a luxury brand does today will be a part of its heritage within upcoming decades, sustainability actions must be acknowledged as equally important as brand heritage despite all possible organizational as well as operational challenges.

2.4.2. Sustainability in Luxury Fashion Supply Chains

Sustainability in fashion is not a novel movement. Indeed, eco-trend reached a peak position in the 1990s, as individuals were enthusiastic to permanently change fashion through everlasting and resilient items. Environmental friendly collections designed those days mostly focused on materials, e.g. unbleached cotton.

Eco-fashion products such as trench coats and classic shirts were quite minimalist, clean, but not very aesthetic. Obviously, one of the main features of fashion, which is the power of change, was underestimated (Teunissen, 2008).

The majority of consumers still associates environmental friendly products with undyed, unbleached or shapeless items (Jensen and Dahl, 2008). This brings a great challenge of making fabrics and producing garments looking glamorous, fashionable, sexy and conventional. As British designer Stella McCartney addresses *'the important thing is to create beautiful luxurious things. Having people not notice that something is organic or faux leather could be considered one of the biggest challenges'*. Aesthetic, product quality, uniqueness along with ethical and environmental principles must be ensured in luxury. Unsurprisingly, translating these codes into sustainable global operations becomes critical and calls out instant reaction.

Luxury fashion companies have been criticized for their unsatisfying efforts to produce an ethical SC (Cervellon and Wernerfelt, 2012). One of the longest running criticisms of the luxury pertains to the use of animal products, featuring fur and skins (Bendell and Kleanthous, 2007). To this end, traditional fashion houses are growingly required to engage in sustainability integration, which need to be ensured not only inside the company but also across the supply networks. As Pagell and Wu (2009) previously address, truly sustainable SCs might not exist. To illustrate, sustainability integration could have some limitations. For example, a sophisticated SC control system could be hard to achieve due to difficulties in integrating SC information system with environmental performance indicators (Miemczyk et al., 2016).

Also, it might be difficult to find sustainable partners in the network. Prior research stresses that having a broad integrated approach to inspect interactions among economic, social and environmental dimensions is better than employing deep, yet disconnected expertise in one dimension (Varsei et al., 2014). It is pivotal to retain that sustainability can only be secured with a joint effort. A collaborative effort is simply longed to create consistent and holistic approaches rather than a set of simplistic green practices. That is, SC actors who design, produce, distribute, promote and consume should be components of a larger conversation to the end of sustainable luxury.

Tachizawa and Wong (2014) address that the most critical social and environmental issues in SCs are generated by suppliers located in the second tier or further upstream. Nevertheless, unfortunately, many small and medium sized suppliers still have difficulties to meet their customers' social and environmental standards due to lack of human resource expertise and limited financial resources (Lee and Klassen, 2008). Furthermore, the fashion companies' requirements for flexibility negatively affect their suppliers' ability to plan the demands sensibly. To illustrate, Laura Ashley asked their suppliers a 10 per cent discount on cost price with immediate affect; and, similarly, Monsoon Accessorize requested a 4 per cent discount from their suppliers

(Perry et al., 2014). Consequently, coping with ethical standards become more and more challenging for upstream SC actors under the light of strict commercial pressures. The rise of these multifaceted interactions could cause reduced visibility and control over sustainability.

Luxury goods companies' purchasing power and technical capabilities emerge as critical yet needed aspects to spread sustainable behaviours, and to prevent risks of sustainability failure across supply networks. All in all, commerciality should meet sustainability. Fashion is a constantly changing process, but this process must be placed in the context of sustainability, social development, ethical considerations, and their influence on consumer behaviour (Drew and Sinclair, 2015).

Undoubtedly, financial restrictions, SC complexity and commercial pressures hinder companies from tracing sustainability performance, and monitoring raw material origins; however interactions with suppliers and sub-contractors located not only in developing but also in developed countries must be firmly established. The lack of an integrated approach could limit the impact of a company's sustainability efforts, its ability to thrive in the future and its opportunities to address today's problems (Mosher and Smith, 2015).

Even though, the number of fashion companies sharing details on sustainability in publicly available reports has increased over the last decade; substantial doubt is cast on the extent to which many of these sustainability reports precisely and entirely portray corporate social and environmental impacts (Roca and Searcy, 2012). Disclosing fully transparent information on topics, including governance, intangible assets, non-financial issues, and sustainability performance, is vital because this information becomes publicly available. Yet, most of these reports do not shed light into their upstream suppliers' sustainability performance and there is a lack of consensus due to unsuitable definition of the variables.

The indecisive outcomes and global market diversity require amplification in terms of the relationship between sustainability performance, disclosure and specific measures for the industry. So that there is a wonder in what sustainability management must constitute and how it should be structured. Although many luxury, fashion, and textile companies claim that sustainability is embedded in corporate DNA, sustainability in luxury fashion SCM remains depicting a vague picture, which is distinct from the core business strategy. That is to say, it is time to interrogate why sustainability in luxury fashion matters. The following section invites the reader to take a closer look at the real cost of luxury fashion. Is luxury fashion vogue or is it simply vague due to proportional negative impact generated on the environment as well as on the societies? The forthcoming section aims to justify the extent to which sustainability is needed in luxury fashion operations more than ever.

2.4.3. The Real Cost of Luxury Fashion: *Environmental and Social Impact*

The Multifibre Arrangement (MFA), which preceded the World Trade Organization Agreement on Textiles and Clothing (ATC) governed trade in textiles and clothing by delivering a framework for restrictions limiting imports to developed countries. Under the MFA, the quotas essentially affected the production and trade of textiles and

clothing in many ways (The World Bank, 2007). In 2005, the ATC expired and the quotas that used to shape the global apparel trade were removed. Afterwards, the fashion and textile industry has become a global force with constant global production and distribution.

Among the consequences of this global force is the environmental impact. That is, the fashion and textile industry has become one of the most polluting industries in the world (Diabat et al., 2014; Resta et al., 2014). Life cycle of a fashion product is associated with major impacts. To illustrate, water consumed by the fashion industry accounts for almost 79 billion cubic meters, and it is expected to grow by 50% by 2030 (Global Fashion Agenda and Boston Consulting Group, 2017). For example, one ton of fabric pollutes as much as 200 tonnes of water (Nagurney & Yu, 2012). Cotton production accounts for more than 10% of all synthetic pesticides and for between 20 and 25% insecticides applied globally every year (Achabou and Dekhili, 2013). Comparably, producing 60 million tonnes of textile requires 132 million metric tonnes of coal (Ecotextiles, 2011). Furthermore, energy inputs in polyester production are about 125 mega joules per one kg of fibre, and more than two-thirds (70%) of the total emissions associated with polyester products appear at the production phase (Balch and Idle, 2016).

Dyeing process also generates a significant amount of toxic emissions. Particularly, wet processing of natural fabrics and the production processes are water, energy and pollution intensive (Lo et al., 2012). According to the International Union for the Conservation of Nature (2016), an estimated 17 to 20% of industrial water pollution comes from textile dyeing, and an anticipated amount of 8.000 synthetic chemicals are utilized to turn raw materials into textiles. Additionally, logistic activities are leaving a considerable footprint behind. Fashion industry is responsible for 30% of global greenhouse gas (GHG) emissions (Bozhkova, 2016) and carbon dioxide, generated by burning fossil fuels in vehicles is the most significant GHG emitted by the fashion retailers (McKinnon and Edwards, 2014).

Social consequences are equally important at the present time. The International Labour Office acknowledges fashion as one of the most labour-intensive industries (ILO, 2016). 75 million individuals work in fashion SCs, and 80% of them are women between the ages of 18-24 (Fashion Revolution, 2017). Nonetheless, it is still questionable whether and to what extent the industry could transform fashion into an expression of a conscious way of life and of a responsible personality.

The competition with Eastern Europe and Asia emerges as a barrier that is pulling wages down in Italy. The wage of a factory worker, at the entry level, is not expected to exceed €1200 per month. In Veneto region in Italy, for example, trainees are allegedly paid €730 a month, whilst home-based workers receive about 850 euros, which is below the amount required to survive with dignity within the country (Clean Clothes Campaign, 2015a). What follows the problem is the emergence of the illegal industry as a response to price competition. Investigations show that some subcontracting firms employ workers at lower prices on contracts in which the workers are contracted to work long hours just to remain employed.

In this vein, Italy where luxury fashion is profoundly acknowledged emerges as a peculiar case. 'Made in Italy' brand has been used since the 1980s to specify the global uniqueness of Italy in four traditional industries, including fashion, food, furniture

and mechanical engineering all of which is associated with quality, high specialization and specific districts connected to the concept of luxury. Italian law regulates and protects Made in Italy since 2009, and to this end, it indicates that the product that can be called 'Made in Italy' must be all planned, produced and packed in Italy (Parlamento Italiano, 2009). Notwithstanding the strict law, to what extent luxury brands are accurate about their claims and about their attached labels requires longer discussions and contemplation.

In June 2017, the Kering group was accused of misleadingly labelling sunglasses with 'Made in Italy' label when they were actually partially or wholly made elsewhere (Conlon, 2017). This incident followed another high-end scandal associated with 'Made in Italy' brand exploit. Louis Vuitton claims that embodiment on its shoes takes place in its Venice atelier where the best fine shoe craftsmanship exists. However, it was revealed that many of the shoes and the boots that are sold for between €750 and €2000 and stamped as 'Made in Italy' were actually made in Transylvania (Lembke, 2017).

Another very questionable example marked the name of another Italian label, Gucci. Italian luxury house was caught in a television scandal indicating that the company's Chinese employees worked long and difficult hours for little pay (FashionUnited, 2014). The recorded film was featured a conversation about the cost-saving strategy that resulted making bags that were sold to Gucci for €24 and that were sold at retail for €1.100.

Yet another very critical social scandal associated with luxury fashion pertains to hazardous chemical use. In the EU, there are restrictions on certain uses of nonylphenol ethoxylates (NPEs) by industry since 2005. Nevertheless, one investigation tested 27 children's products that were manufactured by eight major luxury brands, and results show that 16 of these 27 products tested positive for one or more of hazardous chemicals, which confirm that hazardous chemicals were present in luxury textile and leather products as a result of their use during manufacture (Greenpeace, 2014). Seven out of the 12 luxury children's products contaminated with NPE are labelled 'Made in Italy'. Such examples underline that luxury fashion comes with an unspeakable price tag for environmental and social aspects. With a driven focus toward SSCM in luxury fashion, which is dependent on highly peculiar raw materials and human skill base, this study focuses on two significant SCs producing luxury textile and leather products. The next section further elaborates on why focusing on these two SCs are of theoretical as well as practical interest.

3. RESEARCH DESIGN

3.1. RESEARCH OBJECTIVES

Knowledge gaps that emerged from a review of prior research can be summarized below. Despite a remarkable progress made in the buyer-supplier relationship studies over the past decades (Wu and Choi, 2005), a broader chain perspective is needed. The most critical environmental and social issues in SCs are generated by suppliers located in the second tier or further upstream (Lee and Klassen, 2008; Tachizawa and Wong, 2014), therefore smaller companies must be considered to study the phenomenon. Along that line, better information quality is required and measurement ought to go closer to where real impacts are actually caused within SCs (Beske-Janssen et al., 2015).

It is still not clear which stakeholders in SC decision-making could affect the principles of accountability for materiality, reliability, accuracy and completeness (Gualandris et al., 2015), and/or how environmental pressure could be transferred to encourage environmental change at further upstream levels (Lee et al., 2014), and/or how a potentially ideal profile of sustainability collaboration could be drawn throughout the chain rather than only manufacturing firms (Blome et al., 2014), and/or how sustainability practices will translate to second movers or to an entire industry (Pagell and Wu, 2009).

Furthermore, as previously addressed, prior research provided important outcomes in terms of environmental sustainability in SCM (Caniato et al., 2012; Laari et al., 2017; Lee and Klassen, 2008; Vachon and Klassen, 2006; Wu and Pagell, 2011; Zhu and Cote, 2004). Social sustainability performance, on the other hand, is difficult to assess due to the fact that social indicators might not be easily quantified and are often prone to subjectivity (Beske-Janssen et al., 2015); nonetheless social sustainability needs to be integrated into highly complex supply networks. There exists evidence of increasing focus on social aspects, including social responsibility and consumer trust (Castaldo et al., 2008), sustainability reporting (Lozano and Huisingh, 2011), sustainable supply management (Ageron et al., 2012), and supplier selection problems (Jia et al., 2015), yet social aspects require further investigation (Karaosman et al., 2016; Köksal et al., 2017; Yawar and Seuring, 2017).

Regarding the factors that influence sustainability in SCM, a deeper focus is needed to explore what could enable SSCM at each actor level (Köksal et al., 2017) and to understand antecedents of social sustainability (Marshall, McCarthy, McGrath, et al., 2015). In this sense, which barriers challenge companies in terms of sustainability integration (Meqdadi et al., 2015), or which are the antecedents and the factors pertaining to governance and SSCM behaviours (Carbone et al., 2012) are still some of the unanswered questions.

A review of prior research calls for more real-world examples in terms of practitioners' understanding to further interpret the concept of sustainability in SCM (Busse et al., 2016). SSCM practices could shorten supply pipeline, build an agile supply channel, lower cost in supplier management, and consequently SC could react to market changes with less waste in inventory. Nevertheless, extensions are

required in the literature by involving some additional dimensions to build a theoretical framework (Dubey et al., 2017).

Additionally, the adoption of some of the practices could be limited due to existence of some contingencies (Pagell and Wu, 2009), and in-depth evaluations within numerous industries might be necessary (Stindt, 2017). Future research is therefore required to focus on a variety of company and industry specific investigations (Laari et al., 2017).

Lastly, research of SSCM has been mostly conducted in manufacturing industries. Yet, the industrial breakdown indicates that studies on clothing, fashion, textile and cotton industry are not well investigated (Ansari and Kant, 2017). Further, there is a lack of academic research regarding sustainability in luxury fashion SCs in comparison to mid-market fashion SCs (Towers et al., 2013). Sustainable fashion management studies must go beyond single company studies (Ho and Choi, 2012) or beyond those conducted based on secondary resources (Turker and Altuntas, 2014; Yang et al., 2017) since there exists a need to explore the connections amongst product design, production processes and SC stages through a multidisciplinary approach (Curwen et al., 2013b).

By taking into account all aforementioned knowledge gaps, this study aims at investigating environmental and social sustainability integration at product, process and SC stages within luxury fashion SCM. Explicitly, the first objective of this study is to provide a classification framework of sustainability practices implemented in fashion operations. Subsequently, it aims at exploring sustainability integration within luxury fashion through case study research conducted within 10 companies operating in luxury textiles and leather SCs in Italy. Furthermore, the current study aspires to uncover barriers and enablers of SSCM and to explore how such factors influence sustainability implementation. Along that line, critical issues in sustainability within luxury fashion SCs are to be explored in order to provide implications and advance SSCM in the luxury fashion industry.

Objective 1: To develop taxonomy for sustainability in fashion operations

RQ1: Which are the environmental and social sustainability practices implemented in fashion operations and reported in the managerial literature?

Objective 2: To explore sustainability integration in luxury fashion SCs

RQ2.1: How does a 'Luxury Textiles SC' integrate environmental and social sustainability?

RQ2.2: How does a 'Luxury Leather SC' integrate environmental and social sustainability?

Objective 3: To uncover barriers and enablers impacting sustainability in luxury fashion SCs

RQ3a.1: How do barriers (internal and external) influence sustainability implementation in the 'Luxury Textiles SC'?

RQ3a.2: How do barriers (internal and external) influence sustainability implementation in the 'Luxury Leather SC'?

RQ3b.1: How do enablers (internal and external) influence sustainability implementation in the 'Luxury Textiles SC'?

RQ3b.2: How do enablers (internal and external) influence sustainability implementation in the 'Luxury Leather SC'?

Objective 4: To identify critical issues in sustainability in luxury fashion SCs

RQ4a: Which are the critical issues in sustainability in luxury fashion SCs?

RQ4b: How do such issues influence sustainability in luxury fashion SCs?

Objective 5: To provide implications for SSCM in the luxury fashion industry

RQ5: How can SSCM be advanced in the luxury fashion industry?

3.2. RESEARCH FRAMEWORK

This study proposes to conceptualise SCM practices alongside a resource-based view perspective rather than pursuing a relational logic. This study attempts to provide insights to be used for research into SSCM and to enable practitioners to develop and deploy environmental and social sustainable SC practices. In accordance with the three dimensional concurrent engineering framework (3DCE), this study systematically investigates social and environmental sustainability at product, process and SC levels at luxury fashion operations. The foci behind the utilization of 3DCE could be explained due to its conceptual benefits in terms of sustainability (Ellram et al., 2007). Pal and Torstensson (2011) already address that most of the critical success factors could be synthesized and maintained throughout these three dimensions, that is, a simultaneous design of product, process and SC levels. Furthermore, decomposing practices into product-oriented, process-oriented and SC-oriented practices could help better conceptualise SC sustainability without using a relational component.

To this end, Figure 6 displays the research framework adopted within this study in order to answer research questions and to pursue specific research objectives. Pursuant with the aim of exploring what creating environmentally and socially sustainable SCs entails to be more than less unsustainable, this study followed what Figure 6 showcases.

4. RESEARCH METHODOLOGY

In accordance with research questions formulated based on knowledge gaps emerging from the review of prior research, this study aimed exploration and interpretation. First research question was responded with the utilisation of secondary data. To this end, a systematic literature review was conducted to develop a classification framework. Subsequently, a qualitative multiple case study was conducted, pursuing purposive sampling to select a total number of 10 companies in two Italian luxury fashion SCs for textile garments and leather shoes to identify the extent to which sustainability is implemented in luxury fashion SCM. This section details the techniques used within this study in order to pursue above mentioned research objectives.

4.1. RESEARCH DESIGN AND METHODS

4.1.1. Systematic Literature Review

The first objective of this study was to build a taxonomy based on previous research where the findings of prior conceptualization at the intersection of sustainability and fashion operations were identified. First and foremost, taxonomy development requires a systematic approach to the literature analysis. A systematic literature review was specifically performed in order for developing taxonomy by minimizing bias with respect to the inclusion or exclusion of studies and by clearly channelling how and to what extent the review was performed in accordance with transparency and reliability. The key steps for a systematic review, as described in detail by Johnsen et al. (2016), consisted of planning the review, conducting the review, and reporting the findings. This systematic review employing a transparent four-step process is shown in Figure 7.

Figure 7 The Steps Taken for The Systematic Literature Review

How the filtering approach was deployed is vital to explain. Accordingly, inclusion and exclusion criteria were set. Only peer-reviewed journal articles were included in the search toward building the taxonomy. This decision was made because peer-reviewed journals are considered the most common forum in which

researchers publish their results. Further, since sustainability in fashion operations is a relatively new yet a rapidly growing area, not only did the review cover empirical studies but it also included conceptual and review papers. This secured that research articles were not discounted based on a particular methodology as long as they were relevant from a management perspective.

Nonetheless, newspapers, conference papers, textbooks and unpublished papers were excluded from the theoretical taxonomy, as it was contemplated that relevant content potentially coming from such resources could be likely seen as a pre-cursor in academic papers. On the whole, the review focused on the core of academic research and it emerged as a relevant state-of-the-art investigation, which is also applicable to strategic industry features. In order to perform the initial search of relevant articles, the Scopus database (producer: Elsevier, Amsterdam, Netherlands) of peer-reviewed literature was chosen. Scopus, possessing an extensive international coverage and allowing researchers to capture a wide range of relevant publications, is widely used in prior systematic review studies (Klewitz and Hansen, 2014; Nuhoff-Isakhanyan et al., 2016; Tourais and Videira, 2016).

A combination of keywords was strategically defined. Keyword identification, though, was a challenging process and the study aimed to detect and capture all relevant articles conducted for the fashion industry in the domain of operations and SC management, and sustainability. The analysis focused on the most recent studies, as it was attempted to create theoretical constructs in accordance with state-of-the-art results. Hence, a start date was identified as 2006 and papers were tracked until 2016. Furthermore, a test run was conducted and it was seen that with an extended time span the total number of research articles from the second and particularly third steps were observed dramatically dropping. This can articulate that operations management and sustainability in the fashion industry received more attention following 2010.

Subsequently, searched items were addressed as follows: (fashion industry) AND (product OR process OR supply chain), and were carefully inspected in titles, abstracts and keywords. The method of driving a careful focus on titles, abstracts and keywords guaranteed that all relevant articles were included. Following the keyword identification, Step 1 resulted in 232 research articles. Sustainability was not included among the keywords because sustainability has been a multifaceted topic in which there exist many synonyms indicating the notion "being sustainable".

That is to say, at some contributions the focus was on ethical aspects, while some other studies solely focus on ecological dimensions of sustainability. For instance, an alternative search was attempted and sustainability was duly inserted along with other search items. Nonetheless, (fashion industry) AND (process OR product OR supply chain) AND (sustainability) brought only less than 30 journal articles. This number must be perceived rather sceptically, and to overcome any sort of underestimation, this study opted to look for the synonyms of sustainability—encompassing a wide range of possible combinations amongst eco, ethical, environmental, CSR, social, socio—by dedicating a comprehensive reading process. This approach ensured the coverage of all type of studies, featuring the ones focusing on only one facet of sustainability (e.g., CSR or eco-innovation would not

have appeared in the database unless they had been specifically retrieved in the main text).

Step 1 resulted in 232 research articles was followed by a filtering process at Step 2. The initial list of 232 articles was reduced by examining the abstract and full text for relevance to fashion operations, and by deselecting those focusing on rather marketing, branding and consumers than organizational facets. This step ended up with 147 full texts with relevance to fashion operations. Afterwards, in Step 3, all remaining papers were filtered according to their relevance to sustainability. In order to create a clearer taxonomy of how the field has been structured in terms of sustainability, the analysis was performed by searching through each paper to decide whether there existed any considerate declarations pertaining to any sort of environmental and/or social sustainability practices/programs/tools integrated into fashion operations within any of the 3DCE levels. This left assured that any relevant information with respect to social and/or environmental sustainability had not been missed from the publications.

Accordingly, the review resulted in the construction of a theoretical database encompassing 38 research articles that indeed focused on sustainability integration in fashion operations. All types of social and environmental sustainability practices implemented in fashion operations were duly identified and then categorized in Step 4, leading to the foundation of the theoretical taxonomy of this study.

The taxonomy was developed by carefully analysing prior conceptualizations. Precisely, (i) sustainability practices implemented in fashion operations and previously identified in managerial literature were recognized, (ii) the practices were categorized based on their applicability into the 3DCE stages, and (iii) specific category and aspects to which the certain practice pertained were highlighted. Individual practices were assigned to categories and aspects following the Global Reporting Initiative (GRI) G4 Sustainability Reporting Guidelines and the UN Global Compact's Ten Principles. The bias was reduced by asking three independent researchers to review the taxonomy, and highlight any necessary adjustments required. The creation of theoretical constructs and distribution of sustainability practices into specific aspects provided an applicable taxonomy, which was evaluated with empirical data coming from case studies conducted with companies operating in luxury fashion SCs.

4.1.2. A Qualitative Multiple Case Study

Qualitative research was distinguished from quantitative research on the basis of entirely different philosophical beliefs, as elaborated at the beginning of this section. Additionally, the basis of the type of evidence could also emerge as a decisive parameter. To this end, it is important to differentiate various research strategies based on the classification of the question type being asked. That is to say, case study emerges as the favoured strategy when how and why questions are asked whilst the focus is on a contemporary phenomenon in real-life context and the investigator has little control over events (Yin, 1994).

Given that the essence of this research is to explore and enlighten a set of decisions in terms of how they were taken and how they were implemented, case

study strategy was acknowledged to be suitable in order to deal with operational connections in need of being traced over time rather than ordinary frequencies.

The case study contains an inclusive method with the logic of design encompassing specific approaches to data collection and to data analysis. In this sense, this research adopted the case study as a comprehensive strategy to cope with the situation where more variables of interest than data points existed, while relying on multiple sources of evidence and benefiting from earlier research and theoretical propositions to guide data collection and analysis. A care was taken during this research to meet three conditions required to use a case study strategy, as outlined by Yin (1994).

Consequently, (i) this research posed the research questions in the form of how, (ii) the extent of control the researcher had over actual behavioural event was not required, and (iii) the focus was established on contemporary events. All in all, case study was conceptualized as an empirical inquiry, investigating the contemporary phenomenon within its real life context, especially when the boundaries between phenomenon and context were not evidently clear, and accordingly, this research attempted to cover contextual conditions that were believed to be relevant to the phenomenon under investigation.

A research design was created as an action plan to get from the initial set of questions to the answers, in other terms to go from here to there. The extant literature was extensively reviewed to define the case and the unit of analysis. Earlier studies were utilized as a guide to define the case and unit of analysis. Specifying the research questions led to the selection of the appropriate unit of analysis, which was defined as a supply chain operating in the luxury fashion context. The unit of analysis thus aimed to be related to the way the initial research questions were formulated. To illustrate, the research design indicated which data were to be collected by specifying (i) the research questions, (ii) the purpose and (iii) the unit of analysis. The research design also indicated (iv) the logic to link the data to the questions and (v) the criteria for the findings' interpretation.

While the research design aimed to logically link the data to be collected to the research questions, the research team tried to maximize the quality aspects of the research design. To this end, following the footsteps of Yin (1994), four widely used tests and the recommended tactics were largely consulted with a goal of establishing the quality of the empirical data.

Table 2 Criteria to Judge the Quality

Test	Case Study Tactic	Phase	Purpose
Construct validity	- Multiple sources of evidence were used	- Data collection	Accurate operational
	- Chain of evidence was established, that is, links were created between the	- Data collection	measures to the concepts were established

	questions asked, the data collected and the conclusions reached		
Internal validity	<ul style="list-style-type: none"> - Pattern matching was made - Explanations were addressed 	<ul style="list-style-type: none"> - Data analysis - Data analysis 	Relationship and connections were shown
External validity	<ul style="list-style-type: none"> - Replication logic tried to be employed in multiple case studies 	<ul style="list-style-type: none"> - Research design 	The domain was established to which this research's findings could be generalized
Reliability	<ul style="list-style-type: none"> - Case study protocol was made - Case study database was developed 	<ul style="list-style-type: none"> - Data collection - Data collection 	To demonstrate the operations of this research could be repeated and the same results could be generated

Source: Adopted from Yin (1994)

Case study research was long criticized due to a poor basis of generalizations. However, sample in a case study design does not indicate a larger universe. Case studies rely on analytical generalization not statistical one and through analytical generalization, the research aims to generalize a particular set of results to some broader theory. This implies that theory should be tested through replications of the findings and each time the theory specifies that the same results should occur. Once replications are made, the results may be accepted for a much larger number of similar neighbourhoods.

The case studies, throughout this research, were aimed to cover both the phenomenon and the context, resulting in a number of potential variables. The general aim was to establish as many operational steps as possible and to conduct research to enable another investigator to arrive at the same findings and conclusions by following the same procedure.

Figure 8 Case study method figure - Source: Yin (1994)

As depicted in Figure 8, the initial step considered in study design was theory development followed by case selection and definition of specific measures for data collection process. Each individual case study was then approached as a standalone study where convergent evidence was sought with respect to the facts and conclusions for the case. For each case, it was important to indicate how and why particular research objectives were demonstrated, allowing the multiple-case study results to become the focus of a comprehensive summary account.

The Pilot Study

A pilot case study was conducted with one Italian shoe manufacturer in April 2015 and the pilot revealed inadequacies in terms of the study design. Subsequently, without changing the purpose and the overarching objectives, the research design was further articulated, the pilot case was not considered in the final sample and new cases were identified.

The pilot case study was chosen because the informants at the pilot site were accessible and geographic proximity was convenient. The pilot case helped the research team improve data collection plans in terms of both the content of the data and the procedures to be pursued. The pilot test was not a pre-set, rather it was a real setting, which clearly helped in developing further conceptual clarification for a better design.

What appeared after the pilot study is that the questions were broad and the ultimate data collection plan would require a more focused approach. The research team also improved own skills to ask good questions, better interpret the answers and better listen without being trapped by own preconceptions.

4.2. SAMPLING

Purposive sampling was adopted to determine a total number of ten companies within two Italian luxury supply chains producing textile garments and leather shoes. Sample encompassed brand owners, garment producers and raw material processors all of which located in Italy.

Focusing on a single country and one industrial sector enabled to control variances in terms of processes and materials that would not be feasible within cross-industry settings (Winter and Lasch, 2016). The research design followed previous studies conducted in SSCM literature (Caniato et al., 2012; Carrigan et al., 2017; Pagell and Wu, 2009; Wu and Pagell, 2011) and pursued the principles defined by (Yin, 2009). Table 3 presents the sample company characteristics representing the Luxury Textiles SC. Table 4, on the other hand, presents the sample company characteristics representing the Luxury Leather SC.

Table 3 Sample Characteristics – Textiles Supply Chain

Company	Product Category	Activities Covered in the Chain	No of Employees	Interviewee Profile	Interview Duration
Textiles 1 (Brand owner)	Cotton, silk, wool	Design: In-house Production: Purchase yarn (and fabric) then produce fabric, manufacture the garment, package the finished products, and transport to stores Stage: 3, 4, 5, 6, 7	<5000	- Head of global operations - Project intern	2 hours
Textiles 2 (Accessory manufacturer)	Silk	Purchase fabric then implement finishing treatments, manufacture the product, package and transport Stage: 5, 6, 7	<100	- CEO	1 hour 35 minutes
Textiles 3 (Fabric producer and garment manufacturer)	Cotton, wool	Purchase yarn, employ knitting and finish the fabric, subsequent to quality control deploy finishing treatments and manufacture the garment, package and transport Stage: 3, 5, 6, 7	<100	- Founder	1 hour 10 minutes
Textiles 4 (Fabric producer and garment manufacturer)	Wool, silk, cotton	Acquire yarn (and in some cases fabric) and weave to produce fabric, manufacture garment and package then transport Stage: 3, 6, 7	<50	- Founder	1 hour

Textiles 5 (Fabric producer)	Silk	Buy yarn then produce fabric, send finished fabrics to clients Stage: 3	<50	- Production manager	1 hour
Textiles 6 (Textile processor)	Silk, wool	Fabric comes and dyeing, printing and finishing treatments take place Stage: 4, 5	<100	- Director	1 hour

Table 4 Sample Characteristics – Leather Supply Chain

Company	Product Category	Activities Covered in the Chain	No of Employees	Interviewee Profile	Interview Duration
Leather 1 (Brand owner)	Leather goods	Design: In house Production: Entirely outsourced Retail: Already finished products are packaged and transported to stores Stage: 6	>250	- Quality manager (leather goods) - Quality manager (ready to wear)	1 hour 20 minutes
Leather 2 (Brand owner)	Leather goods	Design: In house Production: From tanning processes to final product Retail: Finished products are packaged and transported to stores Stage: 3, 4, 5, 6	>1000	- Planning and distribution manager - Sustainability officer	1 hour 40 minutes
Leather 3 (Leather processor)	Leather shoes	Production: Re-tanning and dyeing, and finishing processes Stage: 3, 4	<200	- Production manager	1 hour
Leather 4 (Brand owner and OEM)	Leather shoes	Design: In house & client base Production: Buy finished leather and assembly the final product as well as packaging and transport Stage: 5, 6	<50	- CEO	1 hour 10 minutes

Italy emerges as a peculiar case to study social sustainability, for example working conditions and the 'Made In' label. It is the only member in the EU15 to run a trade surplus in apparel, and in 2010 it was globally the third largest apparel exporter following China and Mexico (Froud et al., 2017). In Italy, the manufacturing areas are mostly characterized by collections of SMEs, as it is often the case of industrial districts. In such industrial districts, the firms run by immigrants usually act as subcontractors in the specialisation sector of the district (Dei Ottati, 2014).

By the end of 2011, about 440.000 foreigners owned or had a partnership in a company in Italy, representing about 10% of the total number of companies registered in the Italian Chamber of Commerce (Dei Ottati, 2014). Among the immigrant run companies operating in the Italian industrial districts, those established by Chinese immigrants are widespread. Industrial districts with an intense collection of small companies account for the majority of production. The fact, which is Chinese migrants bought up companies and invested and were followed by workers to make the clothes has developed a new low wage version of Made in Italy by China (Froud et al., 2017). The Italian industrial districts involves an intense network of interdependent and small companies which not only compete in some aspects but also collaborate and engage in a number of sub-contracting arrangements.

What appears is that they jointly develop and maintain labour markets and create innovations so that members of the district could choose the best or a more suitable option. The dominance of small companies across Italian fashion and textile was institutionally strengthened when companies with less than 15 workers were exempted from the Statuto dei Lavoratori of 1970 and government provided incentives and protections, which were partly responsible for the shift of the economic activities from some large companies to micro enterprises in zones of new economic growth. By 2002, Italy sustained 44.000 clothing business, together producing 40% of the EU clothing production, compared to 5.000 each in the UK and Germany (Froud et al., 2017).

4.3. DATA COLLECTION

This research attempted to investigate contemporary events without manipulating the relevant behaviours. The case study's unique strength was adopted, that was, the ability to deal with a number of evidence, incorporating documents, interviews, and direct observations.

The usefulness of various types of documents was not dependent on their accuracy. Documents were carefully utilized, and were not accepted as the literal recordings, as suggested by Yin (1994). This research utilized written event reports, corporate reports, progress reports and other articles published through a wide range of communication channels. It was pivotal to use such documents to support or extend evidence coming from other sources. Systematic online searches for relevant documents were enabled as part of the data collection plan.

One of the most vital sources was the interview(s). Data was collected from face-to-face interviews with appropriate company representatives within each company at supply chain during 2015-16. The interviews took an open-ended form in which the key respondents were inquired for the facts of the matter and their

opinions. In some cases, own insights of the respondent(s) were asked and information provided was used as the basis for further inquiry. During the research, a noteworthy experience was also recorded. In some cases, the respondent further assisted in the manner in which issues were further inquired following the respondents' insights, and consequently the interviewee became an informant instead of a respondent. For example, sustainability officer attended the meeting in Leather 2 provided further insights and rather took the role of an active informant. Similarly, Textiles 3 was extremely informative. To this end, not only insights were enriched but also confirmatory evidence was collected. However, interviews could be subject to the common problems of bias, and poor or inaccurate articulation (Yin, 1994). To prevent this problem the maximum effort was made to support the interview data with the information coming from other sources considering.

Lastly, it is vital to mention that the interviews were recorded upon acquiring the participants' approval. The interviews called for managers pertaining to different functions within each company to answer the research questions. Table 5, to this end, shows structural details of the interviews conducted.

Table 5 The Structural Details of the Interviews Conducted

Case	Interview Date	Interviewee	Duration of the Interview
<i>Textiles SC</i>			
Textiles 1	November 2015	- Head of global operations - Intern	2 hours
Textiles 2	April 2016	- CEO	1 hour 35 minutes
Textiles 3	May 2016	- Shareholder (founder)	1 hour 10 minutes
Textiles 4	April 2016	- Shareholder (founder)	1 hour
Textiles 5	May 2016	- Production manager	1 hour
Textiles 6	May 2016	- Director	1 hour
<i>Leather SC</i>			
Leather 1	November 2015	- Quality manager (leather goods) - Quality manager (ready to wear)	1 hour 20 minutes
Leather 2	February 2016	- Planning and distribution manager - Sustainability officer	1 hour 40 minutes
Leather 3	April 2016	- Production manager	1 hour
Leather 4	May 2016	- CEO	1 hour 10 minutes

As displayed at Table 5, at relatively smaller companies, the president and/or the CEO attended the interviews, whereas at larger companies, the managers in charge of operations and SCM as well as sustainability officers were recorded as respondents. The commence date for data collection was October 2015 while termination was on July 2016. Essentially, what emerged was that companies were structured differently and job descriptions were noticed significantly varying. This was especially the case pertaining to sustainability. In other terms, as supported by the majority of the sample, environmental friendly- or ethically sound- based responsibilities were divided and integrated into already existing job descriptions. Thus, there did not exist an individual department and/or head for sustainability. For example, head of human resources was the group leader for sustainability in Leather 2, while head of operations was also running sustainability management across Textiles 1. The managers interviewed were thus found being in charge of one or more of the functions of interest. This actually brought some advantages. That is to say, it reduced the number of the interviews, yet it increased the interviews' width and depth.

Additionally, direct observations were made during the field visit by which environmental conditions and relevant behaviours were made available. Hence, additional information about the topic investigated was witnessed whilst pictures were also taken. However, to increase the reliability of such observational evidence, a common procedure, as outlined by Yin (1994), was followed and observations were made more than a single observer in the majority of the cases. Moreover, three principles of Yin (1994) were followed to better benefit from the sources of evidence.

Principle 1: The use of multiple sources of evidence

To this end, firstly, multiple sources of evidence were used. The most significant advantage presented by multiple sources of evidence lies on the development of converging lines of inquiry. To illustrate, this research attempted to make its findings and conclusion more convincing and accurate by utilizing a number of different sources of information, pursuing a corroboratory mode. The potential problem of construct validity aimed to be overcome with triangulation. It was demonstrated that case studies based on multiple sources of evidence were rated higher in terms of quality than those relying on single sources of information (Yin, 1994). Triangulation was performed in terms of data triangulation (use of data sources), investigator triangulation (the researchers discussed the results and interview findings within the research team), and methodological triangulation (methods were compared and thoroughly discussed).

Principle 2: Create a case study database

The main purpose was to make the documents accessible for any sort of potential reviews. This research generated a database encompassing the following.

- Interview transcripts
- Recordings
- Pictures
- Document analyses of organizational and personal records
- Theoretical constructs

Principle 3: Maintain a chain of evidence

Firstly, the attempt was made to provide sufficient citation to the relevant portions of the database, for example, by citing specific documents and/or interviews. Furthermore, the database was arranged in a way that would enable it to reveal the actual evidence upon inspection. Finally, a consistency was ensured between the procedure and the questions encompassed in the protocol to show that the data collection followed the procedures highlighted in the protocol. On the whole, cross-referencing to the procedure as well as to the results were attempted to justify this research's ethical standpoint.

4.3.1. Interview Protocol

What this research attempted was to let the theoretical orientation guide the case study analysis. The objectives and design of the case study were based on theoretical propositions that in turn reflected the research questions, literature review and further insights. Literature was used to shape the data collection plan and therefore gave priorities to the relevant analytical strategies. However, it must be clearly stated that literature review was not conducted to find answers about what is known instead it was done to review extant literature in order to develop sharper and more insightful research questions about the topic. In other terms, the review was considered a means to the end, and not the end itself (Yin, 1994).

The case study protocol received particular attention in the development phase. The protocol was major method to increase the reliability and to guide the researcher in carrying out the research. The sample companies varied in terms of competences; therefore, a semi-structured path was perceived to provide flexibility on what was distinctive at each of the companies. Appendix 1 showcases topic guide and interview protocol utilised during face-to-face interviews.

4.3.2. Research Ethics

This study has been performed in accordance with ethical and moral principles. The principal researcher has paid a very significant attention to ethical values such as integrity, accountability, reliability, trustworthiness and credibility. That is to say, NO part of this research has been taken from another resource(s), NO reference has been used without a proper citation, NO statement has been made to manipulate the truth, and NO part of this research attempts to channel things that were not really explored.

Prior to, during and after data analysis, ethical principles were strictly followed. Company managers that took part of this research were provided with a proper and detailed description of the study. At the beginning of each meeting, each participant was asked whether recording would be permitted. NO information about one company was given to another individual or to another company.

Interviews conducted in English language was recorded, completely transcribed, entirely analysed and truly communicated by the primary author. Interviews conducted in Italian language were recorded but literal translations were

made by two native Italian speakers. Literal English transcripts were then analysed, examined and communicated by the primary author.

Coding, category generation and construct interpretation took place in accordance with absolute academic as well as ethical standards. Each company was explored based on primary as well as secondary data. NO company name and/or NO confidential information and/or NO specific details were used and will not be disclosed. Data confidentiality was strictly ensured and data has been stored and protected in private folders that would make impossible for anyone to have access without the author's personal password. On the whole, the primary author is responsible for ethical actions taken before and during the lifespan of this study.

4.4. DATA ANALYSIS

Data analysis encompasses examining, categorizing, organizing and recombining the evidence to address the initial objectives of the study (Yin, 1994). To this end, the researcher paid a significant amount of attention to create an own style of robust and rigorous thinking alongside the presentation of evidence and careful consideration of complementary interpretations.

This research utilized a number of analytical techniques in order to treat the evidence fairly, to produce compelling analytic conclusions, and to channel interpretations. Such techniques include:

- Creating a taxonomy consisting of sustainability practices implemented in fashion operations
- Transcribing the interview data and performing coding and category generation activities
- Analysing the data and putting information into different groups within the taxonomy
- Making a matrix of categories and addressing the evidence in such categories
- Creating data displays, tables and flowcharts to encapsulate the data

4.4.1. Modes of Analyses

The method of analysis was an iterative process that followed other research in this domain. The theoretical constructs behind the interview protocol were used to provide an initial coding scheme for the data acquired. There exist two kinds of codes. One type was that found in the material, *in vivo* codes, and those that the researchers themselves constructed from the material, *in vitro* coding. To this end, interview transcripts were read word-by-word, and line-by-line. Codes were accordingly registered.

Other documentations were also utilized to confirm or contradict what was addressed in these statements. Individual codes coming from standalone cases led to the creation of categories. The category could be generated from a single incident after which any number of further incidents could be coded under this category, contributing to its development. It was then constantly questioned under

which category the data in the text could be placed. Similarly, there was contemplation on what further data could fall under such categories.

The process of construction required something to construct, a constructing subject and a social context constructing the research team. Reflexivity, in this sense, required paying attention to these aspects without letting any of them dominate. Accordingly, this study's particular ontological and epistemological position attempted to be maintained throughout the process. Furthermore, data analysis involved two essential components: within and cross case analysis. Within case helped in examining SSCM in a single company while cross case analysis served as a form of replication both of which are further highlighted in the next sections.

Within Case Analysis

Within case analysis was a process of data reduction and data management. Within this study, there were an average of 12-15 pages of interview transcripts per company, making it about 70-80 pages long interview document in addition to relevant parts of publicly available reports and personal notes from site visits. The goal of this process was to structure, define, reduce and assembly pieces coming from the companies. In sum, within case analysis consisted of three main components.

Firstly, programs, policies, and practices were analysed and categorized to understand how sustainability was spread across product, process and SC levels and subsequently sustainability practices were cross-referenced with theoretical constructs. Secondly, the business models of sample companies were studied. In this step, defining factors impeding and/or enabling in relation with sustainability strategy was important to explore to what extent sustainability was integrated and/or challenged in operations management. Lastly, the final step was an attempt to synthesize all aforementioned elements. The goal in terms of the end result of the within case analysis was to reach a concise description of the actual approach taken by each luxury fashion company.

Cross Case Analysis

Cross case analysis aimed to identify patterns across organizations within two different SCs. Data reductions were ensured through categorization and pattern matching. The data were rearranged to generate a more comprehensive meaning. For example, the individual practices were rearranged within categories. To this end, theoretical constructs were utilized to group individual practices by function. Hence, for example, practices pertaining to supplier development and/or supplier certification were put together. Additionally, while grouping the practices those were highly company specific or divergent to the main goal were eliminated.

Pattern matching emerges as one of the most desirable strategies to be used (Yin, 1994). This research thus attempted to use pattern matching as a dominant mode of analysis to compare empirically based patterns with predicted ones. It was accepted that the patterns that coincide would enable the results to strengthen the internal validity of the case study. In this vein, rival explanations for independent variables were opted as a pattern matching type. In this situation, the cases that were known to lead to a certain type of outcome were focused to interrogate how and why such outcome occurred.

This analysis requires rival theoretical proposition development in operational terms (Yin, 1994). The important characteristic is known to be that each rival explanation involves a pattern of independent variables, which is mutually exclusive. This means whilst one explanation is to be valid, the others cannot be. Hence, the presence of certain independent variables predicted by one explanation prevents the presence of other independent variables predicted by a rival explanation. The independent variables could involve many different types of characteristics and the concern of the case study pertains to the overall pattern of results and the degree to which a pattern equivalents the predicted one.

Identical results, which were aimed to get obtained throughout this research over multiple cases in order to demonstrate the literal replication of individual cases were found and the cross case results were correspondingly stated. On the whole, the research team tried to make sure that the analysis was of the highest quality. First of all, data analysis efforts to show that it relied on relevant evidence. The analytical strategies were comprehensive and the effort was made to show how the analysis was seeking evidence, and accordingly how interpretations were drawn upon the evidence. Secondly, the attempt was made to include rival interpretations to prevent anyone else from coming up with alternative explanations for this research's findings. Thirdly, the most significant aspects aimed to be addressed to the best of the capacity.

5. RESULTS

5.1. STUDY I: SYSTEMATIC LITERATURE REVIEW

Taxonomy Development: Sustainability in Fashion Operations

Pursuant to the objectives of this study, which is to explore environmental and social sustainability integration in luxury fashion SCM, first objective was to create a taxonomy database featuring individual environmental and social practices assigned to very specific categories. To this end, practice has been considered the habitual, expected procedure and/or way of doing something. Category, on the other hand, has been used as an umbrella term to group and classify different practices and link them into relevant issues of SSCM (Beske and Seuring, 2014).

In accordance with the three dimensional concurrent engineering framework (3DCE), this study systematically analyses sustainability at product, process and SC levels at luxury fashion operations. The foci behind the utilization of 3DCE could be explained due to its conceptual benefits in terms of sustainability (Ellram et al., 2007). Pal and Torstensson (2011) already address that most of the critical success factors could be synthesized and maintained throughout these three dimensions, that is, a simultaneous design of product, process and SC levels. Besides, 3DCE has already been used to investigate sustainability issues in the fashion industry and demonstrated to be appropriate (Caniato et al., 2012; Karaosman et al., 2016). Furthermore, decomposing practices into product-oriented, process-oriented and SC-oriented practices is bound to help better conceptualise SC sustainability.

Theoretical taxonomy encompassed a total number of 101 sustainability practices derived from prior research. On the whole, 62 environmental sustainability practices, accounting for 61% of all sustainability practices, emerged to be implemented in fashion operations. Social sustainability, on the other hand, was pursued through 39 practices, holding 39% of all practices. 23% of all sustainability practices (23 practices out of 101) was embarked on at product level, whilst 35% of all sustainability practices (35 practices out of 101) was applied at process level and 42% of all sustainability practices (43 practices out of 101) was implemented at SC level. This section aims to elaborate the taxonomy by highlighting the most profound environmental and social sustainability practices implemented in fashion operations and highlighted by previous academic contributions.

5.1.1. Environmental Sustainability Practices

Environmental Sustainability Practices at Product Level

A total number of 23 practices, accounting for 23% of all sustainability practices displayed in the taxonomy, pertain to product level. Product is thus considered a pivotal aspect at which both environmental and social sustainability must be ensured. In particular, a total number of 16 environmental practices out of 62 environmental sustainability practices were implemented at the product stage. As such, earlier studies highlighted the importance of environmental aspects at product level among which use of organic cotton (de Brito et al., 2008; Curwen et al., 2013a; Li et al., 2014), use of recycled materials (Kozlowski et al., 2015; Macchion et al., 2015; Oh and Jeong, 2014), use of indexes to compare materials (Li et al., 2015), textile

reuse (Hu et al., 2014), and reduction of chemical components (Caniato et al., 2012; Resta et al., 2014) appear to be some of the material topics.

Additionally, water management (Li et al., 2014; Shen, 2014), elimination of fur components (Macchion et al., 2015), sustainable packaging (Caniato et al., 2012; Resta et al., 2014) and cradle to cradle product design (Resta et al., 2014) are articulated as such essential components of a proactive environmental strategy to be realized at product stage. In this vein, some of these facets can be expected to be pivotal for luxury fashion operations. Consumers purchasing clothing are more aware of hazardous substances in textiles than of social conditions in the value chain (Freise and Seuring, 2015). Nevertheless, fashion products still constitute many yet critical material related problems. That is, 16 of 27 children's products manufactured by eight major luxury brands tested positive for one or more of hazardous chemicals, confirming that hazardous chemicals were present in textile and leather products as a result of their use during manufacture (Greenpeace, 2014).

Further, luxury accessories is worth around €57 billion (Renée, 2015) for which exotic materials, fur and precious skin are some of the essential components for the concept of luxury, yet sourcing of skins and fur from wild animals accounts for 15% of the world's fur trade (Bozhkova, 2016). Pressures on biodiversity is expected to increase until 2020, whereas the global status of biodiversity will continue to decline (Aiama et al., 2016). Therefore, materials, water, effluents and waste as well as products occur to be very important environmental aspects to be seriously taken into account at product related stages.

Environmental Sustainability Practices at Process Level

Process is a very critical facet in which environmental and social sustainability must be critically integrated. To this end, production processes are required to respect environmental aspects not only within own premises but also at supplier facilities. Undoubtedly, direct control of sustainability becomes very difficult in the case of buying firm, which acts as a coordinator when its business functions are fully or partially outsourced to third party suppliers.

Even though, luxury fashion companies generally use a strictly controlled SC strategy in order to preserve know-how and to concentrate on superior quality, there exist a phenomenon of less and less vertically integrated luxury fashion SCs that outsource their production processes so as to improve their responsiveness and on-time delivery performance. Environmental and social consequences of fashion are substantial. As previously outlined, in 2016 150 billion of clothing items are delivered out of factories annually worldwide, marking a rise from 80 billion in 2012 (Ditty, 2017). Yet, it takes over 700 gallons of water to make just one cotton T-shirt. In this vein, water consumed by the fashion industry accounts for nearly 79 billion cubic meters, and it is expected to grow by 50% by 2030 (Global Fashion Agenda and Boston Consulting Group, 2017).

The theoretical taxonomy reveals that a total number of 29 environmental sustainability practices, accounting for 29% of all practices and 47% of all environmental sustainability practices, are implemented at process level. Hence, process design seems to be the core element of a sustainable strategy.

Consequently, water, energy, emissions, waste, compliance and transport appear as fundamental aspects with an attempt to ensure environmental stewardship within fashion production processes.

Earlier research highlights important environmental sustainability practices implemented at process stages, including waterless dyeing (Kozłowski et al., 2015), chemical use restrictions and process certification (Jørgensen and Jensen, 2012), natural tanning processes (Macchion et al., 2015), rainwater harvest (Li et al., 2014), water recycling (Ho and Choi, 2012), waste recovery (Resta et al., 2014), green process design (Oh and Jeong, 2014) and reverse logistic systems (Caniato et al., 2012). Henceforward, both big buying firms and SMEs are interesting settings to test to what extent such environmentally responsible production strategies are employed.

Environmental Sustainability Practices at SC Level

SC design is a very critical topic for any company operating in the fashion business. Inbound SC is vital because it concerns outsourcing of production processes. Outbound perspective, on the other hand, is also decisive since a number of intermediaries involve in fashion commercialism. Fashion industry is dramatically responsible for 30% of all global greenhouse gas (GHG) emissions (Bozhkova, 2016). In particular, raw material production and processing generate a significant footprint, that is to say, the Kering group's approximately 67% of carbon emissions are caused in raw material production and related processing stages (Crowley et al., 2015). Additionally, 35% of the material input ends up becoming waste at the SC, while 65% turns into new clothing (WRAP, 2012). Relatedly, about 20% of the fabric is swept off the floor of cutting room (Rissanen, 2008). Environmental stewardship must be ensured throughout the entire chain.

Prior studies underline some important practices implemented within fashion SCs, such as hazardous chemical elimination at supplier facilities (Brennan and Merkl-Davies, 2014), suppliers' environmental certifications (Turker and Altuntas, 2014), procurement certification (Resta et al., 2014), return policy to reduce pollution and energy consumption (Li et al., 2014; Shen and Li, 2015), transport optimization (de Brito et al., 2008; Caniato et al., 2012; Shen, 2014), automated logistics processes (Guercini and Runfola, 2009), partner selection based on green practices (Carneiro et al., 2013; Choi, 2016) and closed loop SCs (Oh and Jeong, 2014).

A major progress was made in closed-loop SCs (CLSC) due to performance benefits on both economic and environmental dimensions (Oh and Jeong, 2014). Automated logistics processes and use of full-load capacity are some of the practical implications that could optimize greener transports. As widely known, water scarcity and exploitation of natural resources are life-threatening topics. Solvent-based polyurethane (PU) is observed being replaced with water-based alternatives to fight against water scarcity (Li et al., 2014).

Nevertheless, an interesting observation is noteworthy to channel. The return policy is adopted in FSCs by which the retailer may return unsold products and the supplier could re-sell or recycle the products. Yet, if the cost of physical return is low, the expected quantity of leftover goods becomes higher; hence the expected rate of returns is expected to be accordingly high. This infers that a low logistic cost to

return unsold products cannot be beneficial to overall sustainability (Shen and Li, 2015). Subsequently, this intense network of interdependent companies producing fashion needs collaborations to jointly develop and deploy environmental sustainability practices.

5.1.2. Social Sustainability Practices

Social Sustainability Practices at Product Level

A recent study on a cost breakdown of one t-shirt has just shown that only €0.18 of the sample €29 t-shirt is paid to workers (Fashion Revolution, 2017). Relatedly, one might wonder to what extent commercial pressures would impede social sustainability inclusion into global fashion operations or why there often appear social scandals in which signature names are associated. For example, in June 2017, Kering was accused of misleadingly labelling sunglasses with 'Made in Italy' label when they were actually partially or wholly made elsewhere (Conlon, 2017). Similarly, many of the iconic Louis Vuitton shoes and boots sold for between €750 and €2000 and stamped as 'Made in Italy' are actually made in Transylvania (Lembke, 2017). Hence, product responsibility, society, labour conditions and human rights emerge as substantial aspects to which responsible businesses must pay attention.

Yet, only seven individual social sustainability practices among a total number of 39 practices dedicated to social sustainability in the taxonomy were implemented at the product level. Consciousness as well as awareness must be seeded among all stakeholders. Nonetheless, Jørgensen & Jensen (2012) address that product oriented environmental policy attract rather reactive companies. For example, it was stressed that two of the sample companies skip eco-labelling strategy because the development of a more cooperative relationship with suppliers was found to be far complicated.

It hence becomes clear that the realization of more sustainable product design could be achieved only through a superior collaboration among SC actors. Sustainability education for designers, on the other hand, could be considered pivotal (Kozłowski et al., 2015). Besides, as Curwen et al. (2013) point out manufacturing through fair trade principles and providing sustainable working conditions to artisans are gaining momentum. Some fashion companies have taken some significant actions in terms of their products, such as saying no to Uzbekistan cotton (Kozłowski et al., 2015). All in all, introducing social sustainability principles by starting from early design stages must be considered decisive in the move toward true sustainability.

Social Sustainability Practices at Process Level

On the contrary to the environmental dimension, the integration of social sustainability into processes is not very comprehensive. Solely 6 social practices out of a total number of 101 sustainability practices in the taxonomy sum are implemented at this stage. Health and safety as well as labour conditions are nevertheless very serious aspects, which concern millions of workers worldwide. It is reported that should business endure in its usual scenario, the number of recorded industrial incidents might reach 1.6 million by 2030, compared to 1.4 million of 2017 (Global Fashion Agenda and Boston Consulting Group, 2017). As elaborated by Perry et al. (2015), social responsibility must be integrated into garment sourcing networks through a

number of practices including workforce protection, social inclusion, open book accounting and better skilled human resource management. That is to say, production processes should facilitate a vigorous realisation of social sustainability.

Social Sustainability Practices at SC Level

75 million individuals are working in fashion SCs, 80% of those are women between the ages of 18-24 (Fashion Revolution, 2017). 168 million children are child labourers (ILO, 2013) mostly employed by factories manufacturing textile and clothing (Moulds, 2015). Consequently, integrating social sustainability pursuant with justice, health, safety, responsibility and decency must be vital although social sustainability can be harder to reach.

Social sustainability is implemented at SC level according to what emerged from prior studies. As depicted, 26% of all sustainability practices were applied for social sustainability at SC level. Education holds an important place to better decent labour practices. To this end, trainings on fire and safety (Shen, 2014), and on code of conducts and ethical purchase (Lueg et al., 2013) emerged in managerial literature. On the one hand, addressing the problems related to working conditions and improving such conditions of upstream suppliers is a crucial practice (Curwen et al., 2013a; Turker and Altuntas, 2014); on the other hand, supplier development programs appear to be critical in global fashion networks (Kozlowski et al., 2015; Perry et al., 2015).

Establishing a fair collective bargaining process (Bai and Sarkis, 2010) and compliance to codes of conducts (Svensson, 2009) are important. There exists proliferation of voluntary based sustainability initiatives, including UN Global Compact, Universal Declaration of Human Rights, UN Rights of the Child, and ILO conventions, encourages companies for compliance. In this vein, compliance becomes more and more relevant (Turker and Altuntas, 2014). Yet, such aspect becomes problematic in operational terms because there are many issues, among which payment problems at upstream suppliers facilities could instantly emerge. Accordingly, garment workers in Eastern Europe including Ukraine, Romania, Bulgaria, and Turkey earn low wages even below those in China (Clean Clothes Campaign, 2015c).

Supplier audits (Fan and Lo, 2012; Kozlowski et al., 2015; Turker and Altuntas, 2014), and relatedly two tier SC audits, use of external auditors as well as disclosure the number of factories (Lueg et al., 2013) are some social sustainability practices reportedly adopted by fashion companies. Nonetheless, it also emerged that price deflation impede suppliers to capture value-added activities. Results of Perry et al. (2015) address that engagement with CSR might not be always easily formalised in small businesses. Needless to say, incremental efforts should be converted into proactive radical actions aiming a full comprehension for which, unquestionably, the existence of a multi-stakeholder dialogue where institutions, associations and communities come together (Bai and Sarkis, 2010) is crucially needed.

It was additionally observed that material producers are not covered in sustainability monitoring programmes. Yet, cotton and leather, for example, are essential materials for luxury fashion products. The exclusion of raw material producers from monitoring activities is found unreasonable (Svensson, 2009). Regardless of a

buying firm's commitments, if raw material producers are not clearly examined, the products' real footprint can never be measured. Moreover, Lueg et al. (2013) expose that some fashion store managers are uninformed about particularities of corporate sustainability. Information transparency expects to be obtained by knowledge dissemination along the entire chain. Consequently, both inbound and outbound SCs must be integrated to keep luxury more responsible. That is to say, the following tables, namely 6, 7, 8 are dedicated to display this study's theoretical taxonomy based on which case studies were evaluated.

Table 10: Taxonomy: Sustainability Integration at Product Level

Category	Aspect	Practices	Reference
Environmental	Materials	Use of organic cotton	(Curwen et al. 2013) (Kozlowski et al. 2015) (Caniato et al. 2012) (Li et al. 2014) (Resta et al. 2014) (Macchion et al. 2015) (Shen 2014) (de Brito et al. 2008) (Oh & Jeong 2014)
		Use of eco-friendly materials	(Curwen et al. 2013) (Kozlowski et al. 2015) (Caniato et al. 2012) (Resta et al. 2014) (Macchion et al. 2015) (Oh & Jeong 2014)
		Use of recycled materials	(Kozlowski et al. 2015) (Resta et al. 2014) (Macchion et al. 2015) (Shen 2014) (Jørgensen & Jensen 2012) (de Brito et al. 2008) (Shen 2014) (Hu et al. 2014)
		Use of the 'Considered Index' to compare materials	(Li et al. 2015)
		Use of cotton/polyester blends	(Kozlowski et al. 2015)
		Textile reuse	(Hu et al. 2014)
		Use of certified raw materials	(Kozlowski et al. 2015) (Shen 2014) (de Brito et al. 2008)
		Use of recycled polyester	(Kozlowski et al. 2015) (Li et al. 2014) (Shen 2014)
		Reduction of chemical components	(Caniato et al. 2012) (Resta et al. 2014)
		Reduction of colours and colorants used in products	(Kozlowski et al. 2015) (Macchion et al. 2015)
	Water	Water stewardship	(Li et al. 2014) (Shen 2014)
	Biodiversity	Elimination of fur components	(Macchion et al. 2015)
	Effluents & Waste	Sustainable packaging	(Caniato et al. 2012) (Resta et al. 2014)
	Products & Services	Cradle to cradle product design	(Resta et al. 2014)
		Eco friendly product development	(Caniato et al. 2012) (Resta et al. 2014) (Macchion et al. 2015) {Formatting Citation}
		Life cycle assessment	(Kozlowski et al. 2015) (Caniato et al. 2012) (Resta et al. 2014)

Social	Labour Practices & Decent Work	Sustainability education to designers	(Kozłowski et al. 2015)
		Manufacturing through fair trade principles	(Curwen et al. 2013)
		Providing sustainable working conditions to artisans	(Curwen et al. 2013)
		Providing better farming techniques to cotton farmers	(Shen 2014)
	Society	Empowering women through training and new jobs	(Curwen et al. 2013)
	Product Responsibility	Using NO Uzbekistan cotton	(Kozłowski et al. 2015)
		Eco labelling	(Jørgensen & Jensen 2012) (Resta et al. 2014)

Table 7: Taxonomy: Sustainability Integration at Process Level

Category	Aspect	Practices	Reference
Environmental	Materials	Use of locally sourced materials	(Curwen et al. 2013) (Resta et al. 2014)
		Scrap and toxic material elimination	(Resta et al. 2014)
		Chemical use restrictions	(Jørgensen & Jensen 2012) (Caniato et al. 2012)
	Energy	Natural leather dyeing	(Kozłowski et al. 2015)
		Renewable energy generation	(Ho & Choi 2012) (Resta et al. 2014)
		Natural tanning processes	(Macchion et al. 2015)
	Water	Rainwater harvest	(Li et al. 2014)
		Reuse of treated wastewater	(Ho & Choi 2012)
		Wastewater treatment	(Resta et al. 2014)
		Waterless dyeing	(Kozłowski et al. 2015)
		Water recycling	(Ho & Choi 2012)
	Emissions	Emission reduction	(Kozłowski et al. 2015) (Caniato et al. 2012) (Resta et al. 2014) (Macchion et al. 2015) (Nagurney & Yu 2012)
		Track and trace	(Jørgensen & Jensen 2012)
		Carbon capture and storage	(Resta et al. 2014)
	Effluents & Waste	Waste reduction	(Kozłowski et al. 2015) (Caniato et al. 2012) (Resta et al. 2014)
		Reduce/reuse of textile waste	(Kozłowski et al. 2015)
		Waste recovery	(Resta et al. 2014)
		Waste recycling	(Li et al. 2014)
		Process innovation	(Ho & Choi 2012) (de Brito et al. 2008) (Resta et al. 2014) (Kozłowski et al. 2015)
	Products & Services	Packaging reduction	(Kozłowski et al. 2015) (Resta et al. 2014) (Caniato et al. 2012)
		Product recycling	(Kozłowski et al. 2015) (Li et al. 2014)
		Green process design	(Oh & Jeong 2014)
		Eco-labelling	(Jørgensen & Jensen 2012) (Resta et al. 2014) (Shen 2014) (Oh & Jeong 2014)
		Biological textile production	(Shen 2014)
		Replacement of solvent-based polyurethane with water-based alternatives	(Li et al. 2014)
	Compliance	Verification of sustainable manufacturing processes	(Shen 2014)
		Process certification	(Jørgensen & Jensen 2012) (Resta et al. 2014) (Shen 2014) (Oh & Jeong 2014)
	Transport	Decrease in the volumes shipped by ocean and air	(Nagurney & Yu 2012)
		Reverse logistic systems	(Caniato et al. 2012)
Social	Labour Practices &	Providing a career path and better skilled human resource	(de Brito et al. 2008) (Perry et al. 2015)

	Decent Work	management	
		Developing programs including working age beyond regulations	(Perry et al. 2015)
		Protecting female workforce	(Perry et al. 2015)
	Society	Enabling an open book accounting	(Perry et al. 2015)
		Undertaking philanthropic donations to local communities	(Perry et al. 2015)
		Rehabilitating ex-LTTE soldiers to work in new plants	(Perry et al. 2015)

Table 8: Taxonomy: Sustainability Integration at SC Level

Category	Aspect	Practices	Reference
Environmental	Materials	Hazardous chemical elimination at supplier facilities	(Brennan & Merkl-Davies 2014)
	Energy	Energy efficiency at supplier facilities	(Li et al. 2014)
		The return policy to reduce energy consumption	(Li et al. 2014) (Shen & Li 2015)
	Water	Minimal impact on water resources at supplier facilities	(Li et al. 2014)
	Effluents & Waste	The return policy to reduce pollution	(Li et al. 2014) (Shen & Li 2015)
	Compliance	Environmental certification of suppliers	(Caniato et al. 2012) (Turker & Altuntas 2014)
		Traceability	(Guercini & Runfola 2009)
		Procurement certification	(Resta et al. 2014)
		Occupational health and safety	(Fan & Lo 2012)
	Transport	Transport optimization	(Li et al. 2014) (Caniato et al. 2012) (Resta et al. 2014) (Shen 2014) (de Brito et al. 2008)
		Use of full-load capacity	(Resta et al. 2014)
		Closed loop SC	(Oh & Jeong 2014)
		Rent based Closed loop SC	(Hu et al. 2014)
		Automated logistics processes	(Guercini & Runfola 2009)
	Supplier Environmental Assessment	Supplier / partner selection based on green and sustainability practices	(Caniato et al. 2012) (Carneiro et al. 2013) (Choi 2016)
		Green projects with suppliers	(Caniato et al. 2012)
		Energy and resource management system to advance environmental data collection	(Shen 2014)
Social	Labour Practices & Decent Work	Raising the problems for working conditions and improving the conditions of upstream suppliers	(Turker & Altuntas 2014) (Curwen et al. 2013)
		Financial support to provide employment to young women	(Turker & Altuntas 2014)
		Trainings on fire and safety	(Resta et al. 2014) (Shen 2014)
		Trainings on the Code of Ethics and ethical purchase	(Resta et al. 2014) (Lueg et al. 2013)
		Coaching sessions and counselling meetings	(Turker & Altuntas 2014)
		Training and educational material for supplier	(Lueg et al. 2013) (Turker & Altuntas 2014) (Perry et al. 2015) (Shen 2014)
		Supporting local economic development through job creation in less developed countries	(Turker & Altuntas 2014) (Resta et al. 2014) (Shen 2014)
		Supplier development programs	(Perry et al. 2015) (Kozlowski et al. 2015)
		Supplier management	(Turker & Altuntas 2014)
		Use of a supplier ranking system	(Kozlowski et al. 2015)
		Establishing a fair collective bargaining process between employees and employers	(Li et al. 2014)

	Human Rights	Codes to guarantee collective bargaining and freedom of association, regular employment, environmental as well as Socially responsible manufacturing conditions, occupational health and safety and working schedules not exceeding 60 hours per week	(Turker & Altuntas 2014) (Lueg et al. 2013)
		Compliance to Code of Conduct (based on UN Global Compact, Universal Declaration of Human Rights, UN Rights of the Child and ILO Conventions, OHSAS)	(Svensson 2009) (Turker & Altuntas 2014) (Kozłowski et al. 2015) (Fan & Lo 2012)
		Refusing the acceptance of cotton associated with child labourers	(Lueg et al. 2013) (Turker & Altuntas 2014)
		Developing initiatives to advance well being, human rights, and working conditions	(Curwen et al. 2013) (Lueg et al. 2013)
	Society	Two tier SC audit system	(Lueg et al. 2013)
		External and accredited auditors	(Turker & Altuntas 2014) (Lueg et al. 2013) (Fan & Lo 2012)
		Supplier audits	(Kozłowski et al. 2015) (Resta et al. 2014) (Turker & Altuntas 2014) (Fan & Lo 2012) (Fan & Lo 2012)
		Disclosure of the number of factories along with the countries that violated the code in the reporting period	(Lueg et al. 2013)
		Corrective actions for non-compliance	(Kozłowski et al. 2015) (Turker & Altuntas 2014)
		Multilateral dialogue with the bodies, institutions, associations and communities	(Turker & Altuntas 2014) (Resta et al. 2014) (Li et al. 2014) (Kozłowski et al. 2015)
		Monitoring sustainable manufacturing	(Resta et al. 2014) (Kozłowski et al. 2015)
		Monitoring factory compliance	(Resta et al. 2014) (Shen 2014)
		Producers of materials used are NOT covered in the monitoring programme	(Svensson 2009)
	Product Responsibility	Product take-back/recycling programs	(Kozłowski et al. 2015)
		Laboratory tests	(Li et al. 2014) (Brennan & Merkl-Davies 2014)

5.2. STUDY II: A QUALITATIVE MULTIPLE CASE STUDY

Sustainability Integration in the Luxury Fashion Industry

Textiles and leather SCs are the cases depicting how and to what extent environmental and social sustainability is integrated in luxury fashion SCM where traditional approach of 'One size fits all' is no longer acceptable. This section correspondingly elaborates the main findings. Each answer attempts to return to the research question and to pursue a reflective discussion on how the analysis is associated with the theory. Section 5.2.1 reveals within case analysis where each construct is evaluated per company while Section 5.2.2 unveils cross case results by which categories of best practices, the main sustainability trends in luxury fashion as well as critical areas in need of deeper attention are deliberated by comparing two SCs based on a reflexive discussion through previously identified and emergent novel practices.

5.2.1. Within Case Analysis

This study builds on the taxonomy displayed in the previous section to appraise real-life practices in social and environmental sustainability and SCM by moving beyond suppliers located in tier 1 and 2. This section uncovers results generated within each company and is followed by a critical cross case analysis.

Case 1: Sustainability in the Textiles SC

Textiles 1

'Textiles 1' is a brand owner having a global supply network. Product category encompasses highly precious textiles, including silk, wool, cashmere and cotton. While design takes place in Milano, production has a more complicated nature. That is, yarn is purchased to produce fabrics. In some cases though, depending on the product typology, fabric can directly be purchased.

Notwithstanding the complexity of mapping the chain and extracting precise information pertaining to the supplier locations, most of the materials used for garment production are known to come from the mills in Indonesia. Manufacturing locations, on the other hand, are globally dispersed, including Bangladesh, Romania, Slovakia, Turkmenistan, Turkey and Italy.

Once orders are completed, pieces are assembled and/or full garments are received from suppliers, they are packaged and shipped to stores all over the world. Undoubtedly, assuring products are produced, distributed and unloaded in a responsible manner gradually emerges as a critical issue as a consequence of stakeholder pressure and regulatory forces. Yet, the number as well as the variety of suppliers positioned in the network does not make sustainability integration less challenging.

Environmental and Social Sustainability at Product Level

Findings reveal that design concept of beauty is the most fundamental aspect for the fashion house. Sustainability is perceived as an element that would support the business rather than change of it.

The final product is a market qualification. Therefore, the company pays a significant attention to both premium quality and material composition. To this end, product safety emerges as an important environmental sustainability practice implemented across the chain. The head of global operations addressed product responsibility as the most fundamental sustainability aspect.

To illustrate, it was asserted that “Mainly the product safety, because our company produces products and items so that our priority is the product and safety. So we started to work harder on product safety 4-5 years ago.” To this end, chemical reduction is gradually assured in a wide range of products. Correspondingly, it was articulated that “We did LCA project on our three best selling products, and starting from the situation found, we start some projects to improve transportation. Materials are the main issue and rooms of improvement are significant.”

Subsequently, material substance lists were created and each supplier has been strategically and strictly provided with the list in terms of what chemicals could be used with what threshold limit values. Furthermore, pursuant to the commitment to Zero Discharge 2020, the company has set up a Product Safety Control System at the group level in order to guarantee a methodical control process to use specific programs to test chemical substances in the finished product.

Even though, there appears to be a growing concern over chemicals and material use, the luxury industry does not seem to be welcoming as well as accepting when it comes to the word of recycling. It was revealed that consumers do not perceive the use of recycled materials as a positive step toward shaping fashion, rather they warn the company not to come up with a design made out of something already used. Hence, a big misperception drastically hinders the promotion of downcycling and upcycling techniques within the company.

To tackle the issue, use of certified raw materials are gradually implemented across the SC. Nevertheless, the company does not have a robust and advanced sustainability performance assessment program by which traceability could be ensured. Additionally, the biodiversity value was acknowledged. With an attempt to reduce the negative impact generated on biodiversity, the company, in agreement with Fur Free Alliance, announced its commitment to cease the use of animal fur from its products. "... To improve biodiversity we are working on RESP (responsible ecosystem sourcing platform) platform." Knowing that this is not an easy task for an iconic luxury fashion house, as in this case, such a practice could be endorsed as one of their most proactive yet radical attempt to advance sustainability.

Lastly, it is important to note that social sustainability does not occur to be taking place as frequently as environmental dimension. However, one peculiar practice emerged pertains to women empowerment. The group aims at creating and providing new workforce for female labours not only at their own premises but also at their supplier facilities. Having said that, Table 9, provides a brief summary of environmental and social sustainability practices implemented at product level.

Table 9 Environmental and Social Sustainability at Product Level

Level	Environmental Sustainability	Social Sustainability
Product	Reduction of chemicals	Women empowerment through new jobs
	Water stewardship	
	Life cycle assessment	
	Use of certified raw materials	

Environmental and Social Sustainability at Process Level

Manufacturing processes are pivotal to introduce environmental and social sustainability. Nevertheless, direct control becomes difficult in the case of a buying firm that acts as a coordinator when its business functions are outsourced to third party suppliers.

On the one hand, 'Textiles 1' opts to preserve knowledge and to assure premium quality for which SC strategy is strictly coordinated, on the other hand, SC performance in terms of on-time delivery and responsiveness emerge as critical aspects for which production is partially outsourced. Consequently, there exist difficulties to translate sustainability into daily operations.

'Textiles 1' possesses its own internal manufacturing processes in which sustainability is better controlled alongside other actions taken in their own warehouses and headquarters. Conversely, outsourced production account for a bigger percentage than the production held internally, and therefore sustainability integration at process level appears to be in need of urgent yet more proactive strategies.

Fashion is a thirsty business; thus, water required for operations is significant. To this end, not only environmental but also financial sustainability requires a proactive

approach toward water stewardship. Even though to a limited extent, the company is taking actions for wastewater treatment. There exist significant chemicals that textile wastewater can contain because some chemicals are extracted when products are washed away; therefore wastewater management is a pivotal topic to concentrate. To this end, hazardous chemical elimination becomes a multifaceted prerequisite.

As for the emission reduction, the operations manager detailed that "... we are working for some improvement on energy saving (in the main building) and also GHG emission reduction". Despite what was recorded, this should be as a subjective approach, as no numeric value in terms of GHG emission could be obtained before, during or after the interviews. However, it was further addressed that internal production facilities are having strategic targets for energy and emission reduction. To this end, processes opt to be more innovative that would enable energy efficiency. The operations team asserted that ... they work on projects to reduce emissions inside, in the production sides, and it is easier because you are not playing with either design or operations."

This actually illuminates the importance of top management commitment as well as awareness built within the organization. It must be stated that the design concept of luxury and beauty is not linked with sustainability at the top management level. Hence, design concepts associated with creativity are much harder for sustainability integration. "... In the production site it (sustainability) is easier to implement because there is no creative concept/path to follow". As for retail operations, the architecture team was suggested taking actions toward sustainability in terms of material aspects. Yet, retail operations emerge to be embedded within sustainability due to restrictions pertaining to the brand's own design standards.

As for social sustainability, actions taken are rather incremental. In order to tackle lost skill base and to attract younger generation to work in fashion operations, the company is actively executing a better skilled human resource management. To this end, a career path is provided within the company for its employees. Even though, these actions do not seem to spread across the supply network, there exist programs for decent work conditions and continuous improvements for labour practices. When performance results were asked, the company could not deliver tangible results in terms of employee satisfaction surveys or other human resource management aspects; however, triangulation confirmed that protection of the female workforce and program on career path actually motivate the employees. The team concluded that "... percentage of total workforce was not changed..." Lastly, due to limited percentage of production taking place internally, accidents and/or labour conditions related problems were reported to be very negligible during the past years. All in all, Table 10 summarizes the main practices implemented at process level within own operations.

Table 10 Environmental and Social Sustainability at Process Level

Level	Environmental Sustainability	Social Sustainability
Process	Hazardous chemical elimination	Providing a career path and better skilled human resource management
	Renewable energy generation	Developing programs for labour practices and decent work conditions
	Wastewater treatment	Protecting female workforce
	Emission reduction	Philanthropic donations to local communities
	Waste reduction	
	Process innovation	

Environmental and Social Sustainability at SC Level

Supply chain sustainability depends on the design of both inbound and outbound SC. As previously touched upon, 'Textiles outsources the majority of its production by which various intermediaries encompass the process. Thus, this section aims to elaborate what emerge in terms of best practices implemented at the chain level.

Supplier selection, undoubtedly, is a strategic topic for luxury fashion companies. 'Textiles 1' puts forward sustainability, mostly environmental friendly, practices while selecting its potential partners. That is, "... they (suppliers) need to sign our supplier agreements where they can find our policies regarding environmental, social and animal welfare. And so they commit to us to respect our code of conduct..." asserted by the head of global operations with respect to codes of conduct compliance.

However, disclosing codes of conduct to suppliers alone is not enough to operationalize sustainability in real terms. Accordingly, the company was further asked how they could assure how their suppliers perform in accordance with ethical and environmental standards. Nevertheless, it emerges that the company, while asking detailed information to only a limited number of first tier suppliers, does not seem to be fully aware of what suppliers are actually doing and of the extent to which codes of conduct are robustly complied. Hence, no assurance pertaining to suppliers' sustainability performance could be suggested.

When the importance of supplier audits and strict controls was provoked, the company addressed that "... We check some of suppliers (we have thousands of suppliers), but with suppliers, which we have more concerns for, we work in audit and training programs to monitor and train. But we can only do things with suppliers that are continuative for us." "... We cannot start improvement programs with suppliers that will not be worked in the following season." This shows that both traceability and supplier audits are deployed to a limited extent.

Monitoring suppliers, which is already suggested being limited to first tier, attempts to be accomplished through three main systems. Firstly, third party audits

are conducted at (some of the) supplier facilities. Secondly, a web-tool generated by 'Textiles 1' is provided as a self-assessment tool and since 2014, suppliers are asked to enter their performance results pursuant to questions asked by the system. Lastly, the company screens the performance results to understand the extent to which the suppliers cope with environmental and social sustainability. Nevertheless, in its current setting, self-assessment tool is only provided to first level suppliers.

While regulatory requirements are met, the company could reach beyond that level to attempt full circle of traceability. It was declared that "... We ask our suppliers in our agreement and they (the suppliers) must ensure the same conditions, some conformity of their sub-suppliers". Though, the operations manager proclaimed that it was very difficult to check and properly control second and third tier suppliers because boundaries are not well explained and clear. It was exemplified that " in Italy, we have the agreement with the supplier but we do not know the sub-contractors".

Most of the audits emerge to be happening in China, India, Bangladesh and France. Such audits said to be performed by third party auditors that are in charge of reporting final results directly to the company. In order to overcome traceability related issues in Far East the company has started asking their suppliers to dislocate the list of their sub-contractors due to lack of legislations. "... Laws and regulations in Europe are much stricter but the main problems come from Far Eastern countries where regulations are less integrative. "

' Textiles 1' is reportedly giving priority to anyone who turns around its final product, highlighting the materiality of the suppliers. To this end, the importance of training and sustainability education was highlighted; the company was thus observed providing material and training in terms of materials and community development. To this end, the training materials provided for ethical purchase and educational material for suppliers with respect to code of conduct were recorded as solid demonstrations of how the company formulates sustainability education at the chain level.

The importance of multidimensional dialogues was emphasized. "We actually work on many different ways in collaboration with other brands, in Italy and with foreign brands. We think goals are more achievable with working with some other brands ". Luxury business is known to contain a number of different stakeholders surrounding the brand. Thus, supplier development, local community and stakeholder engagement were recorded as some of the most proactive actions taken by 'Textiles 1'. "... To achieve the goal of sustainability we must work together. Very focal point, (because) many of the actors and many of the stakeholders are able to forget. "

Furthermore, the Italian market is getting more established on the ground for sustainability. Pursuant to the peculiarity of Italy for luxury, a wide range of associations, companies and agencies form partnerships. To this end, 'Textiles 1' was one of the founding partners of industrial sustainability commission. Textiles 1 along with other massive players of the Italian luxury formed a roundtable to discuss a wide range of topics. To this end, in collaboration with Camera Della Moda, 'Textiles 1' alongside other three players mapped the retail stores of these brands and to have a

clearer understanding of retail performance. Notwithstanding its contribution to the methodology and overarching goals, the stores of 'Textiles 1' were not included in the mapping due to company principles.

A standard was accordingly prepared to showcase the current situation of luxury stores with an attempt to formulate improvement scenarios for emission reductions and material quality. Even though, results are not public yet, the commitment coming from such a commission must be considered an important movement. Yet, it must be stated that sustainability conversation is still kept confidential and no supplier information is shared among these companies.

Lastly, it must be informed that there exist many factors impeding 'Textiles 1' to move forward toward more radical practices to the end of sustainability integration. First and foremost, sustainability communication was addressed being dangerous. The global operations manager articulated that "... we think that the communication is dangerous and for this reason we do not communicate so much." Subsequently, the next section follows what is summarized in Table 11, and contemplates the exploration to internal and external factors influencing 'Textiles 1' in their decision making process about sustainability.

Table 11 Environmental and Social Sustainability at SC Level

Level	Environmental Sustainability	Social Sustainability
SC	Hazardous chemical elimination at supplier facilities	Trainings on the Code of Ethics and ethical purchase
	Environmental certification of suppliers	Training and educational material for suppliers
	Traceability	Supplier development programs
	Occupational health and safety	Use of a supplier ranking system
	Supplier / partner selection based on green and sustainability practices	External and accredited auditors
		Supplier audits
		Multilateral dialogue with the bodies, institutions, associations and communities

Barriers and Enablers of Sustainability Integration at Textiles 1

Primarily, 'Textiles 1' engages with sustainability for the prevention of negative publicity regulations and because of its competitors' sustainability strategies. Hence, brand image and prevention of penalty alongside regulatory compliance could be listed as what drive 'Textiles 1' to spread sustainability. However, there exist a number of barriers that impede sustainability and negatively affect the strategic decisions in terms of sustainability implementation.

Table 12, to this end, summarizes the principal barriers encountered within 'Textiles 1'. Such barriers appear to be impeding strategic decisions in terms of sustainability.

Table 12 Barriers impeding strategic decisions about sustainability

Barriers impeding strategic decisions about sustainability			
Internal		External	
Organizational	Operational	Market	SC
- Lack of commitment	- Lack of a framework for SSC configuration	- Lack of awareness - Industry specific barriers	- SC complexity - Lack of information

Pertaining to internal aspects, the division could be made between organizational and operational constituents, while external barriers are divided into the main categories market and SC, as displayed by Table 12.

“Because sustainability is not in their DNA, green is not in their company mind-set”, as stated by the respondent, channels that Italian luxury fashion has awareness related disputes, resulting in commitment gaps. The design concept of beauty and the essence of luxury are still the main component in strategic decision-making processes. Whilst being asked about to what extent the luxury design concept is strategically embedded in sustainability foci, 'Textiles 1' reported that “I think that it would be very difficult to find a brand changing its design or material decisions or its concept of product based on LCA results. For this reason, we cannot change the product or the philosophy.”

“If the designer needs a specific material, why does he need this material? Because the customer needs this product / material.” Yet, there exist many critical materials required for the final product that are being very threatening for the environment. For example, brass is widely utilized on the metals because it is light. However, brass constitutes lead inside, which is toxic. The operations head asserted that “If (the creative director) wants a brass on the metals, we must work with the SC to find a solution to provide a brass without a lead and indeed around the world there is no brass without lead.”

Hence, research becomes an important angle toward which industry specific collaborations must be seeded. It was addressed that industry specific barriers and lack of awareness, as ultimate challenges, requires collaboration and research to find and propose a change without changing or diminishing the product quality.

In Italy, the main philosophy emerges to be on having a rapid return of investment very fast, indicating that mostly Italian companies seek ROI and ROA immediately after their initial investment. This is articulated by what follows; “In Italy, luxury companies are family based (in which) and not so easy to create this skill about sustainability and the importance of these issues”. Hence, lack of organizational belief and industry specific requirements negatively downgrade the extent to which sustainability is integrated into business decisions.

“Actually, we can say that sustainability is a challenge.... in (luxury) fashion, awareness comes later compared to other sectors, such as food.” Nevertheless, this lack of interest does not create a bullwhip effect toward sustainability along the chain because simply what cannot be internally digested cannot be spread across external actors. Indeed, the interviewee suggested that “... the problem is to understand how to promote sustainability as something to support the business.”. Relatedly, SCs bring complexities due to high number of commercial pressures and global disparity. “It is not easy because SC is really fragmented, complex.”.

Notwithstanding the difficulties, ‘Textiles 1’ is also aware that sustainability related burdens often occur at upstream supplier facilities. “Sustainability problems are hidden at all stages of SC... the hardest point is suppliers and sub-contractors.” However, the biggest difficulty lies on the accuracy and the frequency of sustainability information. It was stated that “(While) a production takes place in Far East countries; attention as well as problems arise.” for example “... Chinese and Indian suppliers have problems. Very specifically, social part working hours is problematic.” Still, SC complexity and lack of information are suggested as the main responsible for less responsible luxury fashion SCs, as summarized “... It is not easy to have this information.” by the interviewee.

In addition to what impede sustainability, results could also suggest some enablers to highlight what ‘Textiles 1’ is in need of with an attempt to improve sustainability. It was pointed out that the brand owner could lose market as well as brand value as a consequence of a social scandal; “... we are facing the risk of losing money, but then of course the entire chain loses money correspondingly.”

Even though, the brand’s sustainability department is in charge of monitoring and executing the chain’s sustainability record, the reality of having globally dispersed and highly complex SCs makes it almost impossible to ensure sustainability. To enable a more proactive stance, ‘Textiles 1’ addresses knowledge dissemination, industrial collaborations and the philosophy of moving beyond regulations as prerequisites. That is to say, “... we are the brand and we are at the end of the chain and we (could) lose value, market, business and so we try to be beyond regulations.”

Therefore, ‘Textiles 1’ is observed taking some active actions in terms of product safety, chemical use and animal welfare to embark on dialogues with policy makers to improve regulations. “Sustainability goes behind the regulations, starting from chemicals, to product and environmental safety, total impact, animal welfare; in all these contexts we must improve projects that go beyond the regulations.”

Lastly, innovation is suggested as an important enabler that could improve and enable sustainability. Initially it was asserted that technology and innovation could actually foster sustainability. Technological progress made throughout the years has enabled ‘Textiles 1’ to have effective alternatives reducing the use of some highly criticized practices specially regarding animals. The company also perceives that being sustainability could also help develop and deploy further innovation related capabilities. “Clients do not even need to know where materials come from. We just need to be more creative and sustainable.” On the whole, the list of factors suggested enablers by ‘Textiles 1’ is displayed in Table 13.

Table 13 Factors Enabling Strategic Decision Making Processes about Sustainability

Factors enabling strategic decision making processes about sustainability				
Internal		External		
Organizational	Operational	Regulatory	Market	SC
- Financial freedom - Knowledge dissemination	- Innovation	- The philosophy of moving beyond regulations	- Not observed	- Collaboration - Knowledge dissemination

Textiles 2

'Textiles 2', established in 1945 in Northern Italy, is a silk wear producer, delivering a wide range of products such as silk scarves, foulard, shawls, bow-ties and other accessories to the market. 'Textiles 2' purchases the fabric from its various suppliers located in Italy and China. Subsequently, fashion production takes place. The company actually possesses two entities, that is, one is a converter and the other is a printing house in which finishing and printing phases take place. Production of the final product is instead outsourced.

Consequently, 'the finished products are sold both in Europe and overseas. Textiles 1', for example, is a client of 'Textiles 2', outsourcing some of its silk products from 'Textiles 2' and sells under own brand. The products are labelled as 'Made in Italy', and therefore, pursuant to the Italian law, planning, manufacturing and packaging entirely take place in Italy. What concerns sustainability, the company is observed pursuing rather a reactive approach to sustainability. The following sections further formulate what was explored during the interviews.

Environmental and Social Sustainability at Process Level

Water emerges as an important parameter. Water recycling is therefore suggested to be an important internal aspect by which some other processes in the production are enabled to use what is re-introduced back to the system. As for energy efficiency, cost saving and operational performance improvements emerge as driving forces behind the environmental sustainability implementation. The majority of environmental sustainability practices are realized in the facility where printing takes place. In this vein, a cogeneration plant has been implemented to reduce production costs through energy efficiency.

The CEO of the company highlights that "In the last few years I implemented many strategies towards energy saving, including photovoltaic plant, cogeneration plant, internal depuration plant..." However, cost savings and to some extent the regulatory compliance could be listed as the main factors driving 'Textiles 2' to embark on sustainability. The interviewee openly addressed that "... the objective is always that of a continuous improvement, especially in the depuration plant, because the cleaner the water I withdraw the lower the taxes, so we are pushed towards the reduction". Given that energy related costs are recorded to be accounting for 10% of the profit, energy efficiency, water management and

continuous improvement are fostered to improve the financial aspect of sustainability, while still serving its environmental counterpart. "...I implement everything to reduce it, moreover if I pollute less I consume less I'm much more satisfied, but only if the economic return pays it..." Such environmental as well as social sustainability practices are summarized in Table 14.

Table 14 Environmental and Social Sustainability at Process Level

Level	Environmental Sustainability	Social Sustainability
Process	Chemical elimination	Providing better skilled human resource management
	Energy saving technologies	Developing trust within the community
	Wastewater treatment	Knowledge exchange within the local community
	Process innovation	
	Water recycling	

In terms of social sustainability, community development appears to be the most peculiar facet. That is, being located in a small region can be considered the main reason behind the feeling of giving back to society. Even though, social sustainability is not advanced toward further upstream, the company has got engaged within some practices. "We have our own local certification, Serico, that control every social aspect... It certifies the zone of Como..." The CEO suggests that certification is pivotal to build trust inside and outside the premises.

Yet, this certification cannot reach an international exposure due to its local content. That is to say, it cannot be considered a rigorous and global performance qualification such as ISO or SA series.

Trust, on the other hand, makes the company take things for granted. To illustrate, employee satisfaction or loyalty are not measured. Since the number of employees is relatively small and everyone knows everyone even from even the childhood, because of being raised in the same region, the working environment is friendly by nature. To this end, knowledge transfer within the community, and better skilled human resource management including trainings for newbies in terms of sustainability are observed. For example, "... We share the same dyeing technology (in the zone). If someone finds a new dyer that is more efficient and effective, he shares the information with everyone here in the district... the competences are shared..."

Highlighting the need for a greater collaboration, the CEO articulates that "... we have good relationship with everyone... The choice by clients on selecting us or another competitor depends on style, product, or collection... quality is granted in the zone, and not a critical factor to operate..." Hence, industrial collaboration in terms of capability development and resource dissemination are suggested to grow in the region. However, when asked about specific performance outcomes of the renewed processes, results were not disclosed due to the company's confidentiality principle.

When a client is not satisfied with the end product, the product is returned to 'Textiles 2' after which they try to re-sell it at a lower price. If not successful, the product is eventually thrown away. Recycling, evidently, does not take place. There thus appears to be an urgent need to develop recycling related capabilities. Considering that the European regulations are strictly followed and products do not contain hazardous chemicals banned by law, product recycling does not seem to be unfeasible on technical terms.

Environmental and Social Sustainability at SC Level

Supplier audits is an important category emerging in terms of sustainability integration, as suggested by Table 15. Considering that 'Textiles 2' is also supplying to a wide range of fashion companies, 'Textiles 1' included, it is also controlled by its own client. Hence, the purpose of supplier audits is twofold: namely, monitoring own suppliers, and complying with customer requirements. Having said that, supplier audits are recorded becoming complicated toward upstream.

Table 15 Environmental and Social Sustainability at Process Level

Level	Environmental Sustainability	Social Sustainability
SC	Environmental certification of suppliers	Product responsibility
	Certification	Monitoring factory compliance
	Occupational health and safety	Supplier management
		External and accredited auditors
		Supplier audits

Monitoring activities started taking place 10 years ago upon top management's decision. Throughout the year, customer demands along with the competitors' strategies have furthered the scope. It was noted that each client sends its own staff to control the manufacturer to understand if taxes are paid, if the security exists are in place as well as fire escape exists are accurate. Notwithstanding being less than incremental, it is important to remember that this pressure is spread along the chain, and 'Textiles 2' is requested to perform the same tests within its supplier facilities.

Yet, in this sense, it is pivotal to address that when specific names were asked, such as 'Textiles 1', the client information was not received. Hence, despite the high possibility, one cannot assure if 'Textiles 1' did actually conduct a supplier audit within the premises of 'Textiles 2'. However, the CEO concluded that such monitoring activities become waste of time because the very same regular control is made by each client, and therefore productivity is constantly disrupted.

Correspondingly, 'Textiles 2' also performs similar audits and monitoring activities at its suppliers' facilities. Each year, supplier audits are conducted and for the supplier located in China, online modules are provided. Yet, data analysis and contemplation on what data actually displays is as important as conducting the audit itself. To this end, unfortunately, the entire control over supplier facilities cannot

be ensured. That is to say, how suppliers work with silk or which conditions their work belong to are not thoroughly controlled, as 'Textiles 2' are not deeply questioning what is reported back on the assessment surveys.

When the interviewee was asked whether they actually secure no child labour or fair working hours within the supplier facilities, it was reported that "... They have to respect some targets on the fabric I require, then they have to sign certain certifications where they guarantee that they don't use child labour, that the work hours are fair... but we never controlled them directly..." and continued "Regarding social sustainability we don't have visibility..." A traceable visibility cannot be acquired regarding distant suppliers located in Far East. Sustainability compliance is rather perceived reactive and observed being based on trust. That is, "We have a certification given by clients and we base everything on it... after that we gave the same certificates to our suppliers and they have to sign it... Each year we have our own control, then we implement tests on our suppliers..."

Furthermore, disclosing information of sub-suppliers emerges to be a striking problem due to commercial pressures. "When a client wants to know the origin of a material, I can find it... but these are strategic information..." It was further articulated that some other SMEs (A companies) were previously asked to disclose their suppliers' (B companies) details by their buying firms (C companies), subsequently the buying firms (C companies) bypassed their initial suppliers (A companies) and directly approached their then sub-suppliers (B companies). Hence, C became direct suppliers to A and therefore B lost earlier clients. Hereafter, luxury fashion does not seem collaborative and/or informative in terms strategic supplier information disclosure.

Trust seems to be established between SMEs in the region does not seem to be cultivated between buying firms and their suppliers. 'Textiles 2' adds that "Some clients want to know the cost of textile, some others want to know where we bought it, where we stamp it... as they have a stronger bargaining power, we have to give them, if not we won't be able to work with them"

However, such information is still considered strategically confidential and not securely shared as suggested by "... this are strategic information that we are giving to the final client and even if he signs that he won't never use this information, I know that it happens to other companies to lose jobs because they were bypassed by the clients". Intangible resources are not shared across supply networks to preserve know-how. Hence, data security becomes a critical aspect needed to further collaborations on a global scale in luxury fashion supply chains.

Considering silk mostly come from China, it is vital to provide robust and rigorous monitoring and mentoring activities at those suppliers' facilities. In Lombardy region, there appears to be a demand pool in which information is collected regarding the region's total silk need. Subsequently, an order is issued to some Chinese intermediaries whom provide Italy with silk. Then, the materials arrived from China is divided and distributed among the companies. In this setting, as pointed by 'Textiles 2' "...there is someone who groups the orders and sends them to those Chinese companies".

However, there is no visibility with respect to where the material is actually coming from, "... mostly I don't know where exactly the order is produced..." as suggested by the CEO of 'Textiles 2'. As summarized by Table 18 sustainability practices implemented at process and SC levels were described throughout this section. Product related practices, on the other hand, were negligible, they were therefore not separately covered. In addition to elaborating on sustainability integration, it is likewise important to highlight the barriers and enablers influencing decision-making processes toward the implementation. Subsequently, the next section contemplates internal and external barriers as well as enablers influencing 'Textiles 2' in their approach toward sustainability.

Barriers and Enablers of Sustainability Integration at Textiles 2

Table 16 summarizes the barriers emerged that challenge 'Textiles 2' in their management processes to the end of sustainability. At the organizational level, investments costs challenge SMEs to foster sustainability. Considering that the majority of environmental sustainability practices were actually implemented for cost reduction purposes, higher development costs that sustainability integration entails emerge as some of the most noticeable barriers.

Table 16 Barriers Impeding Strategic Decisions about Sustainability

<i>Barriers impeding strategic decisions about sustainability</i>			
Internal		External	
Organizational	Operational	Market	SC
- Investment costs - Lack of knowledge	- Lack of a framework for SSC configuration	- Conflict of interest - Lack of awareness	- SC complexity - Lack of information

"After the crisis of textile industry in 2005, the sector has been dramatically affected" stated by 'Textiles 2'. Hence, the SMEs operating for luxury fashion has lost the competition over China and therefore operational performance areas, including flexibility and speed emerge as critical market factors. " We (on the whole, suppliers in the region, only produce the orders that need to be fast and small... (But) the machineries are over dimensioned to face this change in the market..."

A dramatic variability is thus observed in production schedules. This appears to be a big challenge for sustainability control because it was reported that there are weeks when everybody have to work extra-hours. Not only does this bring less than desirable working conditions, but also it impedes sustainability assurance in terms of material traceability because commercial pressures seem to take the main priority. "... The market changed and so did we, when we can we work a lot, if not we turn off the machineries" implying the risk of an ultimate damage on business' financial sustainability.

Additionally, lack of a proper guideline and of a framework for sustainability configuration challenge the translation of sustainability into daily operations. That is to say, "...The problem is that they (the buying firms) standardize the controls (sustainability assessment tools) as they have suppliers spread all over the world, but it's different if you operate here in Italy and if you operate in China or Bangladesh..."

Therefore, industrial assessment methodologies that would consider contingent variables, such as company size, country and product typology are urgently needed. Otherwise, sustainability cannot become more than a buzz term in real-life unless it is created on easily applicable terms.

Last but not least, growing pressure coming from the buying firm is largely noticed. As depicted by 'Textiles 1', if they lose, their suppliers also lose. To this end, the end consumers push the buying firms and eventually this push is spread to first tier suppliers of such buying firms. Having said that, 'Textiles 2' addresses that, even though they are not in direct contact with other stakeholder groups, such as consumers or NGOs, they need to respect norms and regulations in order to meet the client requirements because the buying firm, having the bargaining power, can actually to cut off the business agreement with its suppliers.

Despite achieving cost reduction and less use of water as well as energy, 'Textiles 2' states that sustainability can actually impede the product quality. This controversial yet interesting result could be put forward as " "The energy saving doesn't improve the quality of the product, sometimes it can even lower it... when I have to save water it happens that sometimes I'm not able to deliver the quality requested, it's hard to find the right equilibrium..." Furthermore, some chemicals that are not allowed in Europe could provide the product with more aesthetic values in terms of feel and touch. "... Sometimes it happens that clients show me some 'Made in China' products and ask me why I cannot make the same thing. Because here some products (components) are forbidden and I can't do the same end product..."

Considering that premium quality and product itself are the most important characteristics for luxury fashion, the right balance among machinery, reduction strategy and product quality must be established because the quality profoundly comes first, to this end the following statement of 'Textiles 2' is to be remembered for luxury fashion: " First of all we need the product quality, then all the other aspect are considered..."

Despite commercial pressures or SC complexity, 'Textiles 2' clearly addressed what factors could actually enable them for a more proactive sustainability strategy. As summarized by Table 17, knowledge transfer among supply chain actors could improve the performance capacity.

Table 17 Factors Enabling Strategic Decision Making Processes about Sustainability

Factors enabling strategic decision making processes about sustainability				
Internal		External		
Organizational	Operational	Regulatory	Market	SC
- Financial freedom - Knowledge dissemination	- Innovation	- The philosophy of moving beyond regulations	- Information sharing with the competitors	- Collaboration - Knowledge dissemination

Even though market and SC structure seems to be hindering companies from detailed information about their suppliers, collaboration requires an extensive level of knowledge sharing. As previously, highlighted, innovation and technical capabilities are needed to find the right equilibrium between product quality and environmental footprint generated by existing machines and to improve the final product's quality even while reducing water and chemical use. Yet, this entails higher investment costs that make SMEs be in need of financial incentives. Lastly, luxury fashion aims to be moved beyond existing regulations; yet, luxury fashion companies, both big buying firms and SMEs must be accordingly transformed their philosophies toward a positioning where sustainability is rather considered the core of the entire business strategy than an undesirable separation.

Textiles 3

'Textiles 3' was established in 1884. As a SME, it encompasses two Italian facilities in Italy, Mortara and Mantua respectively, for 'Made in Italy' production, and one facility in Tunisia. While aiming at providing the client with the best possible combination of value for money and service quality, the company handles the majority of product processing in house.

Having said that, forward-looking approach toward new technology development and sustainability are considered the main components of the corporate philosophy. Production cycle is operated in a vertical setting, that is, from the yarn purchase to the sample delivery, the company does not rely on external facilities except fabric finishing, for example dyeing.

Fabric is produced in Italy; therefore knitting process is entirely handled within the country. While cutting occurs in Mortara, packaging takes place in Mantua. The quality control of the finished items, on the other hand, is held again in Mortara. Since 2008, the company has its own production site in Tunisia in pursuant of the aim to increase market competitiveness in terms of quality-price ratio. The fabrics processed there are mainly produced in Italy. Following finishing processes, the garments are made, cut, ironed and packaged then sent back to Italy for quality control.

Operational aspects, including sample selections and use of experimental technologies, such as new trials in terms of finishing, washing, applications, embroidery and printing techniques, are shared with the designers, hence knowledge transfer is considered fundamental within the corporate strategy. Following this brief company description, the next sections aims to elaborate on how 'Textiles 3' embarks on environmental and social sustainability at product, process and SC levels throughout its operations.

Environmental and Social Sustainability at Product Level

Sustainability integration in product emerges as a principal topic for 'Textiles 3'. The founder relatedly stated that the use of sustainable materials has been a pivotal aspect for the company. Unlike what was observed in the case of 'Textiles 2', that is, environmental sustainability not being an enabler for quality improvement, 'Textiles 3' stated that with the use of organic yarn, the product becomes a lot better. "Seed, get the cotton wool, clean it, dye it in organic way.... And the yarn is exceptional "

"The quality (of the product) is higher (while) respecting planet, population and profit". Sustainable fabric production appears to be a well-developed capability within the company. It was also suggested that producing sustainable products could also help strengthen the industrial relations. 'Textiles 3' asserts, "...It will raise the quality of relationships of all SC actors"

To this end, sustainable yarns are adopted and the company produces its sustainable fabrics. Notwithstanding existing clients being interested in product development out of organic materials, costs are still high, which results in small-scale sustainable fabric production. "Clients are interested that we adopt sustainable yarn, but it costs a lot..." "We have a small quantity booked: we reserved 2000kg of yarn, and half of it is reserved for the Kering Group, the remaining part for another one".

Domino effect was depicted to explain how every actor in the chain could be more sustainable. To this end, big buying firms are recommended to support their suppliers. In this vein, SMEs could also support their own suppliers, consequently numerous SMEs could be empowered to develop more environmental friendly techniques, reduce costs and make sustainable products a common market practice rather than a far-fetched business objective.

Another important aspect is associated with the chemical use. The company is strictly following the regulations and puts forward a proactive stance. Since dyeing phase is outsourced, 'Textiles 3' acts even more cautious regarding the material use. The suppliers are required to respect the REACH normative. It was stated that the characteristic of crude/raw cotton and dyed materials have to maintain a certain solidity in terms of colours and physical aspects while the REACH normative must be respected."

All products are strictly tested through a number of laboratory analyses to ensure all chemical levels are in compliance with the standards. "Before sending the final product to the clients, all test can be implemented in our laboratory or in clients laboratory, depending on how the price is structured" highlighted by the founder.

As for the social sustainability, employees working in the production are provided with a friendly working environment. Due to being a SME having a 130+ years of heritage, the company tries to move beyond the regulations by considering the workers' needs and career development the corporate priority. "... There were girls starting here with their traineeships at the age of 16/17 (to be) learning how to do the job and (they) work all their careers at our facility". " It is a friendly environment". The best practices observed in 'Textiles 3' pertaining to sustainability implementation at product level is displayed in Table 18.

Table 18 Environmental and Social Sustainability at Product Level

Level	Environmental Sustainability	Social Sustainability
Product	Use of eco materials	Providing better skilled human resource

		management
	Regulatory compliance in terms of chemical use	Worker empowerment
	Use of certified raw materials	Providing more desirable working conditions
	Use of locally sourced materials	
	Laboratory tests	

Environmental and Social Sustainability at Process Level

Following the product level, this section explores the extent to which 'Textiles 3' integrates environmental and social sustainability in its production processes.

Primarily, 'Textiles 3' aims to combine its over a century long experience with a forward-looking approach to provide constant and rapid developments. As depicted, a vertical production cycle is operated. After yarn is purchased, knitting internally takes place to produce the fabrics in Italy. Only finishing treatments are outsourced. Hence, sustainability integration in own operations appears to be applicable.

Process innovation is a distinctive practice. In order to develop a wide range of designs and customized options, the latest computer-aided-design and information technologies are deployed. Not only do this enable the company to meet special client requests, but it also helps reduce textile waste and generate more environmental friendly production outcomes in terms of water and energy use.

'Textiles 3' has three knitting rooms. Initially, in the first room mainly electronic knitting machines are utilized to produce soft fabrics, such as mercerized cotton, and in the second room wool yarns are processed with the use of high technology, and lastly, flat knitting machines are used to produce garment accessories. Technical knowledge built in garment production through innovation helps the company deliver constant improvement, internal capacity development, less stressful and friendlier working conditions and learning outcomes for the employees.

Knowledge dissemination, on the other hand, emerges as an important practice resulting in capacity development. That is to say, 'Textiles 3' is committed to try and utilize new, novel and experimental technologies. Such suggestions also include trials in terms of finishing, washing, embroidery and printing methods. Relatedly, these proposals as well as new techniques are internally shared with the designers, which eventually help develop internal competences. In summary, Table 19 displays the best practices emerged within 'Textiles 3' pertaining to environmental and social sustainability integration at process level.

Table 19 Environmental and Social Sustainability at Process Level

Level	Environmental Sustainability	Social Sustainability
Process	Wastewater treatment	Providing a career path to workers
	Chemical elimination	Developing programs for labour

		workforce
	Reduce textile waste	Improving working conditions
	Process innovation	Knowledge dissemination

Environmental and Social Sustainability Integration at SC Level

'Textiles 3' puts forward a proactive approach toward sustainability integration across its supply network, as displayed by Table 20. The suppliers' competence on the compliance with environmental regulation and providing decent working conditions to their employees are vital criteria for 'Textiles 3' to develop and maintain supplier relations. For example, they do not source materials from China. It was stressed that "... Over there the structures aren't good... So, it has been discarded (even if the product is well-made) because of the way they work"

Similarly, Algeria was suggested being another country, which was not preferred. The founder points out "(No Algeria because) even if they had a French education, we didn't see that change (toward) a more liberal culture". When the selection criterion for Tunisia was asked, it was revealed that the company eventually felt comfortable in terms of both product quality and working conditions. Hence, it can be suggested that working conditions and labour rights are very important aspects to be improved across the chain.

Table 20 Environmental and Social Sustainability at SC Level

Level	Environmental Sustainability	Social Sustainability
SC	Energy efficiency at supplier facilities	Training and educational materials
	Certification of suppliers	Supplier management
	Occupational health and safety	External and accredited auditors
	Traceability	Supplier audits
	Procurement certification	Use of a supplier ranking system
	Supplier selection based on sustainability practices	Two tier supplier audits
	Laboratory tests	Monitoring sustainable manufacturing
		Monitoring factory compliance
		Stakeholder engagement
		Philanthropic actions

Supplier audits are the most essential tools implemented at supplier control. To this end, the company strictly controls and evaluates the certificates received from the suppliers. For example, the certifications received from some Turkish material suppliers claimed that yarns were organic. Nevertheless, the case was exact the opposite. "In Turkey, yarn suppliers tried to sell yarns by faking that they were organic... but in reality the yarns were only over-charged... They received the GOST certificate but it wasn't even true... After some controls, everyone saw that the yarns were bad and that they didn't respect the certificates". SC complexity and difficulties surrounding the traceability were therefore addressed. That is, while considering

everything such as pesticides required to clean cotton, chemicals etc., "... It's really hard to find suppliers that respect everything. I see Sustainability as a returning back to the Antiquity".

There exist some examples in which the clients also conduct supplier audits. In this vein, "(The clients) want to be granted that the way we work respects the social point of view of sustainability." To this end, the Kering group, which is a massive client for the company, did the audits in production facilities located in both Italy and in Tunisia. 'Textiles 3' further advances its monitoring strategies over raw material production to ensure product responsibility. It was reported "... When we have some problems we go directly to the yarn, we don't wait (to check) till the fabric finishing..."

Community development is another area where strategies are implemented. Give back to society appears to be a business principle, which is endorsed also within supplier facilities. Producing more sustainable materials is suggested to bring a number of benefits, including cost reductions. Thus, there exist strategies to invest on the workforce. Accordingly, 'Textiles 3' pushes its suppliers to give scholarships and to embark on philanthropic actions to support community development and employee satisfaction. Stakeholder engagement has also been endorsed for a long period of time. The founder states, "From 60's we started to work with trade unions, that in the beginning was really hard but right now the relationships are strong". On the whole, social sustainability is evidenced being advanced throughout the chain.

Product responsibility is evidenced to be an aspect in which environmental and social criteria have been satisfied. It is observed that the majority of the clients are familiar with the work of 'Textiles 3', so that the laboratory tests are performed by 'Textiles 3' and the results are duly reported to the client. The founder states, "If client finds a product that is forbidden by REACH the process starts again..." and concludes "... but it never happens".

Last but not least, a committed client is suggested as prerequisite for sustainability integration. When 'Textiles 3' realized the quality outcome and improved performance result obtained with the use of organic cotton, they openly discussed this with the Kering group. As an evidently driven company toward sustainability, the Kering has been booking the half of the entire organic fabric stock of 'Textiles 3', which secures the continuity of the project as a result of financial stability.

Barriers and Enablers of Sustainability Integration at Textiles 3

What is happening in the market and how the fashion industry is changing in terms of regulations, innovations and trends have become the principal drivers for the company to adopt a forward-thinking approach. Hence, sustainable development was explored and, to the best of their capacity, was attempted. Nevertheless, 'Textiles 3' reveals some barriers whose existence impede sustainability integration in operations management. Table 21 puts together these factors.

Table 24 Barriers Impeding Strategic Decisions about Sustainability

Barriers impeding strategic decisions about sustainability			
Internal		External	
Organizational	Operational	Market	SC
- Not observed	- Not observed	- High costs - Lack of high quality sustainable supply - Pollution	- SC complexity

Barriers mostly emerge in association with external parameters. Correspondingly, higher prices attached with sustainable material development become a significant problem. "We need to reduce the (price) gap, we cannot charge a polo 20% more than its previous price".

Even though the use of organic materials and sustainable product development bring higher performance results in terms of quality, the company feels a crucial need of getting lower prices for organic materials, as market is not that saturated to be able to afford higher prices just because of the use of organic materials. The founder reveals, "Price too high right now, we can sacrifice our profit for one or two seasons, but after it we can't."

Another challenge pertains to lower yarn quality. That is to say, to produce high quality yarns, white-gold cotton is recommended to deliver good results; similarly, there exists 'Sea Island', which is cultivated on an island with limited production, delivers very good results.

However, in order to satisfy the growing market demand, yarn producers could apply some misconduct that result in lower quality. It is noted, "... high quality is mixed with lower quality yarns, which lowers the quality.". To overcome this, 'Textiles 3', as provided in the previous section, controls its material supplier strictly. "When we get in touch with a yarn supplier we ask directly the certifications of each wash of yarn they do... Season by season we check."

Surprisingly, environmental pollution is recorded as a barrier impeding sustainable production. That is, raw material cultivation is gradually challenged by pollution. "... It's hard to find of non-contaminated seed." the founder explains. "When the market got saturated, we weren't anymore able to find good suppliers, so we started putting higher targets..."

Table 22 Factors Enabling Strategic Decision Making Processes about Sustainability

Factors enabling strategic decision making processes about sustainability				
Internal		External		
Organizational	Operational	Regulatory	Market	SC
- Company culture - Know how	- Innovation	- Not observed	- Information sharing with the	- Collaboration - Knowledge dissemination

			competitors - Buying firms' incentives	
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Ensuring production is to meet both environmental and social standards requires strategy amendments. Consequently, the entire network is suggested to be in need of a significant knowledge development. "Culture that goes from Farmer to Consumer has to change... you need notable experience, an incredible know how".

Company culture and management commitment could be suggested as important features to enable sustainability. Yet, furthermore, big fashion houses are requested to support and incentivize SMEs for sustainable production. If only commercial pressures and price negotiations could be softened a little bit, SMEs would be enabled to invest on machinery and technological development because, as pointed by 'Textiles 3', advanced machineries as well as research is needed. Such enablers are categorized and displayed in Table 22. Finally "Culture that goes from Farmer to Consumer has to change" is stated as a final remark to emphasise how a SME could better assure industrial collaborations, knowledge transfer, and eventually sustainable development across its chain.

Textiles 4

Textiles 4 is a SME driven for continuous improvement in terms of production and quality. With a particular preference for the use of natural raw materials, including silk, cashmere, cotton, extra fine merinos, mohair and lambs wool, the company purchases wool from Italian suppliers while viscose textiles come from Bulgaria. Further, buying firms could also provide their own yarns depending on the structure pertaining to price and production volume. Once yarn is acquired, knitting and weaving stages take place in Italy. Several rectilinear knitting machines of the latest generation are utilized. In accordance with the company policy of constant compliance to the new technologies, all machines used in the production facility are linked to a centralized computer system. The weaving is carried out along with a department in which finishing processes, such as punching needle are handled. Subsequently, garment production, including pre-ironing, quality control and packaging are carried out and finalized in the packaging division.

'Textiles 4' has its headquarters in Abbiategrosso, Italy and one other facility in Tunisia. The knitting and weaving are considered principles operations and always take place in Italy. However, sewing and packaging stages could be carried out in Tunisia too, unless a particular or a specialized technique is required. The decision to produce garments in Italy or in Tunisia is solely dependent on customer requirements in terms of price and quality. Surely, for the items labelled as 'Made in Italy', no process is carried out in Tunisia, and furthermore, regardless of where packaging is held, product control is always conducted in Italy. Having said that, the following section aims to highlight the extent to which environmental and social practices are carried out throughout the operational stages.

Environmental and Social Sustainability at Product Level

'Textiles 4' produces a wide range of products for some of the most authentic luxury fashion houses. Thus, the premium quality associated with the design concept of beauty is the fundamental aspect. As for the product, the majority of sustainability practices previously identified in the managerial literature were not observed. Relatedly, no novel practice could be suggested within this case, as product quality is considered prerequisite and an arm's length approach is pursued by which regulatory compliance is ensured.

Yet, what is noteworthy that providing decent working conditions is considered an asset, and in this vein, production facilities where employees perform their duties can be suggested to be very organized, respectful, and civilized. Notwithstanding the mechanized structure, that is, the company invests in the latest technologies; handcraft is still a significant component. Hence, the facility provides comfortable working conditions to its employees not only to ensure social welfare but also to assure product quality is to be met. Nevertheless, as displayed by Table 23, it could only be stated that 'Textiles 4' emerges to comply with regulatory obligations and cannot provide a provocative stance to aim new horizons for social as well as environmental development.

Table 23 Environmental and Social Sustainability at Product Level

Level	Environmental Sustainability	Social Sustainability
Product	Regulatory compliance on quality control	Regulatory compliance on working conditions

Environmental and Social Sustainability at Process Level

Regarding environmental sustainability, process innovation has resulted in some benefits. As a consequence of new machinery, directly financial sustainability, in the form of cost savings and operational efficiency, and indirectly environmental sustainability, in the form of energy efficiency, are observed. Hence, the founder points out that innovation and the use of new technologies help the company foster sustainability; "... we are trying to renew them (the machinery), for now one third is renewed". Social sustainability, on the other hand, is contributed since the company invests in new machinery, improves facility conditions and fosters occupational health and safety.

However, one major problem was surfaced, that is, the textile waste. Yet, the textiles include many different types of yarns each of which has a different composition. Hence, the complexity results in all scraps becoming waste.

It was further pointed, "... it can happen that the machine doesn't work as it should, and the textile appears damaged. But the textiles are made of different types of yarns. We should differentiate the single yarn and it would be impossible, since the different yarns have different compositions and (they) should be managed differently. It is difficult to manage this complexity. All the scraps become wastes". Consequently, the client is asked if textiles could be bought at a discounted price;

but if they say no, all becomes waste and is thrown away. Despite being limited, practices implemented at process level are shown in Table 24.

Table 24 Environmental and Social Sustainability at Process Level

Level	Environmental Sustainability	Social Sustainability
Process	Process innovation	Occupational health & safety

Environmental and Social Sustainability at SC Level

SC sustainability emerges as a better-established area for 'Textiles 4'. Successively, as a supplier, 'Textiles 4' is exposed to some tests and controls carried out by some of its clients. The founder states that the clients ask 'Textiles 4' to provide certifications. Though the customer-requested certifications shall be perceived to be statements based documentations. On the whole, the basic questions such as the number of the workers, contract types, and working hours are addressed in a highly standardized manner. Pursuant to international standards, the scope of the questionnaire also entails worker rights protection.

'Textiles 4' has developed relatively closer relationships with its suppliers compared to some other SMEs in the same region as a consequence of supplier stability. That is, they work with a limited number of suppliers that are on small enterprises. "... it can happen that our suppliers are small laboratories with two or three girls (working there)." Hence, as for such small suppliers, clients are provided with the conformity statement issued by 'Textiles 4' guaranteeing the supplier's sustainability performance. When a new business relationship is formed between 'Textiles 4' and a supplier, though, suppliers are asked a regular disclosure in accordance with what the clients would oblige 'Textiles 4' to do.

As for the production facilities of 'Textiles 4', fair and decent working conditions are ensured in both Italy and Tunisia, as stated "We are sure about the sustainability of our processes. The raw material come from Italy, we know the suppliers. Then, we know how we are producing our products, both here and in Tunisia. We can guarantee a fair and equitable work for everybody".

Lastly, it must be acknowledged that such sustainability checks are performed at the beginning of the business relationship and then are recurring every year through rather basic statements. Whereas quality controls are conducted for every new product in order to ensure product responsibility. "... Instead, (quality) controls are realized each time we deliver a product to the customer. Sometimes the client's inspectors come here, sometimes we send the products to the client and the control is done by the client". An overall glance is provided in Table 25 regarding environmental and social sustainability practices implemented by 'Textiles 4' at SC level.

Table 25 Environmental and Social Sustainability at SC Level

Level	Environmental Sustainability	Social Sustainability
SC	Supplier certification pursuant to client requirements	Monitoring factory compliance
	Product responsibility	Supplier management

Barriers and Enablers of Sustainability Integration at Textiles 4

The biggest driver for 'Textiles 4' to embark on sustainability lies in growing customer demands. The founder relatedly explains "... we introduce sustainability in our business model because it was required by the customers." Hence, not only product quality but also sustainability performance is becoming increasingly important for luxury fashion SCs. Yet, some barriers emerge, which eventually impede sustainability integration of 'Textiles 4'. Profoundly, limited company resources that SMEs have with respect to financial assets and know how become the biggest challenge of sustainability.

Some of the SMEs operating in luxury fashion SCs are not the owners of the manufacturing plants. Due to their tenant statues, it becomes increasingly difficult to amend the systems.

For example, 'Textiles 4' highlights their awareness about environmental as well as financial consequences of renewable energy generation. Yet, in this current setting, they cannot apply corresponding methods. "We wanted to introduce the photovoltaic panels but we rent this facility and who holds the structure does not want them. ... Surely it is something that we want to do. We also wanted to rebuild the roof in order to save energy and isolate the structure". Evidently, lack of awareness has brought such an obstacle rather than commercial pressures.

Table 26 Barriers Impeding Strategic Decisions about Sustainability

<i>Barriers impeding strategic decisions about sustainability</i>			
Internal		External	
Organizational	Operational	Market	SC
- Lack of financial resources	- Lack of knowledge	- Lack of awareness	- SC complexity

In this vein, 'Textiles 4' promotes innovation and technological development to foster sustainability. On the one hand, product quality is ensured, on the other hand, employee tasks are reduced and energy consumption is controlled. To this end, operational aspects could be improved through innovation in the way toward sustainability. Moreover, stakeholder collaboration can be suggested as an enabler to make sustainability reach a certain industrial level across the chain and to provide a consensus, which sustainability performance could be measured against. Finally, Table 26 and 27, display some of the barriers and enablers of sustainability respectively.

Table 27 Factors Enabling Strategic Decision Making Processes about Sustainability

Factors enabling strategic decision making processes about sustainability				
Internal		External		
Organizational	Operational	Regulatory	Market	SC
- Not observed	- Innovation	- Not observed	- Collaboration	- Collaboration

Textiles 5

'Textiles 5', which was originally founded as a silk factory, has a 60 years long heritage. Depicting the story of 'Textiles 5' could actually provide a wide range of interesting insights to explain the extent to which shifting industrial dynamics could affect SMEs. 'Textiles 5' had silkworms inside the company. Knowledge and material resources were in place to create yarn and weave it to create textiles out of silk.

Subsequently, scarves, ties and linings other products were produced and finalized within the company. Hence, fashion production by encompassing all SC stages from raw material cultivation to the final assembly were carried out within its own premises.

What once was peculiar turned out to be a very difficult process under the thumb of globalization. Silk production then became more financially problematic than market advantage and thus they opted to buy silk from abroad. Having said that, progressively, they have focused on buying yarns and on the realization of finished textiles. Hence, their operational strategy could be suggested to be minimal, which aims to produce finished textiles. Their textile suppliers are mostly Italian, whilst cotton (their second tier suppliers) are in Egypt and Turkey, and silk is supplied from China.

Even though they only have less than 50 employees, they manage to provide the market with a wide range of finished textiles to be used in production of further goods, including bags, shirts, shoes and clothing. Subsequently, the extent to which environmental and social sustainability is integrated in 'Textiles 5' is addressed in the following sections.

Environmental and Social Sustainability at Product Level

The core business activity of 'Textiles 5' lies on finished textile production. Hence, such critical stages as dyeing or finishing treatments are not encompassed in its production setting. Still, product responsibility emerges to be a vital aspect for which there exists a bullwhip effect coming from the client. To illustrate, the production manager adds, "... We receive many controls, some entities control materials too".

As a consequence of being a small company, 'Textiles 5' comes shorts in developing and deploying some technical capabilities. That is, they do not have an internal laboratory to test their own fabrics. Once, the materials are finished and the order is shipped to the client, product tests are conducted by the client itself. "We check only the textile quality, we cannot face an internal laboratory... but the clients

can make several test, and if they find something that is not good, we work together to change it and solve the problems...”

To illustrate, it was stated, “Three years ago it happened that a client, during laboratory tests, found that a colour was composed by a chemical product that after five or six hours of exposition, it released a chemical toxic product on the sweat skin, so the production was blocked immediately... They asked me directly to inform my supplier of the bad material... I talked with the supplier and in five months everything was solved...” Subsequently, when the client tested the product and the chemical was not found.

However, it is very difficult to know the exact composition of the yarn. In order to ensure product responsibility in the most feasible way, ‘Textiles 5’ pays a strong attention to the use of certified materials and they ask each and every of the suppliers to provide certificates for materials and textile they provide. From a chemistry standpoint, there exist many product related issues that must be solved. To this end, regulations are amended and companies are asked to comply with regulations concerning chemicals. “...we know that from a dyeing perspective, rules change a lot caused by sustainability problems (because) in dyeing plants they face many issues regarding skin problems and air quality...” Yet, this implies an industrial dialogue in which all actors, even the ones who are not actively involved in certain processes, are to be updated and informed.

Hence, the entire industry must work jointly to confirm continuous improvement. It was acknowledged that sustainability raises the cost of the product to be sold; nevertheless, the quality of the product is distinctively increased. “I noticed that during the time, the quality of product improved a lot... Especially the natural yarn... but of course we know that a continuous improvement is needed to keep working in this industry” All in all, despite their limited capabilities and financial restrictions, ‘Textiles 5’ is open to talk about sustainability and to provoke Italian luxury fashion industry to jointly move forward to better secure its position. To this end, product related sustainability practices implemented are showcased in Table 28.

Table 28 Environmental and Social Sustainability at Product Level

Level	Environmental Sustainability	Social Sustainability
Product	Use of natural yarn	Regulatory compliance on health and safety
	Use of certified raw materials	

Environmental and Social Sustainability at Process Level

“... The competition is incredible, and for few cents we risk to lose a job, for one or two days of delay we have to pay penalty...” shall illustrate the commercial pressure the company executes its operations against. This being the case, financial dimension of sustainability inevitably emerges as the most decisive aspect. Under this circumstance, process innovation is observed being fostered to acquire some savings. ‘Textiles 5’ relatedly states, “All projects implemented concerning

environmental sustainability were made to reduce our costs...” To this end, renewable energy generation emerges as one of the leading projects for environmental sustainability. “Photovoltaic panel implemented three years ago in order to have energy savings...” and consequently “In spite of the huge initial investment, I face cost savings in implementing environmental practices... The only big expense was the electric energy, so we invested trying to reduce it...”

However, there seems to be a constant search for regulatory compliance and better performance results, as articulated, “... We need to understand which is the most efficient machinery that lets us to have savings” Not only does ‘Textiles 5’ comply with the regulations; they also underline the importance of industrial norms that would entail the chain at its entirety. Supplier facilities and transparent information on their working conditions, raw materials’ composition and traceable supplier information, environmental and social consequences that other intermediaries might generate could be enlisted as some of the aspects for which industrial yet multidimensional conversations seem pivotal.

“ Every time we receive a new norm we respect it immediately... (In this vein)... We have waste recycling respecting all the norms” Due to its production structure, ‘Textiles 5’ has some advantages. For example, they do not create any emissions or their water use entails only personal use.

As for the waste, even though they do not create significant amount of waste, any potential scrap generated is donated for social causes. “Generally speaking we don’t have scraps... all the waste (created) are donated to schools, churches and associations that help disabled kids... but we are a make-to-order producer, so we don’t have stocks of finished product... only the defected fabrics, sent back by the client, are firstly charged with a discounted price, if no one wants them, they are donated...” addresses ‘Textiles 5’.

Regarding chemical use, ‘Textiles 5’ does not use any sort of chemicals in their processes. Nevertheless, the production manager unapologetically suggests that the main foci must be oriented to dyeing plants or printing houses. Regulations, industrial forms and stakeholder pressure suggest that there actually a growing emphasis on SC sustainability by encompassing all actors, and in pursuant of the objectives of this study, ‘Textiles 6’ is strategically conducted to channel the reality of a dyeing plant. Subsequently, Table 29 displays specific practices deployed by ‘Textiles 5’ even though the arm’s length principle is observed being pursued with an overall goal of improving financial sustainability while touching upon social and environmental aspects incrementally.

Table 29 Environmental and Social Sustainability at Process Level

Level	Environmental Sustainability	Social Sustainability
Process	Process innovation	Occupational health & safety
	Use of certification	Philanthropic donations to local communities
	Waste recycling	

	Renewable energy generation	
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Environmental and Social Sustainability at SC Level

'Textiles 5' is regularly monitored by its clients as well as by some Italian institutions. The main subject area seems to pertain to health and safety and product responsibility. That is to say, " We receive many controls, especially from Italian institutions, that make audits for brands. They check security of the facility, the health of workers, some entities control material compositions too''. However, it also emerges that different brands address different requests.

On the one hand, this could be perceived less than being efficient because SMEs might end up spending hours on the compliance without providing robust and rigorous assessment details; on the other hand, without a unified and a standardized industrial assessment tools big buying firms cannot accurately measure all of their suppliers.

To prevent any potential problems and to increase their operational efficiency, 'Textiles 5' tries to perform its activities in the cleanest way and to crate the possible cleanest product to prepare itself for all different types of requests coming from the clients. To illustrate, for example, "Every year Ecotex receives some samples from our production to do some analyses to control if they respect a series of ecotoxicological parameters. But if somebody else (another institution or client) requires a value that is lower, we have to check again"

Product responsibility and material composition have enabled the company to develop some competences in terms of developing corrective action plans. As previously indicated, the company immediately informed the suppliers about laboratory test results after they had been informed that there were some chemicals, which would occur toxicity on a sweat skin. Not only was the problem prevented from future occurrences, but also the supplier was provided with a technical knowledge, which helped it confront the toxicity problem. Direct communication with its suppliers earns 'Textiles 5' a rather active approach towards sustainability.

Certificate of origin appears to be an important practice implemented by 'Textiles 5'. Suppliers are regularly asked to provide such certificates to ensure product responsibility due to the following reason "... (Because) we cannot know exactly the composition of the yarn''. As certificate of origin is to be guaranteed, the client base winningly prefers 'Textiles 5'. "We have clients because I can guarantee them the origin certificates..." says the production manager.

Having suppliers in the same country provides some advantages. On the one hand, delivery times are shortened; on the other hand, monitoring becomes manageable.

Thus, 'Textiles 5' relies on Italian suppliers by highlighting " They (the clients) want to know the origin of all the material that compose the product, the colorants used, if they respect the security laws for skin... they have to respect all the environmental norms; this information is granted if you have an Italian supplier" For

example, raw silk arrives from China to Como then receives dyeing and finishing treatments in accordance with regulations.

However, raw material sourcing reappears as the most problematic aspect. Regarding the use of Chinese suppliers 'Textiles 5' asserts that when Chinese companies are to import, strict certificates are requested, yet when they are to exports ensuring what is used under what conditions postures a big question mark. Nevertheless, it is important to remember that tracing first tier does not necessarily mean that second tier is traced to the same extent. The production manager adds, "Of course, I have Italian suppliers, but raw materials come from all over the world: cotton from Egypt or Turkey, polyester from Bulgaria or Romania, silk from India or China..."

"We ask the certificate of origin to our suppliers because our clients want to receive them. We then sum all the certificates of the composition of the product..." thus, upon receiving the yarn, 'Textiles 5' also receives the certificate of origin associated with the material to assure all the norms are met while realizing the yarn. "We sum all the certificates of the composition of the product... They (the clients) want to know each kind of percentage of material (and) where it comes from so we are obliged to ask to our suppliers..."

Throughout the years, trust seems to be established between 'Textiles 5' and both the clients and the suppliers. That is to say, "... Clients mostly are long-term, there is a friendly relationship... but we have fast-fashion orders too, that are renewed by project and article. If they like it they ask me again in the following season..." As for the suppliers, there exist long-term contracts and collaboration too. "It's a long year of relationship, based on trust... We don't do test as few (referring to the textile producers) remained in the sector of textile, so we know and trust each other..."

Yet, trust entails a major drawback. Since the business relationship is established based on trust, some important questions seem not to be thoroughly asked. Especially, in terms of social sustainability aspects, including labour issues, child labour, working conditions, many things emerge to be taken for granted. "We don't ask information as we are all Italian companies and we care these situations... as we are almost friends and we know all the companies that work with us. Clients don't ask to us, we don't ask to our suppliers" says the production manager and concludes with an assumption of everybody keeping everybody satisfied in own premises "In my reality, we don't have exploitation... We always try to meet workers needs... we try to give them all they need to make them satisfied" Notwithstanding, trust and sincere relationships numeric approaches and measurable standardization toward social sustainability emerges to be the biggest drawback. Having said that, Table 30 summarizes the most essential components of sustainability integration at the chain level.

Table 30 Environmental and Social Sustainability at SC Level

Level	Environmental Sustainability	Social Sustainability
SC	Hazardous chemical elimination at supplier facilities	Monitoring factory compliance
	Product responsibility	Product responsibility
	Traceability	Supplier management
	Laboratory tests	Certificate of origin

Barriers and Enablers of Sustainability Integration at Textiles 5

This section underlines the barriers impeding sustainability integration, which is summarized in Table 31. In general, what is observed is that SMEs do not always have organizational capabilities pertaining to corporate and manufacturing strategy. In order to meet client demands in terms of lead times, cost and quality, 'Textile 5' is challenged by the market competitive structure by stating "The textile sector is always on crisis... We always need to study the market demand, which asks low costs and high quality, which seems to be inversely proportional. (The) competition is incredible. For few cents we risk to lose a job or for one or two days of delay we have to pay penalty..."

Table 31 Barriers Impeding Strategic Decisions about Sustainability

<i>Barriers impeding strategic decisions about sustainability</i>			
Internal		External	
Organizational	Operational	Market	SC
- Higher prices for sustainability investment	- Not observed	- Commercial pressures	- Lack of a framework for SSC configuration

Henceforward, market structure and commercial pressures are actually resulting in challenging companies. Nevertheless, customer demands and cost savings are closely associated. That is, the company finds itself in a position in which operational performance must be improved while costs are to be shortened. "... We need to find the right balance between them... Profit margins are so reduced and we have to properly invest on the assets... we need to understand which is the most efficient machinery that lets us to have savings" So that such commercial pressures can be claimed to be actively helping the company develop and implement practices, resulting in cost savings.

Furthermore, globalization constantly changes industrial dynamics resulting in further complexities. "60 years ago we had the entire production of silk internally... we started from silkworm cultivation to the final product... but years passed and globalization created complexities, it was too costly to produce everything internally; it was less costly to outsource it... so right now we buy yarn and produce only textile..." Consequently, monitoring purchasing and sourcing practices becomes a difficult facet. A lack was suggested in terms of a proper guideline and a framework

for sustainable SC configuration. To this end, industrial standards and regulatory adjustments are urgently needed to better encapsulate SC transparency.

In this sense, operational flexibility and supplier responsiveness are suggested to be some of the capabilities that SC actors are increasingly required to master. “Quality and punctuality are the critical success factors of the market...so we need our suppliers to be faster and punctual as we are” SC collaboration is thus important not only to amend operational performance but also to reach SC sustainability. Buying firms are requested to provide further information about material suppliers; hence, SMEs are asked by their clients to acquire then deliver such certifications.

“We have clients because I can guarantee them the origin certificates and because we are fast...” Last but not least, knowledge dissemination, information accuracy and SC collaboration, as briefly underpinned in Table 32, could be enlisted as some of the factors that ‘Textiles 5’ consider enablers.

Table 32 Factors Enabling Strategic Decision Making Processes about Sustainability

Factors enabling strategic decision making processes about sustainability				
Internal		External		
Organizational	Operational	Regulatory	Market	SC
- Know how	- Innovation - Flexibility	- Not observed	- Knowledge dissemination	- Collaboration with the chain actors - Supplier responsiveness

Textiles 6

‘Textiles 6’ is a SME providing a very specific service in the fashion supply network. They work as subcontractors and their clients are the ones who provide them with own materials. That is to say, ‘Textiles 6’ usually works with companies, including textile mills, converters, and/or buying firms that leave the textile to ‘Textiles 6’ for dyeing and finishing treatment processes. Hence, ‘Textiles 6’ receives the tissue from its clients, works on it and returns it as a finalized fabric to be used in production of further goods.

The services of ‘Textiles 6’ cover some of the most significant yet challenging processes in textile production, including dyeing and finishing through a set of mechanical and physic-chemical processes, to bonding and textile printing. Dyeing can be done on a wide range of fibres, such as natural fibres including silk, wool, cashmere and mercerised cotton as well as synthetic fibres including polyester and aramid fibres. By putting forward innovative technologies, the company creates innovative multilayer and bonded textiles that can be categorized as breathable or waterproof. As for the textile printing, ‘Textiles 6’ merges craftsmanship with new technologies through digital fabric printing. Lastly, quality control plays a key role in the production process, as since 2009 ISO 9001 is in place.

Environmental care for the region and social welfare for the local community are the basic principles that 'Textiles 6' stands for. With an ultimate objective to reach customer satisfaction, the company pursues an active approach for employee satisfaction and environmental sustainability. Having said that, the following section specifically addresses the extent to which sustainability is integrated in this very specific textile process.

Environmental and Social Sustainability at Product Level

As briefly illustrated, 'Textiles 6' provides very specific services of dyeing and finishing. Therefore, product responsibility is an essential aspect for which both the client and the company itself pay a closer attention. Chemical use emerges as the central area for which efforts are being made. In this vein, 'Textiles 6' delivers a novel practice that is to be endorsed in fashion networks, that is, a chemical matrix. Director of 'Textiles 6' states, "We are trying to be as ecologic as possible, (therefore) categorizing the chemicals in a matrix in order to replace any chemicals that create problems from a social and environmental point of view. This attention arose when we saw the appearance of the REACH and other certifications, like Tessile e Salute and Ecotex that have a great global impact"

Albeit existing efforts toward product stewardship, 'Textiles 6' is impeded by the fact that there exist some chemicals whose existence is essential for product performance. To illustrate, fluorocarbon is an important chemical to earn water repellence. However, there was a campaign against all sort of fluorocarbon substance but as stated by 'Textiles 6' "... There is no alternative solution that could deliver the same performance..."

The company aims at chemical reduction, water savings and use of certified raw materials for a rather proactive product stewardship approach. To this end, knowledge exchange with the clients within an open conversation has a paramount importance. "... If the client wants something that could be problematic (in terms toxicology), we contact the client and we tell him that if he wants follow the rules, some components must change"

Similarly, if a colour mustn't be used in order to claim product responsibility, the company gets in touch with the client to draw a joint solution. However, sourcing is still considered the most problematic area that impedes SC transparency. It is stated that companies are not aware whether and to what extent certain chemicals and/or processes are employed during raw material extraction. "We do not exactly all the components within (the fabrics)." This could be exemplified, for example, by the fact that the oil spinning weaving could have chemicals that 'Textiles 6' is not aware, relatedly there might exist chemicals going into the washing tanks and may release substances that the company would not learn afterwards.

Another example could be drawn with the use of hydrochloric acid. 'Textiles 6' does not purchase caustic soda or hydrochloric acid, but there are a set of commercial products requested from the suppliers. Even though REACH legislations are complied with, the risk exists as stated by "... without us knowing whether there is a particular substance inside that could be caustic soda or hydrochloric acid". Yet, REACH is highly respected and suppliers providing the certificate somehow justify their credibility. Furthermore, chemical compositions are strictly confidential as they

represent the know-how of the supplier, hence 'Textiles 6' cannot have access to specific component related information.

Relatedly, each brand and each client asks a different norm and delivers a different set of standards to comply with, resulting in a lack of industrial consensus. "Before the textile arrives to us, we don't know which kind of tests the suppliers have done. We test the solidity of the color, and the ph. The clients repeat these tests''. Yet, just because there exist some certifications or claims does not mean that some luxury companies can be considered full compliant. 'Textiles 6' states, "It is getting a war because the brands have their own legislations'' and adds '' Lots of companies sign the legislations even if they know that they cannot respect them''.

Lastly, social sustainability emerges to be an area that is committed by the top management. In order to support their local community, the company is actively involving in many social projects within their company and across their local network. Within the product level, in addition to the product responsibility, decent working conditions and health and safety measures are observed by which employee satisfaction suggests to be secured. "The clients often come often to control and have a tour in our facility. We received positive critics about the healthy environment'' illustrates the managerial stance. Accordingly, Table 33 summarizes the most noticeable practices observed at Textiles 6'.

Table 33 Environmental and Social Sustainability at Product Level

Level	Environmental Sustainability	Social Sustainability
Product	Chemical reduction	Providing decent working conditions
	Water stewardship	Employee satisfaction
	Chemical matrix	Local community development
	Use of certified raw materials	Product responsibility

Environmental and Social Sustainability at Process and SC Levels

As highlighted by the production manager of 'Textiles 5', the dyeing stage is associated with a number of critical processes, and therefore 'Textiles 6' unveils a promising angle to explore the extent to which sustainability is incorporated in this very specific yet thirsty business. Table 34 addresses environmental and social sustainability practices realized by 'Textiles 6'.

First and foremost, it must be acknowledged that 'Textiles 6' is a subcontractor, which is solely dealing with dyeing, printing and finishing treatments. Due to its position peculiarity in the chain, the clients become its essential source from whom the materials are acquired, and for whom processes are completed. Hence, the company does not produce any goods and therefore is not dependent on a wide range of suppliers to finalize its services. Given that 'Textiles 6' does not work with suppliers, this section brings together sustainability practices, which are either implemented internally or developed jointly with the clients.

Table 34 Sustainability at Process and SC Levels

Level	Environmental Sustainability	Social Sustainability
Process & SC	Hazardous chemical reduction	Providing a career path and better skilled human resource management
	Wastewater recovery	Philanthropic donations to local communities
	Emission control	Product responsibility
	Waste reduction	Multilateral dialogue with institutions, and communities
	Process innovation	Health and safety
	Process certification	Decent working conditions
	External auditors	
	Energy efficiency	

“From the environmental point of view, making our environment more liveable and impacting as less as possible on the territory is our aim” can channel the managerial commitment behind the sustainability approach of ‘Textiles 6’. Nevertheless, to obtain such benefits as cost reduction, and first mover advantage could be considered what provokes this internal commitment. That is, “In the future the sustainability will be a competitive factor... we have to invest on it. We look at how the market works and then we try to invest on it as much as possible”. Furthermore, it is stated that “Part of the objectives of our investments is related to the energy saving” and relatedly “the water saving is the main focus of our investment”. Additionally, regulatory compliance is observed to be an important driver behind sustainability integration.

Still, product stewardship is an important aspect. “The biggest driver we receive is to avoid putting in the market products that can lead to problems” states the director. This is aligned with the philosophy of product sustainability because sustainable products are known to be less problematic and easier to handle than the others. Yet, the company does not perform a specific laboratory tests to check the limits of existing chemical substances. When textile is received from the client, ‘Textiles 6’ does not conduct a test, they only control if the textile has been made in a regular way. Whereas, as for the chemicals, ‘Textiles 6’ directly asks its suppliers to provide them with rather incremental safety related technical information.

“In the safety data sheets for the chemicals our suppliers need to communicate the presence of a substance to a certain limit” because ‘Textiles 6’ is a signatory for the Greenpeace’s Detox campaign. Hence, chemical limit has a pivotal importance.

Yet, there were cases in which the clients mixed different regulations to create their own approach. Inconsistencies observed in the survey and limitations outlined randomly gave difficulties to ‘Textiles 6’ because its suppliers were not capable of providing chemicals related information for such a complicated set of questions. “There is a huge variety of products and a fragmentation of different origins, that it is

difficult to make the process efficient and keep it under control. We work with many different companies and we don't know where the yarn comes from, which product are used etc.... '' Hence, industrial norms and standardized industrial surveys are considered more useful and logical than consulting with randomly prepared company specific codes of conducts.

In this vein, it is explored that textiles SCs have many inconsistencies. It is said, '' each brand has a mix of legislations and certifications are different. Gucci may ask something, while Armani is asking something else.'' To illustrate, the criticality of chemical limit restrictions, ''... If we consider the formaldehyde, each country has a certain value of ppm. The brands consider (that) these limits coming from different countries, mix them within their (own) specifications'' resulting in everything becoming much more problematic to monitor, regulate and communicate.

Efforts made to amend product responsibility are also observed improving process efficiency. For example, China asks 'Textiles 6' to guarantee very specific yet strict products specifications. Despite these request being almost unreachable, 'Textiles 6' has developed some process efficiency and on-site pollution control capabilities. Undoubtedly, part of the objectives of their sustainability investments is associated with energy saving. '' We want to produce, consume less and pay less'' can be evidently cited. A recent investment is observed as a recovery system of the condensing boiler fumes.

The system recovers the energy contained in the hot fumes of the boiler via a heat exchanger and accumulating this thermal energy in hot water. Big silos containing hot water are then used in the process to have water that start from 45 °C rather than a traditional level of from 15/18 °C.

Relatedly, another energy efficiency improved was realized via the renewal of a vaporization machine. In order to reduce water consumption, in 1975 the company introduced a water depurator to recover wastewater. Lastly, as for the emission aspects regulations are reportedly met. There are ovens reaching a temperature higher than 250 degrees. They need to get dried or there might be risks of chemical reactions of thermo bonding of fibres or polymerization. Hence, it is important to use a system for smoke demolition, as utilized by 'Textiles 6'.

Process efficiency also provides more decent working conditions and betters the health and safety performance. For instance, an automated system has just been introduced in which colorants are directly transmitted into the machines without human interaction. '' In this way we have a healthier environment, because no worker has to breath the colorant, that is a very volatile product that can arrive on the clothes of the workers, damaging them''. Hence, worker safety performance is improved.

Nevertheless, what emerged extra is that audits do not take place regularly. 'Textiles 6' do not launch official audits at their supplier facilities, solely asking auto certifications. Regarding the audits conducted at their facilities, it is stated that some of its clients to go and have a quite regulatory performance check about the facility and the working conditions. Strikingly, it is asserted ''In Italy nobody cares about the

social sustainability if we are dealing with high level companies". However, this statement shall not be perceived as positive outcome rather it shall highlight the misperception about the existence of commercial power. Still, audits must become stricter by moving beyond first tier through much more sophisticated appraisal strategies. What emerges is that traceability and transparency as well as to some extent product responsibility cannot be secured in the textiles SCs till all purchasing and sourcing activities are accomplished in a standardized manner.

Pursuant to Ecotex certification requirements, every year production samples are taken and analysed by Ecotex to check if they respect a number of ecotoxicological parameters; however, if somebody else requires a value that is lower than what Ecotex suggests, the entire process would be expected to start over. To this end, 'Textile 6' says, "... we could follow the idea stated by Dino Masso from Tessile e Salute" by stating that 'we should use less suppliers and do much stricter selections' in order to know all details pertaining to the products and chemicals used.

Last but not least, 'Textiles 6' is committed to advance social sustainability and community welfare in the future by recognizing a wide range of activities. Profoundly, education activities emerge as major future actions. It is asserted, "For example, in the area close to Biella there is no school for dyers. There are no people interested in that. Italy should improve this sector". To this end, 'Textiles 6' aims at supporting education and internship activities to attract young generations' interest and to help them secure the human capital. Subsequently, to provide better working conditions, the company opts to develop projects for a better management of work and life balance as well as supplementary health insurance benefits for young people with an attempt to prevent the loss of young skill base.

There are also talks to provide donations to create a dermatological laboratory that could be utilized as a research centre. Further, there are projects aiming at increasing the awareness about chemistry. On the whole, the company is observed being committed to their nature and local community. Notwithstanding its incremental attempts, 'Textiles 6' could suggest interesting insights to raise awareness about the significance of social sustainability. Subsequently, the following section aims at highlighting the barriers and enablers of sustainability for 'Textiles 6'.

Barriers and Enablers of Sustainability Integration at Textiles 6

Strategic decisions of 'Textiles 6' are, albeit committed, troubled due to the existence of some barriers. Primarily, market structure is considered very complex. "About the chemicals, it's really difficult to manage transparency. We can not understand which supplier we should trust because we do not have a clear idea of which substances must be avoided".

To overcome this barrier to put a standard to the end of product responsibility 'Textiles 6' is asking its suppliers to comply with the REACH regulation. Nevertheless, this interpretation must be extended beyond product responsibility. That is, there are some substances whose existence is pivotal to earn the product certain characteristics. Innovation and technological developments are needed to find alternative solutions to substitute what is less sustainable. For example, there does not exist an alternative solution that could replace fluorocarbon to deliver the same

performance. Hence, research and development and technological investments are necessary despite associated higher investment costs. “The important point is the best available technology. To obtain some performances, there is no sustainable technological machine that can help me to get those performances” underlines aforementioned observation.

Relatedly, processes are quite water intensive. Even though the company aims to further water stewardship through effective wastewater management principles, the amount of water used cannot be easily reduced. As stated, “... it is really hard find an equilibrium between the use of water and the quality required”.

Table 35 Barriers Impeding Strategic Decisions about Sustainability

<i>Barriers impeding strategic decisions about sustainability</i>			
Internal		External	
Organizational	Operational	Market	SC
- Not observed	- Higher prices for sustainability investment	- Conflict of interest - Lack of information - Complexity of market regulations	- Lack of knowledge about the resources

Undoubtedly, regulations and market requirements emerge as the main drivers for SMEs operating in fashion business. However, changing customer demands not only in terms of performance areas but also regarding regulatory compliance pose a difficult aspect to deal with. ‘Textiles 6’ states, “There is a list of regulations with different languages and requirements, we don’t know what we have to follow”, and suggests that there is a clear lack in agreed and standardized industrial norms to pursue.

Thus, a clear guideline to clear the path is prerequisite. “It is getting a war because the brands have their own legislations. If you want to work with them, you have to work like that.... Lots of companies sign the legislations even if they know they cannot respect them.”

It is observed that SC transparency could only be achieved through joint efforts. However, information dissymmetry and the emergence of lack of commitment impede ‘Textiles 6’ sustainable actions. “Everybody wants to know whose responsibility is (when a problem occurs); (but) nobody cares about giving answers.”

Hence, sustainability is addressed to become more than check list based monitoring compliance. “We continue to receive different regulations to send to the suppliers (but) everything (in the system) is (rather) inefficient...”

Lastly, it is asserted that today’s sustainability perception is not drawing a line toward competitiveness. Neither the justification of higher prices nor competitive advantage observes to be supported by sustainability within the SME context. To this end, company culture must be embedded into the notion of sustainability, which would certainly need the top management’s support and commitment. Collaborations and a common understanding of how joint actions could combat

challenges in order to embrace an industrial yet sustainability growth are emerging as crucial factors that would ultimately enable SMEs to better formulate their strategic business decisions. Having said that, Tables 35 and 36 are displayed to summarize what emerged at 'Textiles 6' in terms of barriers and enablers of sustainability.

Table 36 Factors Enabling Strategic Decision Making Processes about Sustainability

Factors enabling strategic decision making processes about sustainability				
Internal		External		
Organizational	Operational	Regulatory	Market	SC
- Company culture - Top management commitment	- Not observed	- Not observed	- Not observed	- Collaboration with the chain actors - Support

Subsequently, Appendix 2, that is, Sustainability Integration in the Textiles SC at Product, Process and SC Levels aims to display an overall summary of the best practices observed in the Textiles SC as the first step to develop the main classification matrix, which aims to pinpoint the extent to which sustainability is integrated in luxury fashion SCM and to demonstrate the alterations perceived between two different luxury fashion SCs.

Case 2: Sustainability in the Leather SC

Leather 1

'Leather 1' is an exclusive fashion mansion positioned in the intersection of couture and youthful outlook. The house was founded more than six decades ago with an attempt to modernize the post-war world by providing the market with ready to wear products. The company holds the design function in house. Design team is based in Milano while the headquarters coordinate the management in Paris. As for operational aspects, 'Leather 1' outsources its production at its entirety, meaning that the company order both ready-to-wear and leather goods are designed by the design team in Milano and orders are issued to a wide range of suppliers located in Europe. Due to its market influence and financial power, 'Leather 1' has gained purchase power and negotiation strength over its suppliers. Though tanneries are not directly supplying to 'Leather 1', the manufacturers contracted by 'Leather 1' facilitate the conversation between 'Leather 1' and tanneries, otherwise known as indirect suppliers of 'Leather 1', which are mostly located in China.

On the whole, already finished and labelled products are purchased, packed and transported to its directly operated as well as department stores. Having said that, the following sections aim to shed light into sustainability integration at corresponding product, process and SC levels.

Environmental and Social Sustainability at Product Level

Leather is one of the fundamental components used in luxury products. That is, skin is the most utilized source for leather among which calfskin is largely utilized in luxury leather products such as coats, gloves, wallets, belts, bags and footwear. Luxury leather products often feature sheep leather due to its light, warm and delicate nature, which comes from all over the world. China, to this end, emerges as the key producer, while developing countries in Asia and India and European countries Spain, Turkey and Italy emerge as other major producers for sheep and goat leather.

The market for luxury accessories is worth around €57 billion, and exotic animal skins make up around 10% of luxury handbag sales. Furthermore, luxury fashion product often features animal products, including fur and exotic skins. The sourcing of skins and fur from wild animals accounts for 15% of the world's fur trade; however, pressures on biodiversity continues to increase till 2020 while the global status of biodiversity continues to decline. This is why luxury leather products expose the urgent need of a critical assessment in terms of the biodiversity value. Albeit reactive, 'Leather 1' puts forward some example that raise the importance of biodiversity value in its products, which is displayed in Table 37.

Table 40 Environmental and Social Sustainability at Product Level

Level	Environmental Sustainability	Social Sustainability
Product	Use of certified materials	Regulatory compliance
	Water management	
	Biodiversity value protection	

The quality manager in charge of leather products explains that the company is more conscious and equipped to protect biodiversity value than before. Even though they do not collaborate with an association and/or other organizations, and they never disclose product based information due to their company policies, 'Leather 1' sources its leather from verified resources.

As pointed out, entire production is outsourced and therefore the company is increasingly paying attention to their SC screening processes to claim product responsibility.

'We check with the tanneries about the original species and the conditions e.g. where the animals are fed and also how they got slaughtered. We try to gather as more information as possible'' says the leather production quality manager. Nevertheless, what is rather questionable and less credible is the fact that 'Leather 1' does not ask its suppliers to provide them with a specific certification pertaining to product and/or processes. The screening process is built via regulatory compliance and the codes of conduct of the holding company possessing 'Leather 1'.

Still, both the quality manager for ready-to-wear products and the quality manager for leather goods indicate that the corporate culture toward sustainability is increasing. The prior concerns rather pertained to product quality, such as how the final product was made in terms of product quality; nevertheless, the recent attention is more and more directed to sustainability standpoint in terms of material selection, certification and water use, which is directly affecting both the leather quality and carbon footprint, as water use is associated with scope three carbon equivalent emissions. The quality manager of leather products asserts ''... 5 years ago we did this visibility on the suppliers. It was not as it is today. Now we have to check, we double-check'' also suggests that ''Suppliers increase their performances through our principles''. Following a first glance at the product level, noteworthy principles and examples pertaining to production processes and SC management are elaborated in the following sections.

Environmental and Social Sustainability at Process Level

Leather production is a major industry for Italy as well as for the entire luxury fashion industry. However, due to heavy chemical use and extensive water need, leather processes are associated with significant consequences. As such, about 45 litres water per one kg of skin is used to process finished leathers. Environmental and social sustainability practices, despite the limited nature, are displayed in Table 38.

Table 38 Environmental and Social Sustainability at Process Level

Level	Environmental Sustainability	Social Sustainability
Process	Waste treatment	Developing programs for labour practices and decent working conditions
	Waste prevention via reuse	

‘Leather 1’ points out that even though their holding company has a specific guideline at the group level each fashion house traces its own impact and adjusts its own process based sustainability strategy with a goal of reaching the group’s overall sustainability targets. ‘Leather 1’ has its design and development office in Milano but it buys the finished product. Having said that, the suppliers from whom the final product is outsourced are the clients of the tanneries. Hence, leather tanneries are indirectly linked with ‘Leather 1’. Though the majority of the production is outsourced from European countries. Hence, regulatory compliance is assured because of strict regulations taking place in the European zone. Furthermore, having production done in Europe makes the monitoring processes over production easier. For example, having most of the leather goods manufactured in Italian suppliers allows the design team to get a clearer visibility.

For the leather production processes, the profound objective is to reduce water use. Yet, as the quality manager of leather goods points out “... Not because they (the suppliers) think of sustainability, because they think of money (because) water is quite expensive”. Corporate reports published by the holding group, though, do not indicate any water and/or energy reduction. Thus, both managers articulate that water reduction and wastewater treatment are controlled and monitored through their suppliers. These reduction efforts are considered internal to the suppliers. Since suppliers’ water reduction is indirectly linked to the impact generated by the holding group, corporate reports do not include such reductions influenced by ‘Leather 1’. “... Some audits I conducted, suppliers are really trying to reduce.... we can see some reduction in water-waste for sure” says the leather products quality manager.

As for the waste reduction, ‘Leather 1’ often does pre-orders and sometimes orders more than what is eventually needed. Hence, following the production some leather pieces become leftovers. Yet since these pieces are already bought, they are reused. Thus, what would be considered waste at manufacturer facilities is subject for reuse. Financial sustainability emerges to be the biggest driver for ‘Leather 1’ because leather is an expensive material; therefore, they opt to utilize it to the best of

their capacity. “... This is not reusing waste. This is reusing the leather we have bought” points ‘Leather 1’.

However, there are some actions to reduce extra leather purchases. The quality manager for the leather goods explains “every season we have a look at the figures (to see) which leather and which colour is left, and the marketing team tries to use this in the new collection to utilize this leftover”. Surely, work conducted by ‘Leather 1’ to reduce unnecessary leather consumption relatedly affects its suppliers to decrease their waste generated by the production. Deciding the right amount of how much leather is needed is a pivotal decision not only because it influences the price of the final product, but also it is directly linked with the final product quality. “If your leather consumption is more accurate to the reality then you have less waste” summarizes ‘Leather 1’. As for social sustainability, production facilities aim to be created to have sustainable working conditions. To this end, regulatory compliance in accordance with basic occupational health and safety as well as working conditions controls emerge to be the basic principles. Subsequently, further questions pertaining to the supplier facilities are elaborated in the following section.

Environmental and Social Sustainability at SC Level

SC structure of ‘Leather 1’ is peculiar, as production is entirely outsourced while fashion design is developed in-house. Materials are mostly coming from Europe; nonetheless, concerning leather products, a number of manufacturers located in far-Eastern countries are relied on.

Sustainability cognition is driven by the holding company’s corporate commitment to sustainability with an overarching goal of avoiding what happened in Bangladesh back in 2013 otherwise known as Rana Plaza building collapse causing the death of more than a thousand workers. As explained by the leather goods quality manager, “as a company, we have big impacts and it is important to know that people indirectly working with us are in good conditions”. Even though the company does not outsource from such big manufacturing plants located in cheap labour cost countries, growing concern pertains to supplier management at supplier facilities.

The holding company of ‘Leather 1’ organizes a big seminar two times a year with participation of ‘Leather 1’ alongside the group’s other companies. Sustainability goals, the corporate sustainability guidelines and the extent to which goals are succeeded are the content of these meetings. Such internal working seminars do not encompass suppliers, yet (direct) supplier audits are correspondingly conducted by each brand pursuant with corporate goals.

“We are intensively focusing on the sourcing to ensure the quality” states the quality manager for the leather goods. Following the guidelines developed for the sourcing management, as much information as possible aim to be gathered. What is sourced, especially thick leather, is carefully examined however as pointed by both managers. There exists a web-based platform where sourcing data is filled and the material origin is displayed. This system is increasingly utilized to increase traceability regarding manufacturing and sourcing information.

However, traceability is ensured to only a limited extent. That is, “100% accuracy of the origin of the material is impossible to reach” states the quality manager for the leather goods. “... Biodiversity is really complex” and given the range of exotic leathers used in high end products “... Of course, we are trying not to source species in danger... we are trying to find a way to trace (and) to be able to check. But for the moment it is an ongoing project”. Longer chains, to say the least, are considered difficult to trace but the inclusion of raw material producers into monitoring activities is absolutely necessary because without raw material suppliers being clearly examined the products’ real impact can never be measured, albeit the buying firm’s commitments.

Moving toward further upstream suppliers unveils some differences. Fabric suppliers are required to put forward sustainability guidelines for their subcontractors. To this end, the quality manager for ready-to-wear assures that supplier audits are extended toward subcontractors. However, as displayed in the previous sections, leather goods manufacturing structure is different yet more complex. Tanneries, being indirect suppliers of ‘Leather 1’, are not directly audited; nevertheless, their clients, otherwise known as the suppliers of ‘Leather 1’, require tanneries to provide further information. Thus, tanneries allegedly improve their conditions as a consequence of the interference of ‘Leather 1’. As the leather goods quality manager puts forward “I went to India to visit some tanneries three years ago and I went again last year. I visited the same area and I saw changes and even without having a specific job as an auditor, I did not audit but by just giving a look, I saw that a lot of tanneries changed and adapted the principles of European brands.”

There is no specific certification requirement and/or audit schedule. It was addressed that when a facility is suspected audit is immediately conducted. Supplier screening is gradually increasing. “As a company buying finished products, it was not an interest to see how our suppliers work in terms of sustainability. It was in terms of how they work to make the final product.” However, “There is an increase on sustainable suppliers... 5 years ago we did this visibility on the suppliers. It was not as it is today.”

Last but not the least, chemical elimination and water reduction emerge as some other practices surrounding leather goods production. Surely, work conducted by ‘Leather 1’ to reduce unnecessary leather consumption relatedly affects its suppliers to decrease their waste generated by the production. Deciding the right amount of how much leather is needed is a pivotal decision not only because it influences the price of the final product, but also it is directly linked with the final product quality. Consequently, organizational flexibility factors in terms of strategy and manufacturing are considered critical antecedents to the quality of leather goods production. Additionally, sustainability and firm performance are straightforwardly affected by these factors. Displayed in Table 39 are what ‘Leather 1’ implements in terms of environmental and social sustainability at the chain level. Subsequently, significant factors in sustainability integration are elaborated in the next section.

Table 39 Environmental and Social Sustainability at SC Level

Level	Environmental Sustainability	Social Sustainability
SC	Hazardous chemical elimination at supplier facilities	Coaching sessions and counselling meetings
	Water management	Training and educational material for suppliers
	Traceability (limited)	(Only direct) Supplier audits
	Occupational health and safety	Supplier management
	Reducing leather consumption	

Barriers and Enablers of Sustainability Integration at Leather 1

In sustainability integration lays the regulations as the biggest drivers. Yet, 'Leather 1' is profoundly challenged by external factors. SC complexity, lack of information pertains to SC related external hindrances while lack of awareness and fashion specific industrial market pressures impedes sustainability integration throughout the chain. The respondents state "... Sustainability is prevented by the complexity of SCs. It is difficult to guarantee that products are completely sustainable... Today, chains are really complex to guarantee sustainability and quality (aspects)."

Table 40 Barriers Impeding Strategic Decisions about Sustainability

<i>Barriers impeding strategic decisions about sustainability</i>			
Internal		External	
Organizational	Operational	Market	SC
- Lack of communication - Associated costs	- Lack of a framework	- Lack of awareness - Industry specific barriers	- SC complexity - Lack of information

Sustainability awareness is considered pertaining to both internal and external categories. That is to say, a common understanding and a clear guideline is needed to better comprehend how sustainability can be operationalized at the chain level, how the company can monitor and execute sustainability performance and how objectives could be set and jointly met. Costs associated with sustainability are also acknowledged. "... We need to check everything and we need to launch many tests as well as audits"; to this end, sustainability integration results in higher SC costs.

When asked how stakeholder relationship management affects and is accordingly affected by sustainability, it is addressed that sustainability makes the relations more complex. Having said that, audits, controls and laboratory tests require significant use of human and financial capital. Hence, SC agility and manufacturing flexibility address to be negatively affected by sustainability-based controls. "... It (sustainability) is not helping because there are many documents involved and if we

make an audit we ask so many questions (causing) a lot of work for them to meet our demand.’’

A fashion calendar entails strict deadlines; resource and coordination related flexibility capabilities and responsiveness are thus pivotal for company performance. As ready to wear manager explains ’’... Delivery dates are really short (3 weeks after the order) but sometimes products are not well developed and you need to finish the industrialization’’. In addition to already complicated yet time sensitive market structure, sustainability does not emerge to be a living reality in luxury fashion. ’’It takes more time to produce something sustainable because things to comply take times’’ states leather goods quality manager and adds ’’... So delivery date is not improved with sustainability’’

Table 41 Factors Enabling Strategic Decision Making Processes about Sustainability

Factors enabling strategic decision making processes about sustainability				
Internal		External		
Organizational	Operational	Regulatory	Market	SC
- Financial freedom - Knowledge dissemination	- Innovation	Philosophy of moving beyond regulations	- Not observed	- Collaboration - Knowledge dissemination

Important to take into consideration is to strategically embed sustainability into strategic decision making processes. Accordingly, from fashion design to SC execution, there exist some factors whose existence could enable luxury fashion companies about sustainability. ‘Leather 1’ suggests that designers can be provided with a list of sustainable materials that can be used in production rather than examine the materials after they are used. That is, ’’... If you think of biodiversity – it means that instead of having 15 suppliers we need to reduce this list and we have to give the guideline to the designer saying that he cannot use one specific material on his design etc.; so it brings more restrictions.... But, you can invest and provide the designer with a sourcing list including materials already checked’’. Collaboration between internal as well as external actors fuelled by a philosophy aiming to move beyond the regulations appears to be a decisive factor that could enable ‘Leather 1’ to further integrate sustainability in its operations within and across its network.

Leather 2

‘Leather 2’ founded in Vicenza in the 1960s follows the Italian master leather craftsmanship and appears to be one of the most iconic luxury fashion companies in the world. Exquisite craftsmanship, innovation and design, functionality and excellence in quality are the most significant success factors for the company. Continual is ‘Leather 2’’s commitment to its atelier in which artisans bring together innovation, artisanship and traditional leather techniques. This approach enables the signature symbol of the brand, that is, intrecciato woven leather.

In this vein, the company opened a school in 2006 to train and support future generations of leather artisans with an attempt to preserve the importance of

artisanal craftsmanship. Students attending the school must complete courses over a period of three years prior to being allowed to work in the atelier. Knowledge and cultural wealth embodied in artisanal crafts are about to vanish, and therefore 'Leather 2' significantly devotes its resources to prevent such a profound loss.

In terms of operational aspects, the company holds the design function entirely in house. While design team puts forward the product design, tanneries, being direct suppliers, provide raw material and 'Leather 3' covers the production stages, including dyeing and processing, finishing, assembly and packaging and transport. Distribution, on the other hand, is global. Subsequently, the next sections highlight how and to what extent sustainability is integrated in product, process and SC levels within 'Leather 2'.

Environmental and Social Sustainability at Product Level

The CEO of the holding company of 'Leather 2' states "Sustainability is an opportunity for business improvement and is a future" and this decisive guiding principle is transmitted at the company. 'Leather 2' has a relatively proactive approach against sustainability and therefore practices are strategically executed inside the company by a team consisting of key managers of each department. On the corporate website as well as inside the documents provided is a depiction of sustainability at 'Leather 2'.

The picture positions 'Leather 2' in the middle of two interlinked clusters of planet and people. Organizational factors such as strategy and corporate culture are considered the critical to SC sustainability. Having said that, the company invests in a wide range of areas to improve sustainability at product, process and network levels.

First and foremost, materials emerge as a pivotal area taken into account by the company. To this end, use of eco-friendly and certified materials receives a corporate attention. Among some very noteworthy examples is a full leather traceability project achieved for one product line. Sustainability officer asserts "we managed to reach the full traceability of the leather used in this product (one of the most iconic handbags of the brand). We managed to reach this target through two certifications, one was managed and obtained by the tannery (which is the direct supplier to Leather 2) and the other was managed and obtained by us".

The traceability demonstrates how leather is sourced, executed, processes and distributed. In other terms, from sourcing to retail how leather utilized in the product has completed its life cycle. This shows an important possibility for luxury fashion production. That is, actually, reaching a full traceability is possible. However, both managers agree that projects dedicated to raw materials field entail significant challenges. "... It involves technology and innovation. You also need to find the supportive partners in your SC that are willing to develop new kind of tanning methods in order to fulfil your requirements" states the sustainability officer.

Product responsibility is met not only through environmental sustainability practices but also through some significant efforts aiming to excel social aspects. To this end, labour practices and society receives a careful attention. The atelier where

craftsmen work and where the magic out of iconic leather products happens is located in Montebello, Italy. The LEED certified super efficient building was built specifically to allow artisans to work with open air spaces. It was further addressed that there is a welfare system that presents each employee with an annual bonus of €5.000.

Such social advantages provided to employees as well as artisans earned 'Leather 2' a great recognition. In 2015, the company was ranked at the 7th greatest place to work and it became the first luxury company ranked in the list as asserted by the planning and distribution manager "... one of our main achievements is that we were the first luxury company".

Table 42 Environmental and Social Sustainability at Product Level

Level	Environmental Sustainability	Social Sustainability
Product	Use of certified materials	Product responsibility
	Use of eco-friendly materials	Providing sustainable working conditions to artisans
	Reduction of chemicals	Decent working conditions
	Water management	Employee training
	Life cycle assessment	Welfare system
	Biodiversity value protection	
	Environmental profit and loss	

As Table 42 displays, employee training emerges as another standing out practice. In this vein, all employees are provided with training to have a better knowledge of products. In addition, future employees are also engaged in training activities. 'Leather 2' outlines "... we also train the youth, students from the other schools.... some students come to villa (referring to Montebello atelier) to implement their artisanal skills to design products recognized by artisans".

Giving product-based training is perceived a pivotal area by which sustainability awareness could be increased and further advancements could be supported. On the whole, sustainability team consisting of each division's key representatives aims at raising awareness among the employees through a wide range of projects because it is believed that nothing can be delivered in real terms unless sustainability breathes in each and every department. This stance is summarized by the sustainability officer as "... (Sustainability) is a shared work between all parts of the company. It is impossible to work as a single department to work on sustainability".

Despite ongoing efforts and what can be considered proactive, 'Leather 2' points out the existence of financial and cognitive burdens. "... If you have a financial accountant saying 'no your organic cotton t-shirts cost double', I cannot give the permission, and it happens, you need to have a sensitive CFO or CEO and to present business plans, not just the idea".

To this end, 'Leather 2', under the supervision of its holding company, has developed an environmental profit and loss (EP&L) to link GHG emissions, water consumption, waste, water pollution, air pollution and land use with the entire SC operations, consisting of Tier 0 (own operations and stores), Tier 1 (final assembly), Tier 2 (preparation of subcomponents), Tier 3 (raw material processing) and Tier 4 (raw material production). Both managers state that a luxury fashion company must show how sustainability is to be implemented in time. For example, 'Leather 2' is currently working on EP&L to demonstrate how the use of a certain (sustainable) material could end up saving costs in the long term. Sustainability officer asserts "... (For example), you are going to have an environmental impact equivalent to 20.000 euro, but if you use organic cotton, you will save up to 50%".

Last but not the least, product sustainability suggests to be accomplished with a greater involvement of material researchers as well as designers. "Material researchers play key roles because they choose and decide what will be used in new products. Thus, their engagement is fundamental" addresses the planning and distribution manager. In addition, sustainability officer adds and concludes "we have developed a lot of things internally and we find a way to pass the information. Yet relational capabilities must be defined and improved... designers are really important, and indeed this is the point we should further advance". Following what emerges in terms of product, the next section elaborates on sustainability practices implemented at the process level.

Environmental and Social Sustainability at Process Level

'Leather 2' purchases processed raw materials directly from the tanneries. Hence, sourcing is followed by the preparation of subcomponents and the final assembly stages that are operated by the company itself. Owning the major steps of leather goods production makes 'Leather 2' a peculiar case to examine the extent to which sustainability is embedded in production processes without any intermediaries. Table 43 displays environmental and social practices implemented at process level.

Table 43 Environmental and Social Sustainability at Process Level

Level	Environmental Sustainability	Social Sustainability
Process	Hazardous chemical elimination	Providing a career path and better skilled human resource management
	Carbon offset	Protecting female workforce
	Emission reduction	Philanthropic donations to local communities
	Energy efficiency	
	Water stewardship	
	Waste recycling	
	Certificates obtained include carbon neutral, ISO 14064, ISO 14001 for the buildings and the Montebello atelier	

“... Led lighting is one of the projects that led to some savings in terms of electricity costs” summarizes that energy efficiency is one of the initial projects implemented at production facilities. Water stewardship is another topic by which cost savings, in addition to carbon footprint reduction, are achieved. Sustainability officer addresses that all rainwater is stored at facilities to be used for other purposes, such as gardening.

Chemical use is a critical facet for luxury fashion production. Especially, for the final touch of leather products there exist certain chemicals whose existence plays a pivotal role. While eliminating hazardous chemical use, ‘Leather 2’ highlights the significance of chemical free process execution. That is, there might be some chemicals that can be washed away from the products but discharged with the wastewater.

As elaborated earlier in this study, chemicals are extremely challenging topics for wastewater treatment and therefore ‘Leather 2’ initiates a manufacturing restricted substances list aiming to eliminating chemicals from the process. Hence, not only product but also process is tested and ensured that restricted substances are not allowed in the processes.

As articulated by the sustainability officer “... because chemicals could be discharged during the process, so if you use these two chemicals in the final product you may have one only on the product but other in the discharged water. So testing only the product cannot identify all hazardous chemicals”. Furthermore, chemical reduction leads to less water required in the production. Accordingly, sustainability officer confirms “... eliminating chemicals or heavy metals in the tanning processes can lead to water savings. We still need to identify how much, this is why the holding company is studying different tanning methods implemented by the brands to really understand how and how much”.

Luxury fashion industry is expected to deliver a continuous yet unique customer experience. Retail operations where customers are interacted with the brand itself are fundamental. Hence, inventory and store-to-store product transfer play a key role, resulting in carbon emissions becoming an urgent topic to tackle.

The planning and distribution manager address “one of our most challenging targets is to reduce store-to-store transfer (between the stores)”. Therefore, calculating the accurate amount of merchandise to be distributed is the key not only to provide the right store with the right amount but also to reduce the number of the transfers. Store-to-store distribution largely affects carbon emissions and transportation costs. In Milano and Paris, ‘Leather 2’ uses electrical vehicles to move items from stores to stores, which is to be extended to London soon. “Car fleet includes 43% of its vehicles hybrid in Italy, Milan, and Montebello. GHG emissions through car fleet is reduced” addresses the planning manager.

Lastly, waste management appears to be a noteworthy area to highlight. ‘Leather 2’, in this sense, saves its waste and recycles all leather scraps at owned manufacturing facilities. On the whole, ‘Leather 2’ channels a number of significant practices from carbon offset and waste recycling to emission reduction and employee loyalty improvement to further integrate sustainability. All in all, the

corporate commitment is exemplified in the following statement. That is, “... this is not a core outcome. You need to have all your SC recycling its waste, so we have little steps but the main picture must be bigger”. The following section brings forward what is implemented at the chain level.

Environmental and Social Sustainability at SC Level

Concerning sustainability integration at the chain level, material sourcing emerges as a critical topic toward which information aims to be secured. Sustainability officer highlights, “... It is not so clear the current situation about the materials, you need to find someone that can help you in identifying which kind of certifications and materials to be used in SC is good”. To this end, ‘The Sustainability Library’ developed and distributed by the holding company of ‘Leather 2’ encompasses a wide range of guidelines and informative materials in different contexts. Raw material guideline is widely utilized to understand different material types, compositions, certifications, percentages, and alternatives to be used.

‘Leather 2’ indicates “ In the leather SC we are very well positioned because our direct suppliers are the tanneries so it is tier 3, we just need to find a final step (to reach tier 4 and to ensure traceability for all product types)”. Sustainability principles are addressed in supplier contracts and vendor management is executed to move toward collaborations. “ Partnership needs to be built with suppliers” can be considered a statement summarizing the corporate approach toward sustainability.

Traceability, by all means, is an aspect managerial commitment is driven against. Both managers show their internal database and address “purchases from 2015 are JC certified gold for our fine jewellery production.” As Table 44 summarizes, supplier management is executed in the pursuit of sustainability development. Training and education material, development programs, knowledge transfer about EP&L, certifications and traceability are some thought provoking examples put forward in luxury leather SCM.

Table 44 Environmental and Social Sustainability at SC Level

Level	Environmental Sustainability	Social Sustainability
SC	Hazardous chemical elimination at supplier facilities	The sustainability library encompassing a wide range of guidelines
	Supplier certifications	Training and educational materials for suppliers
	Traceability	Supplier development programs
	Occupational health and safety	Supplier management
	Partner selection based on sustainability practices	Two tier SC audit system
	Laboratory tests	Multilateral dialogue with the bodies, institutions, associations and communities
	Environmental profit and loss	Monitoring sustainable

	methodology sharing	manufacturing
		Monitoring factory compliance

'Leather 2' aims to strategically and provocatively spread sustainability across its network. Highlighting that sustainability is gaining momentum in luxury and in the long run suppliers that are not collaborative will be excluded from the market, sustainability officer highlights " ... you need to take all your suppliers on board, it is long but it is necessary". In this vein, since 2014 'Leather 2' has been organizing sustainability meetings with its key suppliers. For example, in 2015 more than 200 people were reached and informed about sustainability. "In 2015, it reached even second tier suppliers (only direct ones)" the company managers address.

All in all, 'Leather 2' aims to verify all its key suppliers by 2020; and accordingly, "in 2015, we started a pilot study with the tanneries and we will proceed with ready to wear textile and the tanneries are ongoing" addressed by the sustainability officer. Subcontractors of the suppliers are not directly controlled.

Even though tanneries, otherwise known as the direct suppliers of 'Leather 2', are asked to ask their suppliers about sustainability information, 'Leather 2' does not take an active part in monitoring and assessment execution.

Lastly, 'Leather 2' is observed implementing hands-on activities for community development. It was addressed that craftsmanship is disappearing. There do not exist many crafts excelled in fine arts and peculiar details of leather production. 'Leather 2', especially, is in need of craftsmanship because its signature look relies on handmade techniques. Yet, young labour force does not seem to be so interested in traditional production techniques and commercial pressures fuelled by globalisation growingly challenge the industry. To tackle such issues, 'Leather 2' excels labour practices and working conditions as well as local community development projects. To illustrate, 'Leather 2' has built three communities in some areas in Veneto region of Italy, where there exists a significant unemployment rate, to empower women workforce, teach them craftsmanship and improve social sustainability that would inevitably help them secure production continuity in the way toward financial stability. Consequently, the next section addresses significant factors influencing sustainability implementation of 'Leather 2' at product, process and SC levels.

Barriers and Enablers of Sustainability Integration at Leather 2

One of the overarching goals of 'Leather 2' is to integrate financial reporting with sustainability reporting. Hence, EP&L aims to be embedded into the overall business strategy. However, it is reported that this is quite challenging because it entails sustainability integration at each individual step. That is, "you need to have the final scope of making sustainability a part of each step of SC, process, and design".

Higher investment costs sustainability requires and the difficulties to find commitment partners to truly integrate what means going beyond an arm's length approach hinder 'Leather 2' in its strategic decisions. As sustainability officer points out "we need to ask suppliers to fill in the data for EP&L, which is hard. Framework is ready but engaging suppliers is difficult".

Furthermore, “sustainability is demanding in terms of costs because it needs to deal with innovation and new techniques” adds the planning and distribution manager. Introducing a new product, on the other hand, entails a new manufacturing process that is likely to require involving new partners. However, Tier 4 suppliers are not to be approached directly and the challenge is shortened”... (Sustainability integration) is not easy and applicable to all our production both in terms of resources assigned and financial costs”. Table 45 encapsulates barriers impeding strategic decisions pertaining to sustainability.

Table 45 Barriers Impeding Strategic Decisions about Sustainability

Barriers impeding strategic decisions about sustainability			
Internal		External	
Organizational	Operational	Market	SC
- Lack of financial resources	- Higher prices for investments	- Lack of sustainable partners	- SC complexity - Lack of information about the origin / materials

In order to tackle all aforementioned hindrances, ‘Leather 2’ opts to pursue an ideology in which sustainability is to be linked with the financial side. “ On the other side, all people inside the company, SC, organization, everyone needs to be synthesized and they all have to be on board. Each one of us needs to work for the same objective” states the officer. Collaboration throughout the entire chain, technical as well as relational capabilities are called out to further strategic decisions to excel at sustainability integration across the entire chain. To this end, Table 46 concludes this section with a summary of the factors that would enable sustainability.

Table 46 Factors Enabling Strategic Decision Making Processes about Sustainability

Factors enabling strategic decisions about sustainability			
Internal		External	
Organizational	Operational	Market	SC
- Company culture - Knowledge dissemination	- Innovation	- Customer engagement	- Collaboration with the chain actors

Leather 3

‘Leather 3’, founded in 1944, mainly covers the operational stage in which semi-finished raw material goes through re-tanning and dyeing processes to earn the leather its aesthetical and chemical characteristics. That is, during the re-tanning and dyeing stage chemicals and dyes are added to the process to provide the leather with its softness and breathability. Finished leather is subsequently purchased by some of the most noteworthy leather goods and shoes companies. Raw material suppliers and tanneries supplying to ‘Leather 3’, on the other hand, are located mostly in Africa and China. The company owns three facilities one of which is the headquarters

located in Castano Primo while two others are the warehouses where inventories are kept. Whilst driven by a passion to combine technology and craftsmanship, innovation emerges as a significant antecedent for the company's operational strategy and becomes a significant factor for company performance together with the material quality. The extent to which sustainability is integrated in operations is elaborated in the following sections.

Environmental and Social Sustainability at Product Level

After buying semi-finished raw materials, 'Leather 3' handles re-tanning processes in which a wide range of colours and chemicals are utilized. While earning the leather its aesthetical characteristics, the company pays close attention to management of the chemicals used. Production manager asserts that the physical tests are conducted inside the internal laboratory whilst chemicals are checked at external laboratories.

This is triggered by market requirements, as a growing number of companies require 'Leather 3' to test the chemicals used in re-tanning. Production manager asserts "Lots of clients require chemical test for each colour at the beginning of issuing the order". Accordingly, the company conducts chemical tests to monitor isovalent chrome, formaldehyde and phthalates for each colour produced. "It can happen that after a month they issue another order, and we have to retest" states 'Leather 3'.

Shoe manufacturing entails further processes during the assembly stage to finalize the product. However, the existence of certain chemicals that the company cannot directly control could cause some problems. Correspondingly, production manager states that a certain type of glue that can be used during the final assembly stage could trigger some chemical reactions with certain chemicals, hence when such combination is warmed up in the oven chemicals evaporated could have reactions on the human skin. Even though 'Leather 3' delivers the leather to its client after all tests are completed, final assembly stage conducted by the client itself could jeopardize health and safety. Albeit such thing happening outside the operational boundaries of 'Leather 3', "Many times the clients attempted to protest us, however when it happens after we send the material (meaning that the problems might happen at further production processes) we are not the responsible for such chemical reactions" production manager adds.

Chemicals used in the leather follow technical guidelines pursuant with the regulations. "We receive a sample, we do the test and if everything is approved, the container will be sent..." concludes the production manager. As a consequence of strictly controlling and managing the chemicals has brought some advantages. It is asserted that restricting some substances has improved the product quality and that standardizing the process has become an important antecedent for performance efficiency, as summarized by "Our clients have increased the number of orders also because we have an organization that has efficient controls".

Nonetheless, Table 47 displays that social sustainability has not been well considered for leather production held in 'Leather 3'. As for social practices, regulatory compliance emerges as an only standing practice to result in modernized

decent and healthy working conditions. Yet, this aspect is evidently emerging as a critical facet in need of further attention. Next to examine sustainability implementation is process level that is highlighted in the following section.

Table 47 Environmental and Social Sustainability at Product Level

Level	Environmental Sustainability	Social Sustainability
Product	Use of natural products	Decent working conditions
	Reduction of chemicals	
	Laboratory tests for chemicals	

Environmental and Social Sustainability at Process Level

Re-tanning and dyeing stages require a significant amount of water use. Not only the end of environmental sustainability but also the end of economical sustainability encourage 'Leather 3' to embark on water stewardship. There exists a modern biological waste treatment plant in used since the 1990s that employs activated sludge, which depurates the water used without any additional chemicals. Waste sludge detached from the water falls down and is treated as process waste. Treated water, on the other hand, is used for other, for example, domestic purposes.

However, due to the possibility of involving some chemicals, treated water cannot be reused for the initial production processes, as explained by the production manager '... Reused water containing some chemicals is not suitable for the initial processes'. 'Leather 3' is also aiming to embark on nanotechnology to make process faster and to reduce water use. Production manager asserts, "For sure in the future the new technologies will bring some savings because the water consumption are decreasing". Wastewater treatment and incremental process innovation are important yet standard practices initiated at the production facility. As depicted by Table 48, somewhat practices implemented at the process level cannot be considered novel. Subsequently, the next section further elaborates the degree to which sustainability is integrated at the chain level.

Table 48 Environmental and Social Sustainability at Process Level

Level	Environmental Sustainability	Social Sustainability
Process	Water stewardship	Not observed
	Waste management	
	Emission reduction	
	Process innovation	
	Wastewater treatment	

Environmental and Social Sustainability at SC Level

Social sustainability practices in terms of labour practices and product responsibility, and environmental sustainability practices in terms of compliance and supplier assessment are emergent aspects put forward by 'Leather 3'. Among big drivers are legislations and client demands; consecutively, production manager of 'Leather 3'

reveals that supplier audits, certifications and legal compliance have become integral components of their sustainability management.

‘Leather 3’ directly control its suppliers via self-declarations. Regarding social sustainability in terms of labour conditions and child labour, the production manager of ‘Leather 3’ asserts, “we can do it (checking the conditions) easily, we have declarations from our suppliers”. While checking working conditions of their suppliers, ‘Leather 3’ also dedicates its resources to show they do not exploit any working rights. “Some clients require the timetable of our employees and a declaration in which we guarantee that we don’t exploit child labour” as stated by ‘Leather 3’.

However, regarding suppliers’ sub-contractors sustainability appraisal remains to be a challenging topic. That is, beamhouse operations where mechanical and chemical production of leather between curing and tanning then tanning processes where skin becomes leather are held outside direct operational boundaries of ‘Leather 3’. Hence, how animals are fed, collected, slaughtered, and how operational actions are actually held in tanneries are not controlled by ‘Leather 3’. Production manager states, “we don’t know what happens before the tanneries, and we have no possibility to know that.... We don’t know how slaughter process takes place though”. Social aspects are solely controlled through self-declarations without direct intervention. “Usually, in African countries like Nigeria and Cameroon (from where raw materials are acquired), it is not possible to go to directly control directly” pointed out.

There exist cases in which the clients of ‘Leather 3’ asked to receive supplier information. Having said that, the clients themselves opted to conduct audits at supplier facilities of ‘Leather 3’ with an attempt to increase transparency toward their suppliers’ sub-contractors. Nevertheless, ‘Leather 3’ did and does deny responding such requests in order to preserve strategic information due to their internal confidentiality and privacy policies. What emerges that is summarized through the following statement, “The clients wanted to go to control our suppliers, but, in this case, the supplier name was a strategic information and we don’t want to reveal it. Our clients don’t know who our suppliers are”, is rather a common case in the luxury fashion industry where trust lacks behind in terms of connecting supplier information. Because a risk is associated whereby the client can directly approach its indirect suppliers and develop further yet direct relationships. However, such commercial pressures and lack of transparency are observed jeopardizing the entire chain’s sustainability.

Table 49 Environmental and Social Sustainability at SC Level

Level	Environmental Sustainability	Social Sustainability
SC	Supplier certifications	Supplier audits
	Traceability	Auto certification
	Occupational health and safety	Regulatory compliance
		Extra hours payment
		Multilateral dialogue with the

		bodies, institutions, associations and communities
		Job specific health tests

Amongst the practices displayed at Table 49 is product responsibility. As explained in section dedicated to the product, 'Leather 3' aims to make sure the leather produced does not associate with any sort of hazards. Not only are the regulations strictly complied with, but also suppliers are periodically required to deliver chemicals related information. To this end, 'Leather 3' applies random laboratory tests to check the chemical amount used in raw materials acquired from the suppliers. Production manager explains, "We do an initial test on the product... We receive a sample, we do the test and if everything is approved, the container will be sent. Usually, every year, we do chemical test for our own safety...". It could be further noted that chemicals tests follow both regulations and specific client requirements.

Sustainability is profoundly driven within the company and across its supply network for regulatory compliance purposes; however, 'Leather 3' also aims to improve industrial collaborations between laboratories, tanneries and associations with an overarching goal of identifying specific terms to be included in supplier contracts.

When the clients of 'Leather 3' asks for a specific information, 'Leather 3' requests information as well as the corresponding certification from the supplier. Subsequently, 'Leather 3' conducts final control tests just to double ensure if what is written in the certificate and/or on the documents is confirming what is required. Especially, chrome is a peculiar material for leather production processes. Henceforth, chrome use received a particular control within and across the network.

Finally, employees working at production facilities of 'Leather 3' are provided with some health and safety related perks. Extra hours free selection is a system, which any employee can opt to adopt in which when they work extra, they are subject to receive 80% more of their wage. Employee loyalty improves as addressed by the production manager, no one had ever changed work and/or went to another company, only if they changed country...". Furthermore, 'Leather 3' sets extra health controls in order to make sure none of its employees would ever get any sort of job related diseases. That is to say, "... each year we pay blood and other specific exams based on the job-shop they work... who works with powders receive breathing exams, who works with colorants receive specific blood tests and so on..." Concerning barriers impeding 'Leather 3' to spread sustainability across its network as well as factors that could help them further improve their overall sustainability performance, the next section shed lights into some curious conceptualizations.

Barriers and Enablers of Sustainability Integration at Leather 3

First and foremost, among barriers is high development costs associated with sustainability management, as displayed in Table 50. "We have high costs to equip the laboratory for the tests" could summarize one aspect that impedes 'Leather 3' to develop and deploy new strategic and operational capabilities for sustainability. Further, as addressed previously, market structure of the luxury fashion industry is

subject to constant change. In this vein, the slaughters in Europe decrease significantly. Therefore the availability of raw materials consequently decreases too, resulting in lost direct control over globally dispersed supply chains. Lack of information about where materials come and the conditions under which raw materials are handled seem to be growing as serious concerns.

Table 50 Barriers Impeding Strategic Decisions about Sustainability

<i>Barriers impeding strategic decisions about sustainability</i>			
Internal		External	
Organizational	Operational	Market	SC
- Higher development goals	- Lack of framework for sustainability implementation	- Luxury product complexity	- Lack of information about the material origin

Lastly, luxury fashion leather products are meant to be beautiful, long lasting and able to provide emotional as well as functional values. Hence, shape, touch and material characteristics. "... Often it happens that clients don't know what they want. For example, they don't want the leather featuring chrome, but then they see out that the product might not be the same without some components (that are under regulatory restrictions)..." states the production manager. Luxury products' associated complexity entails some restrictions and further conflicts to the end of sustainability.

Considering such challenges, some factors appear in favour of sustainability. 'Leather 3' points out that technology and innovation based capabilities are bound to deliver cost savings as well as environmental impact reduction, for example, in terms of water use. "For sure in the future the new technologies will bring some savings because the water consumption is decreasing" summarizes the production manager.

Regulations, while being the most decisive driver for 'Leather 3', are actually considered a significant enabler. For example, the introduction of the REACH regulation became an important antecedent of performance improvement. Due to the restricted material lists as well as forbidden products, tanneries provide better and more responsible products complying with legislations.

Table 51 Factors Enabling Strategic Decision Making Processes about Sustainability

<i>Factors enabling strategic decisions about sustainability</i>			
Internal		External	
Organizational	Operational	Market	SC
- Company culture - Knowledge dissemination	- Innovation	- Trust - Growing consciousness	- Collaboration with the chain actors

Collaboration is another pivotal area emerging as a potential enabler to put forward sustainability. That is, the introduction of a number of growing regulations was a great concern for every actor located in the leather supply chain, from heel producer and textile producer to tannery and finishing process responsible. Yet, one step at a time a common understanding seems to be settling and relationships have been improved in terms of information sharing. Hence, through knowledge sharing and sustainability driven collaboration has started making things more realistic and manageable. Nevertheless, trust must be seeded to enable transparency and further industrial collaborations that are pivotal antecedents of sustainability and that are altogether vital for firm performance.

Lastly, as Table 51 summarizes, there is growth in sustainability consciousness. "The tannery production is moving toward the chrome-free production and then to metal-free one... In the last years in the market there is the "vegetarian" and "vegan" fashion". Thus, aforementioned elements are greatly needed by actors located in leather SCs, 'Leather 3' included, to enable strategic decisions to put forward and to successfully operationalize sustainability across their entire supply networks.

Leather 4

'Leather 4' is an Italian based own brand and branded shoe manufacturer, delivering 'Made in Italy' signature leather shoes since the 1950s. Design is either directly functioned in house or the client, depending on the agreement, provides 'Leather 4' with product design. Whilst clients cover a wide range of very important luxury brands, suppliers include a number of Italian suppliers, which include 'Leather 3', alongside few French suppliers.

The company buys the finished leather and puts together the assembly process to finalize the shoe. Correspondingly, packaging and transport are coordinated and managed by 'Leather 4'. At this very moment, the company strategically focuses on shoe manufacturing for other companies, and consequently, shoes labelled and distributed in Italy and Europe under the name of 'Leather 4' account for a very limited percentage. The next sections aim to address sustainability practices implemented by 'Leather 4' and associated factors impeding the sustainability strategy.

Environmental and Social Sustainability at Product Level

'Leather 4' is an Italian based own-brand and branded leather shoe manufacturer. Until 15 years ago, the company was selling its products under its name in the Italian market. Yet, globalization enabled many luxury fashion companies to get exposed to a wider audience on the international scale and therefore companies have started expanding their sales throughout globally dispersed luxury leather chains. 'Leather 4', accordingly, boosted its leather shoe production for other globally present yet stronger brands and has started assembling leather shoes for big players. Following a worldwide sales growth passing from 30-40% to 70-80%, CEO of 'Leather 4' articulates "... due to the relevant market evolution, where the consumer focused on the big brands, we had to work for a big brand, if not we had to close..."

Subsequently, such big clients have started putting much emphasis on product responsibility in terms of chemical use. Due to strictly regulated European laws, 'Leather 4' has been advancing product based sustainability initiatives as a respond to growing consumer as well as regulatory demands. 'Leather 4' points out the consumer needs have changed regarding the natural composition of the product. "It happened that some German and Japanese clients asked us to clip without nickel even before the norm was introduced... but our supplier were already producing without nickel so it wasn't a problem... Regarding the glue related problems, we have all certificates and our producers are local, so we are not worried" the CEO states. As Table 52 displays, chemical reduction, hazardous materials elimination and use of natural components are some of the practices integrated in product philosophy.

Table 52 Environmental and Social Sustainability at Product Level

Level	Environmental Sustainability	Social Sustainability
Product	Use of natural components in products	Decent working conditions
	Elimination of hazardous materials	
	Chemical control	

Once already tanned and finished leather are bought from the suppliers of 'Leather 4', the company realizes the shoe assembly process. Hence, 'Leather 4' does not directly use chemicals throughout its production processes but they are actively controlling their suppliers regarding material components. "... Depending on client requirements we have to go to a specified tannery" can illustrate how varying chemical based requirements are responded.

For example, 'Leather 4' supplies from 'Leather 3'. They have developed a close working relationship throughout the years and traceability over raw material suppliers, despite being very limited, is jointly attempted. "When we ask our suppliers about their records for traceability, our suppliers are efficient to trace the leather" however, big clients of 'Leather 4' do not necessarily ask thorough sourcing information. Given that big industrial players are some of the clients of 'Leather 4' this finding suggests a controversial fact over leather SCs. That is, one cannot assume all big buying firms, otherwise accepted as iconic luxury brands, are committed to product sustainability. Following a summarized statement made by the company CEO "... Generally our clients don't ask to trace or provide a specification on traceability, so we don't ask our suppliers... "Our clients, regarding social sustainability, never asked and never controlled..." "As we have long-term relationship they trust us and don't ask", it could be suggested that traceability and transparency are not established practices in luxury leather fashion SCs.

Using new materials and applying some new machines accompanied by hazardous substances elimination and going beyond legislations, such as elimination of some materials by forecasting what forthcoming laws could prohibit, actually helped 'Leather 4' improve not only its sustainability management but also quality

performance. “... With the introduction of new materials and innovation technologies I can see a slightly improvement...” suggests that practices implemented at product level could bring together a number of operational advantageous.

Environmental and Social Sustainability at Process Level

‘Leather 4’ reveals that they do not have process related sustainability practices pertain to waste and emission management. Regulatory compliance is met in terms of noise, waste, and water controls. To illustrate, local authorities conduct regular visits to check emission levels. Processes managed by ‘Leather 4’ do not encompass tanning and/or leather finishing. Hence, water does not emerge becoming a significant issue for the company. Concerning energy management, it is unveiled that the company showed an inclination toward photovoltaic panel installation. However, due to financial as well as managerial restrictions, the project did not see daylight, as addressed “Regarding energy consumption we interested in the installation of photovoltaic panels, but the position is not right to do it...”

Waste management, as previously elaborated, is a concern for the fashion industry. Having said that, ‘Leather 4’ addresses that they generate leather waste. For example, some parts of leather and soles are not used because fashion trends change. Thus, certain components might not be introduced in production for forthcoming seasons. However, some materials that are to be discarded are stored to be reused, depending on colours and technical properties.

If scraps are small, they are thrown away. The company is rather small and not equipped to employ a second production line. Therefore, the existence of lack of technical and financial capital, leather scraps and/or small pieces hinders the company to utilize and reuse the waste generated. “ During the assembly process, we have such small scraps that we throw away because we cannot afford to implement a second line of production for small accessories, such as wallets... only bigger companies can afford it...” Subsequently, limited amount of practices put forward by ‘Leather 4’ is summarized in Table 53.

Table 53 Environmental and Social Sustainability at Process Level

Level	Environmental Sustainability	Social Sustainability
Process	Noise control	Empowering labour workforce
	Waste management	
	Emission reduction	
	Reuse waste	

Environmental and Social Sustainability at SC Level

On the one hand, ‘Leather 4’ as a branded shoe manufacturer plays the role of being supplier to some brands. On the other hand, it supplies from a wide range of suppliers encompassing ‘Leather 3’. However, it is unveiled that Italian luxury sector is dominated by suppliers located in China. “Everyone works with the Chinese suppliers... In Italy, we don’t have a local force that sews, and that’s bad...” states the CEO highlighting the market loss in Italy.

Globalization and dispersed SCs, though, have become significant factors for regulatory compliance. That is to say, clients are observed acting differently and paying more attention to social working conditions. “Regarding (the) social dimension, we have employees... all the contracts are regulated by respecting the law...” correspondingly “... the illegal payments and work have almost disappeared in this zone and everything is well regulated” elaborates ‘Leather 4’. Overall practices implemented at the chain level are displayed in Table 54.

Table 54 Environmental and Social Sustainability Integration at SC Level

Level	Environmental Sustainability	Social Sustainability
SC	Supplier certifications	Philanthropic donations to local communities
	Occupational health and safety	Monitoring factory compliance
		Multilateral dialogue with the bodies, institutions, associations and communities

An interesting finding emerges to show that the companies located in the same zone trust each other. Nevertheless, trust seeded among the companies can be suggested jeopardizing the depth of sustainability evaluation. All in all, long-term relations and collectivistic cultural patterns prevent companies to further interrogate their suppliers’ social records. “Our clients, regarding social sustainability, never asked and never controlled... As we have long-term relationship they trust us and don’t ask nothing”.

Regulatory compliance is ensured yet is automatically associated with full accuracy, which is not necessarily a case in the luxury fashion industry if one considers many social scandals pertaining to hidden subcontractors or extensive hazardous chemicals use. When such points were elaborated, the respondent revealed, “Regarding our suppliers, we don’t ask them as I think that control them is worthless and not necessary... If we take for example the Chinese workforce used by Prada, why should I be worried on how my suppliers work, and not worry about them? If they don’t control the Chinese workforce, why should we control the others?”

‘Leather 4’ works only with Italian supplier, resulting in established relations based on trust and faith. “Our suppliers are only Italians... we need only natural leather, heels and soles... Suppliers of leather are geographically located in three sites in Italy, each of them specialized in particular processes: in Santa Croce sull’Arno (Tuscany), in Arzignano (Veneto), in Castano Primo (Lumbardy)... Depending on the typology of the shoes needed, we supply from a different site... For the classy shoes we supply from ‘Leather 3’, for sportive shoes from Tuscany... we never supplied from companies outside Europe”. However, lack of proper investigation and throughout interrogations is observed resulting in reactive and optimistic managerial attitudes rather than a remarkable progress toward sustainability.

Both 'Leather 3' and 'Leather 4' reveal that their big clients never ask about full circle of traceability. Hence, sustainability assessment over raw material suppliers emerges as the biggest missing component. Actually, smaller companies expect big luxury fashion companies to take larger steps toward traceability. "Industry should put a sticker on the final product, (for example) we need to add a technical certificate showing the process and composition of the product" could be considered a constructive suggestion proposed by the company CEO. Only when industrial consensus is reached upon sustainability and when joint actions are taken to the end of sustainability, leather SCs could have a potential to secure environmental, social and financial stability.

Among observations is the fact that commercial pressures and market characteristics of luxury fashion impede sustainability. "In the past years the municipality created some initiatives and we always participated, however it never worked well..." "The problem is that the competition is high... when we faced a crisis, everyone wanted to collaborate more, but right now (in today's rapidly changing market conditions) companies are driven by their own objectives..."

Even though, joint projects could not become successful initiatives in the region where 'Leather 4' operates in, the company, in collaboration with their municipality, commits to execute community development projects. To illustrate 'Leather 4' addresses, "We received disabled workforce, or people with poverty and familiar problems to work in our facility... The project is going well, they escape from their bad reality and work in our company, we are happy on it". Following practices implemented by 'Leather 4', the next section elaborates on barriers impeding sustainability followed by a critical assessment of what could actually enable sustainability.

Barriers of Sustainability Integration at Leather 4

There exist factors whose existence prevents 'Leather 4' from putting forward sustainability. As such, product stewardship cannot be excelled. End of life management to coordinate disposal management toward more circular approaches is not taking place due to financial restrictions. "... During the assembly process, we have such small scraps that we throw them away because we cannot afford to implement a second line of production for small accessories, such as wallets..."

'Leather 4' does not create new yet smaller items, such as wallets, out of leather waste generated, and therefore cannot establish product recovery systems. Waste is thus not reused and resources are not saved. Hence, economic restrictions prevent the company to realize internal waste and/or by-products.

Table 55 Barriers Impeding Strategic Decisions about Sustainability

<i>Barriers impeding strategic decisions about sustainability</i>			
Internal		External	
Organizational	Operational	Market	SC
- Lack of financial resources	- Lack of knowledge	- Conflict of interest - Lack of	- Lack of information about the material origin

		awareness	- Lack of low quality of sustainable supply
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Conflict of interest and commercial pressures, on the other hand, appear to impede sustainability to become a holistically integrated practice. “The problem is that the competition that is high... when we faced the crisis, everyone wanted to collaborate more, but right now companies are much more interested in perceiving their own objectives...” articulates how external factors influence strategic decisions made by each and every company located in the same industrial zone. The CEO states, “... when we need more workforce we cannot afford it...” can actually suggest that what is summarized in Table 55 would be supposedly improved if ‘Leather 4’ would have more financial and human capital.

Correspondingly, Appendix 3 aims to display an overall summary of the best practices observed in the Leather SC as the first step to develop the main classification matrix. The extent to which sustainability is integrated in both luxury fashion SCs and the alterations observed are showcased in Appendix 4.

5.2.2. Cross Case Analysis

Sustainability in Luxury Fashion SCM

Sustainability is recognised as a shift in traditional luxury fashion businesses. Thus, sustainability implementation in luxury fashion operations is still an emerging topic where there exist opportunities for theory development and empirical investigations. In this vein, this section uncovers and critically analyse some issues that could provide theoretical, practical and social implications to drive change for true sustainability implementation in luxury fashion SCM.

The distribution of practices implemented by sample companies at each 3DCE level (product, process and SC) in terms of sustainability category and associated aspect is illustrated in the taxonomy displayed in Appendix 4. Further, the within case analysis also revealed 13 novel practices that were not identified in the extant management literature. To illustrate, 'Leather 2' has been applying environmental profit and loss. Moreover, both SCs introduced a system to check certificate of origin to ensure materials are acquired pursuant to national and international standards. To this end, Table 56 summarizes these novel practices implemented by luxury fashion companies.

Table 56 Novel Practices Emerged from the Cases

	Textiles SC	Leather SC
Certification for social sustainability	X	X
Certificate of origin	X	X
Client tests	X	X
Insurance and retirement benefits	X	X
Educational activities for future employees	X	X
Chemical categorization matrix	X	X
Inspection and controls at potential supplier facilities	X	X
Environmental profit and loss		X
Chemical reduction at production processes		X
Material researchers		X
Staff awareness programs for traceability		X
Carbon offset		X
Logistics planning optimization		X

Data from Appendix 4 and Table 56 were restructured to make a larger sense. In this vein, individual practices were piled together in specific categories via a multiple step iterative, and pattern matching processes. Whilst bringing together practices by function, some of the practices, which were either too company specific or shallow, were excluded. On the whole, all practices related with product design are grouped together, while some others concerning sourcing being hanged together.

Following is the key categories emerged from the cross analysis.

Category 1: Sustainable product design

Category 2: Operations management

Category 3: Sourcing management

Category 4: Organizational commitment

Sustainability is implemented at product design by pursuing a life cycle thinking logic and by focusing on chemical reduction. However, chemical elimination is quite challenging for luxury products. There are some chemicals needed to give the final touch of the leather on the finished product. Hence, companies in the leather SC struggle to eliminate some chemicals from their production processes. As for the textiles SC, use of organic cotton is a growing trend. Notwithstanding its cost structure that is more expensive than other materials, use of certified and organic materials is preferred for cost savings achieved in machinery.

Water management becomes a pivotal topic for production processes. It is explored that eliminating chemicals from products cannot ensure environmental stewardship because there are many mixed in wastewater. To this end, leather companies have their own wastewater treatment units in their production plants, such as active sludge process, not to directly discard their wastewater without purification on site. Textile companies, on the other hand, pursue a reactive approach with an arm's length approach and only comply with regulations.

SC complexity impedes sustainability integration in sourcing management because textiles production is mostly outsourced and raw material processing, concerning both SCs, is never visible. Textile companies, on the other hand, are taking a wide range of social actions to empower their local communities, to preserve welfare of their own people due to the existence of collectivistic cultural patterns, and to improve their own environments where they are based to live and operate.

Raw materials used by both SCs come from different countries and hence certificate of origin appears to be an industrial practice with an attempt to ensure where materials come from. Nevertheless, such certificates and monitoring activities do not entail detailed appraisal methodologies. Therefore, traceability activities can only reveal a limited perspective of behind the scenes in supplier facilities. On the whole, lack of raw material visibility, lack of robust and rigorous sustainability assessment across the networks, and losing the skill base due to the fact that young generations' lack of interest in craftsmanship are very critical issues for luxury fashion businesses. Both textiles and leather industries need to develop technical and relational competences to ensure SC sustainability at its entirety. Furthermore, companies are fond of their cultural values. Hence, preserving Italian values and

promoting the Italian luxury product are important internal drivers for both big buying firms and their small sized suppliers.

Developing a better region where they live, operate and promote has become more than an organizational commitment. Considering aforementioned arguments, this study has revealed some factors whose existence could enable companies to spread sustainability across their supply networks. Primarily, supplier engagement and collaboration could be enablers of sustainability integration. To this end, knowledge transfer and effective communication are greatly required. Further, top management support appears to have a great deal of importance. Lastly, innovation is considered imperative for which supplier engagement and stronger collaborations are known to be antecedents.

The categories of currently implemented practices are displayed in Table 57 and illustrate the main sustainability trends in luxury fashion SCM with an attempt to further highlight what is rather missing and what aspects must be significant prerequisites for SSSCM in luxury fashion.

Table 57 Categories of Best Practices

Categories of Best Practices	Case 1: Textiles SC	Case 2: Leather SC
Category 1: <i>Sustainable product design</i>	Chemical reduction	Chemical reduction
	A matrix to categorize all chemical components	A matrix to categorize all chemical components
	Use of certified raw materials	Use of certified raw materials
	Client tests	Client tests
	Life cycle assessment	Life cycle assessment
		Use of eco-friendly (recycled, organic) materials
Category 2: <i>Operations management</i>	Water stewardship	Water stewardship
	Wastewater treatment	Wastewater treatment

	Process innovation	Process innovation
	Reduce/reuse of textile waste	Reduce/reuse of textile waste
	Renewable energy generation	Emission reduction
		Carbon offset
		Logistics planning optimization
Category 3: Sourcing management	Process certification	Process certification
	Environmental certification of suppliers	Environmental certification of suppliers
	Certificate of origin	Certificate of origin
	Procurement certification	Procurement certification
	Monitoring factory compliance	Monitoring factory compliance
	Certification for social sustainability (to check working hours)	Certification for social sustainability (to check working hours)
	Training and education material for suppliers	Training and education material for suppliers
	Supplier / partner selection based on environmental and social sustainability practices	Two tier SC audit system
	Developing programs for labour practices and decent work conditions	Inspection and controls at potential supplier facilities

	Protecting female workforce	Traceability
	Women empowerment through new jobs	
	External and accredited auditor	
Category 4: Organizational commitment	Philanthropic donations to local communities	Philanthropic donations to local communities
	Trainings on the Code of Ethics and ethical purchase	Trainings on the Code of Ethics and ethical purchase
	Multilateral dialogue with the bodies, institutions, associations and communities	Multilateral dialogue with the bodies, institutions, associations and communities
	Insurance and retirement benefits	Insurance and retirement benefits
	Educational activities for future employees	Educational activities for future employees
	Providing a career path and better skilled human resource management	Environmental profit and loss
	Trainings on fire and safety	Providing sustainable working conditions to artisans

		Coaching sessions and counselling meetings
		Staff awareness programs for traceability

Category 1: Sustainable product design

Life cycle thinking and chemical reduction are observed becoming a focal point where many of the sample companies implement distinctive practices. This section attempts to unveil essential components by which the current state of luxury fashion embarks on sustainability at product level.

Categories of Best Practices	Case 1: Textiles SC	Case 2: Leather SC
Category 1: Sustainable product design	Chemical reduction	Chemical reduction
	A matrix to categorize all chemical components	A matrix to categorize all chemical components
	Use of certified raw materials	Use of certified raw materials
	Client tests	Client tests
	Life cycle assessment	Life cycle assessment
		Use of eco-friendly (recycled, organic) materials

Life cycle thinking

Due to some facts remaining too critical to ignore, both SCs seem to increase their awareness regarding natural resource scarcity. To this end, some practices aiming to mitigate environmental and social impact are observed throughout fashion design stage. Seven companies out of 10 committed to use certified raw materials, “... we work with natural products” states the production manager of ‘Leather 3’.

Life cycle assessment (LCA), on the other hand, emerges as a significant tool to assess environmental impact generated throughout a product’s entire life span.

The global operations manager of 'Textiles 1' defines, "we did LCA on our three best selling products... Materials are the main issue and (many) improvements are required". Correspondingly, both SCs show a growing interest in eco-friendly material utilization to move toward full recyclability.

On the whole, life cycle thinking could be suggested as being one of the main trends. Yet, buying firms are required to better deploy life cycle thinking into their design practices while being in need of setting stricter criteria in their supplier management.

LCA as one formal tool to capture the real environmental impact is largely conducted by 'Textiles 1' and 'Leather 2'. According to results, some projects, especially in the field of logistic planning optimization, are rearranged initiated. Though, 'Leather 3' unlocks a problem, "In the shoe manufacturing facility we have another problem. The leather is really sensitive to chemicals" implying that certain components can get chemical reactions with, for example, a specific glue and when warmed up in the oven, the vaporized chemicals could cause reactions on the skin upon use. Hence, leather companies declared that they are getting more engaged with material assessment and chemical restrictions to ensure product safety, which supports the findings observed in the textiles chain, as 'Textiles 5' concludes, "... It is better to try to create the "cleanest" product as much as possible".

Chemical reduction

Chemical reduction and hazardous material elimination appear to be some of the profound examples observed at both SCs. "Material substance list, which is a strategic priority to show what to use and the limits" is noted by 'Textiles 1' and is actually observed by the entire textiles SCs getting spread in their network. 'Textiles 6' confirms, "... We are trying to be more ecologic, categorizing the chemicals in a matrix in order to replace any chemicals creating problems". The reasoning of such a matrix is to insert input in terms of materials used in products and to be able to detect any sort of possible problematic components. Textiles companies set some crucial targets to reduce certain chemicals from their production lines. In this vein, 'Textiles 1' is committed to 'Zero Discharge 2020' project, and sets up a 'Product Safety Control System' to guarantee a continuous and methodical control process by using specific testing programs on chemical substances on the finished product.

Furthermore, companies positioned in the leather SC are also spotted paying a significant attention to chemical reduction. 'Leather 4' addresses, "... We don't have chemical products in our assemblies..." The leather SC is observed taking a rather active approach compared to the textiles SC. "It happened that some German and Japanese clients asked us to clip without nickel before the norm was introduced... but our supplier was already producing without nickel so it wasn't a problem..." explains 'Leather 4' and shows only one of the examples suggesting that leather companies puts forward steps to move ahead of regulations.

Nevertheless, the findings also reveal some hindrances companies need to overcome to ensure product sustainability. "We have several projects in the raw materials field, which I need to say that this is more difficult than the ones on the

social side because it involves technology and innovation'' sustainability officer of 'Leather 2' defines and continues '' ... you also need to find supportive partners in your SC that are willing to develop new kind of methods in order to fulfil your requirements'' Practices observed are aligned with what literature already suggests. Yet, new practices including as chemicals' matrix and designer awareness programs could be considered novel and potentially significant incentives to ensure sustainable product excellence.

Category 2: Operations management

While our findings support the argument that sustainable chains already perform what was previously considered the best from a traditional standpoint, this study attempts to further evidence what could be novel in the luxury fashion context. To this end, three fundamental strategies are explored on how to integrate sustainability in operations management in luxury FSCs.

Categories of Best Practices	Case 1: Textiles SC	Case 2: Leather SC
Category 2: Operations management	Water stewardship	Water stewardship
	Wastewater treatment	Wastewater treatment
	Process innovation	Process innovation
	Reduce/reuse of textile waste	Reduce/reuse of textile waste
	Renewable energy generation	Emission reduction
		Carbon offset
		Logistics planning optimization

Water management

Water scarcity is real, so is the fact that fashion is a thirsty business. The Aral Sea reduced 10% of its former volume due in part to conventional cotton farming (Ditty, 2015), yet, equally dangerously, a 40% global shortfall in water supply is expected by 2030 (CDP, 2015a). Furthermore, water is directly associated with operational costs. Therefore, both SCs are observed paying a deeper attention to water management.

A total number of seven companies implemented wastewater treatment in their production facilities and nine companies move toward water stewardship through process innovation. Especially, companies positioned in the leather SC largely focuses on water, as leather production entails a significant amount of water

use. The operation manager of 'Leather 3' provokes thoughts through a financial standpoint, says "... the main problem of a tannery is the water consumption, that is an important voice in the balance sheet." Hence, a number of incremental techniques are mentioned on how to better deal with water.

Leather companies foster water purification and water reuse. Similarly, 'Textiles 2' develops technical capabilities on water recycling. Nevertheless, as presumed, financial concerns drive the sample companies toward water management rather than environmental consciousness. As stated by the quality manager of 'Leather 1', "the tanneries work with a lot of water to make the leather, so one of the main targets of the tannery is to decrease the water waste... Not because they think of sustainability, because they think of money (due to the fact that) water is quite expensive." Sustainability officer of 'Leather 2' correspondingly addresses the water use as one of the central facets in their production facilities. The company therefore stores rainwater to reuse it for other purposes as much as they could.

Water remediation in luxury fashion operations plays a vital role to purify wastewater after the operations given that around 8.000 synthetic chemicals are utilized to turn raw materials into textile, and many of such chemicals are released into freshwater sources (Aiama et al., 2016). To mitigate such an impact, 'Leather 2' implements a project. MRSL (manufacturing restricted substances list) is a project aiming to eliminate chemicals from the (production) processes since there exist chemicals that could be discharged during the process. Testing chemicals only in the product cannot identify these hazardous chemicals leaked into water.

Chemical reduction is thus quite pivotal not only to provide sustainable products encompassing fewer chemicals but also to discharge less impactful wastewater. 'Leather 3' follows the footsteps of its client, 'Leather 1', and explains, "...We have been using activated sludge process to treat sewage and wastewater since the 1990s". Water stewardship could also provide some financial returns, which is supported by 'Leather 2', addressing, "Eliminating chemicals or heavy metals in tanning processes can lead to water savings" Last but not least, leather companies also state that water footprint could be reduced through the implementation of some other methods. Natural tanning, in this regard, emerges as an incremental yet easily applicable solution.

Pollution prevention and energy efficiency

Practices identified by traditional SCM are observed in operational strategies implemented by SCs. Pollution prevention emerges as a growing concern within companies and across SCs. However, in terms of operationalization, companies are located in both chains are spotted having some struggles regarding how to incorporate pollution prevention techniques into their daily activities. As the United Nations Environment Program (UNEP) states, collaborative emissions reduction initiatives including companies, cities and regions could deliver an equivalent of 3 billion tonnes of CO₂ reductions by 2020 (CDP, 2015b). Thus, carbon footprint reduction must entail the efforts of not only buying firms but also their suppliers, implying the snowballing determinations of the entire SC.

Vertical integration is observed becoming weaker and weaker in luxury fashion SCs, resulting in difficulties to execute suppliers' emission and energy performance. This could be attributed to the rapidly changing industrial dynamics. As addressed by 'Textiles 5', "60 years ago we had entire production of silk internally... we started from silkworm cultivation to the final product... but years passed and globalization created complexities, it was too costly to produce everything internally; it was less costly to outsource it". Unquestionably, result is ultimately growing negative impact on the environment. Practices implemented in this category could be considered individual attempts of companies rather than collective action plans throughout the entire chain.

'Leather 2' states, "... one of the most challenging targets of ours is to reduce store-to-store transfer. By distributing the right merchandise to the right store everyday we can reduce a lot stock-to-stock transfer. And this largely affects emissions and costs in terms of transportation." Nevertheless, the company has taken some actions to improve their operational efficiency while mitigating their negative impact. "In Milano, we are using electrical vehicles to move items from stores to stores". Not only could using car fleet including hybrid vehicles reduce carbon emissions but it could also increase operational efficiency.

In terms of energy savings, 'Textiles 2' commits to environmental impact reduction through a number of projects, including a photovoltaic plant, a cogeneration plant, and an internal depuration plant. As stated by the operations manager "The cogeneration plant has been implemented to reduce production costs..." and, albeit cost reduction being the initial driver, energy efficiency is reached. 'Textiles 5' also achieved cost savings when installed photovoltaic panels were installed in 2013. All in all, both SCs aim at implementing the most efficient strategy that would let them have cost savings while putting forward pollution prevention and energy efficiency projects.

Performance measurement

Managerial literature has a number of studies focusing on performance measurement. However, it is also insightful to address what might prevent luxury fashion companies from measuring noneconomic components of sustainability. At the organizational level, the sample companies work with supplier ranking systems. Pollution prevention on site is mostly aimed, and therefore companies track their energy use, water consumption, and GHG emissions. Nevertheless, it is not quite feasible to control energy consumption or carbon footprint in independent networks in which the buying firm acts as a coordinator by outsourcing its business functions to third party suppliers.

Furthermore, it is also noticed that performance measurement largely captured environmental aspects leaving social components aside. Operations manager of 'Leather 4' states, "When we ask our suppliers about their records for traceability, our suppliers, including L3, are efficient to trace the leather but generally our clients don't ask us to trace or provide a specification, so we don't ask our suppliers (about their sustainability performance)" and continued "... our clients, regarding social sustainability, never asked and never controlled..."

Lack of performance monitoring brings further problems since clearly guided behaviours and principles are required for the chain's sustainability. Textiles SC is observed having some communication gaps and missing critical aspects in terms of controlling the chain's overall impact. 'Textiles 1' solely addresses, "No results or measured performance measures, it is work-in-progress". This similar behaviour is also channelled by 'Textiles 2', which is a direct supplier to 'Textiles 1', stating, "Concerning (suppliers in) China, we have some modules but we never control them directly... we don't know how they work with silk... They have to respect some targets on the fabric I require, then they have to sign certain certifications where they guarantee that they don't use child labour, that the work hours are fair... but we never controlled them directly..."

Relatedly, 'Textiles 6' adds, " Before the textile arrives to us, we don't know which kind of tests the suppliers have done" 'Textiles 5' further exemplifies by saying, "Three years ago, a client, during laboratory tests, found out that a colour consisted of a chemical that was to be toxic on a sweat skin, so the production was blocked immediately, I talked with the supplier and in five months everything was solved..." "They asked me directly to inform my supplier about the material..." and adds "... But as I told you, we cannot know exactly the composition of the yarn".

Undoubtedly, there must be some measurable indicators to increase the visibility of sustainability, especially in terms of working conditions and product security. Regarding more traditional inspection methods, that is, arms-length approach, companies perform several activities. 'Textiles 2' reveals that "Each client sends its own staff to control us (to see) if we pay taxes for the pensions, if the security exits are alright, the fire escape are okay.... Each year we have our own control, then we implement tests on our suppliers..."

Notwithstanding the practices implemented, factors appear to be impeding luxury fashion SCs to measure sustainability performance. 'Textiles 5' explains, "Lots of different requests are coming from different clients, different types of certifications." Similarly, as stressed by other companies in both chains, sustainability monitoring is getting way complicated because the brands have their own yet very varying codes and requirements. SMEs are observed having struggles to create coherent measurement systems to measure, report and improve their performances in the move toward corporate citizenship.

Category 3: Sourcing management

The findings reveal that leather and textiles companies integrate sustainability in sourcing management through traceability projects and supplier audits. Following highlights the best practices and dissimilarities emerged among sample companies.

Categories of Best Practices	Case 1: Textiles SC	Case 2: Leather SC
	Process certification	Process certification

Category 3: Sourcing management	Environmental certification of suppliers	Environmental certification of suppliers
	Certificate of origin	Certificate of origin
	Procurement certification	Procurement certification
	Monitoring factory compliance	Monitoring factory compliance
	Certification for social sustainability (to check working hours)	Certification for social sustainability (to check working hours)
	Training and education material for suppliers	Training and education material for suppliers
	Supplier / partner selection based on environmental and social sustainability practices	Two tier SC audit system
	Developing programs for labour practices and decent work conditions	Inspection and controls at potential supplier facilities
	Protecting female workforce	Traceability
	Women empowerment through new jobs	
	External and accredited auditor	

Traceability

Luxury fashion products are dependent on raw material quality and excellence and are made of high-quality and sometimes even very rare materials. On the one hand, raw materials are acquired from nature-based systems, in which a number of environmental issues such as droughts, biodiversity degradation and water scarcity, and social issues such as occupation losses and health and safety issues, challenge sourcing related practices; on the other hand, raw material production and processing stages generate significant amounts of carbon footprint, resulting in a wide range of stakeholder groups pressuring brand owners to better ensure traceability.

Due to very sensitive topics, including child labour, animal welfare, chemical use and labour practices, traceability emerges as a progressively pivotal topic for both SCs. Albeit very limited, sample companies implement some practices to better control how things are made throughout their chains. This study follows the footsteps of Pagell and Wu (2009) and defines traceability as an internal practice of information sharing on all materials used in suppliers' products to guarantee that all inputs meet the buying firm's requirements regarding working conditions. To this end, both SCs perform activities in the way toward traceability.

Textiles '1', '3' and '5' and Leather '1', '2' and '3' implement traceability projects to see how things are done in their chains. To this end, leather companies are seen taking more proactive actions. That is to say, leather companies are able to get closer to their raw material processing suppliers, as raw materials coming from abroad are mostly processed in their own region. Whereas, textile companies rely on suppliers in globally dispersed networks. Raw material processing takes place in a wide range of countries, which results in brand owners conducting their traceability projects only through arm's length approach.

'Textiles 5' only works with Italian suppliers and they can trace and provide certificates in terms of materials as well as subcontractors used. However, as the company CEO states "... raw materials come from all over the world: cotton from Egypt or Turkey, polyester from Bulgaria or Romania, silk from India or China... The raw silk comes from China to Como then receives dyeing and other elaboration". Hence, traceability over raw material processing and raw material production is a very challenging topic. This is further articulated by 'Textiles 6', saying, "we do not exactly know all the components within (the fabrics)".

For example, the oil spinning weaving could have chemicals inside that companies do not know, chemicals, on the other hand, can exist that would go into the washing tanks and would release substances that companies don't even know. Some companies, for example, do not purchase "caustic soda" or "Hydrochloric acid". Yet, there are number of commercial products requested from the suppliers without SC actors knowing or controlling whether there is a particular substance inside that could contain "caustic soda" or "Hydrochloric acid". Big product varieties and fragmentation make it difficult for companies to trace their suppliers as well as the subcontractors to make processes controllable and completely accountable.

Certificate of origin has become a highly pronounced practice. Four companies (Textiles '3' and '5', as well as Leather '3' and '4') ask their suppliers to provide them with certificate of material origins. Yet, it is interesting to observe that brand owners are not pressuring their suppliers to provide them with such certificates. Hence, as confirmed by all SMEs participated in the study, namely Textiles 3, 4, 5, and 6, as well as Leather 3, and 4, reveal that their big clients ask very detailed information neither about their subcontractors details nor about raw material sourcing supplier related details.

In this vein, 'Leather 4' unveils that commercial pressures take over the industry and the pressure of meeting performance based operational requirements jeopardizes detailed assessment in terms of material traceability. Furthermore, lack of trust emerges to be a significant barrier. Many of the SMEs are aware that providing further details of their own suppliers as well as subcontractors might enable their big clients to cut them off and to directly approach further suppliers without the use of those SMEs.

That is, "We ask the Made of Origin certificates to our suppliers because our clients want to receive them. We sum all the certificates (pertaining to) product composition" the operations manager of 'Leather 4' states and continues, "(however) I know it happened to some other companies that some jobs were lost because they were bypassed by their clients (after these companies gave their upstream suppliers information to their clients)". To this end, trust and knowledge transfer are found rather weak in luxury supply networks, which must have been considered paramount to link non-economical goals with financial objectives.

Even though most of these companies know each other well due to regional contingencies they jointly share, companies do not appear to ask detailed questions about their upstream operations. Perhaps, reason lies in cultural values however it is surprising to see how fashion companies, especially SMEs, incline to avoid asking and facing questions about deeper sustainability issues. Strong bargaining power possessed by big brand owners might oblige small and medium sized suppliers to deliver strategic information in terms of their textile producers as well as (to some extent) their raw material processor details. Yet, it is observed that both SCs provide only limited information only to comply with regulations and to preserve their own market share. Without traceability, securing accountability and preventing human right violations cannot be ensured. Nevertheless, findings suggest the existence of some factors, including lack of trust, lack of information, lack of financial resources and lack of willingness, impeding luxury SCs to excel in traceability.

Last but not least, as for exotic materials and fur use, both SCs are observed raising their consciousness. That is to say, 'Textiles 1' is committed to fur traceability, stating "the group, in agreement with Fur Free Alliance, announces its commitment to cease the use of animal fur.... Starting from the fall winter 2016 season, all of the garments in the collections would be fur free". In this vein, 'Leather 1' corresponds, "we check with the tanneries about the original species and the conditions e.g. where the animals were fed and also how they got killed".

Further, 'Leather 2' purchases Responsible Jewellery Council certified gold for their fine jewellery production. Subsequent to traceability efforts made by both SCs, next section addresses second trend belonging to the sourcing management category, which is supplier audits.

Supplier audits

Difficulties surrounding the luxury fashion industry result in supplier audits employed to a limited extent. Only 'Textiles 3' and 'Leather 2' implement two-tier SC audit systems. Findings reveal that audits are mostly conducted at direct suppliers' production facilities. A new practice emerged from the analysis is inspection and controls at potential suppliers facilities. This practice can be considered a common practice to check material quality, operational performance and so on; however, leather SC conducts this control beforehand to ensure sustainability based requirements are met in terms of working conditions and health and safety issues.

Leather and textiles companies ask their suppliers to deliver certifications in terms of production processes and environmental management systems. Further, compliance is monitored by audits conducted at direct suppliers' production facilities. Another novel practice emerged in both SCs is the fact that leather and textiles brand owners encourage their suppliers to make social sustainability a material issue. Even though, certifications asked for social sustainability do not go beyond a standard checklist in terms of working hours and prevention of child labour, material issues increasingly cover social aspects of supplier facilities.

Despite, audits is the main practice suggested to address traceability, there are number of issues that challenge supplier audits to become an established practice and to enable companies to spread it across their networks (the further upstream toward raw material suppliers). The quality manager of 'Leather 1' specifies that audits negatively affect operational performance results; for example, there were cases where some suppliers could not deliver the products on time due to the fact that they were busy preparing documentation.

However, 'Leather 1' takes committed actions for supplier audits, despite associated high costs, and they go check their direct suppliers without specifying a certain time. 'Textiles 1' conducts audit and especially training programs only with their continuous direct suppliers; "... We cannot start improvement programs with suppliers that will not be working (with us) in the following season'', states the head of global operations.

To this end, both SCs utilize third party audits conducted at their direct supplier facilities. Furthermore, 'Textiles 1' provides their direct suppliers with a web tool to enable them for self-assessment. Still, unfortunately, they do not know their sub-contractors hence performance assessment cannot be spread across the network. Relatedly, 'Leather 3' stresses, "we don't know what happens before the tanneries, and we have no possibility to know that''. Subsequently, how raw materials are produced and beamhouse operations are handles, the leather SC does not have a straight control.

'Textiles 2', similarly, does not control their suppliers located in China. "Regarding (the suppliers in) China we have some modules, but we never control them directly... we don't know how they work with silk... They have to respect some targets on the fabric that I require, then they have to sign certain certifications where they guarantee that they don't use child labour, that the work hours are fair... but we never controlled them directly..." All in all, brand owners and the suppliers are observed being in need of more efficient inspection methods and more realistic techniques to improve ensure sustainability in their sourcing management.

Notwithstanding limited practices, both SCs seem to get more and more aware that practices implemented individually can eventually make the chain stronger, and furthermore, companies can jointly from each other. To this end, SMEs located in the same industrial districts appear to disseminate knowledge and technical information with their counterparts. It is clear that sustainability entails bringing together all actors in the chain; Textiles SC thus embarks on industrial collaborations in production zones.

'Textiles 2', for example, states, "... We share the same dyeing technology (in the zone). If someone finds a new dyer that is more efficient and effective, he shares this information with everyone here in the district... the competences are shared..."

Lastly, it is evident that both SCs invest in supplier development and training programs to ensure not only product quality but also supplier stability. 'Leather 4' works with only Italian suppliers based on long-term relations. Leather SC represents a clearer example in which long-term relationships cultivate trust, resulting in advanced stakeholder dialogue. 'Leather 2', in this regard, provide its direct partners with trainings and educational activities on to learn more about sustainability and to encourage them to make transparency a material topic. Sustainability officer of 'Leather 2' explains, "for two years now, we are having sustainability meetings with the key suppliers... In 2015, we reached even second tier suppliers (only direct ones) and we aim to verify our key suppliers by 2020..." Yet, subcontractors and indirect suppliers are noticed being out of scope.

Laws and regulations are much stricter in Europe and therefore regulatory compliance and/or practices aiming for regulatory compliance actively take place. Nonetheless, both SCs lose their control over raw material processing stages. As addressed by 'Textiles 3', "... sustainability must be thought to farmers and further tier upstream suppliers". Not only direct but also indirect suppliers, including raw material suppliers, must be presented with reasonable, stable and advanced working conditions. To this end, 'Textiles 6' uses fewer suppliers, set much stricter selection criteria and controls product quality and chemical use. Supplier stability appears to be a prerequisite for creating more stable and more sustainability SCs, hence, long-term vision and joint action plans require to get embedded in sourcing management.

Category 4: Organizational commitment

There emerge some characteristics in terms of organizational commitment to sustainability. Existing studies stress that top management needs to be proactive. While the findings support this argument, this section aims to describe certain

characteristics that are needed to be more proactive in luxury fashion SCs. Organizational commitment can be evidenced in three ways.

Categories of Best Practices	Case 1: Textiles SC	Case 2: Leather SC
Category 4: Organizational commitment	Philanthropic donations to local communities	Philanthropic donations to local communities
	Trainings on the Code of Ethics and ethical purchase	Trainings on the Code of Ethics and ethical purchase
	Multilateral dialogue with the bodies, institutions, associations and communities	Multilateral dialogue with the bodies, institutions, associations and communities
	Insurance and retirement benefits	Insurance and retirement benefits
	Educational activities for future employees	Educational activities for future employees
	Providing a career path and better skilled human resource management	Environmental profit and loss
	Trainings on fire and safety	Providing sustainable working conditions to artisans
		Coaching sessions and counselling meetings
		Staff awareness programs for traceability

Multi-stakeholder dialogue

Sustainability could be spread across supply networks only when all SC actors, including retailers, suppliers and sub-contractors, are brought together to understand each other and to collaborate with each other. A total number of six companies, equally representing both of the chains, are engaged in multi-stakeholder dialogue with associations, communities and institutions. As the head of global operations of 'Textiles 1' states, "... goals are more achievable when working with other brands", hence, companies are slowly but securely realizing that to achieve the goal of sustainability they must work together.

In this vein, CEO of the holding company of 'Leather 2' considers sustainability an opportunity for business improvement. Nevertheless, there is a need to develop some technical as well as relational capabilities. Market competition surrounding luxury fashion seems to be high and luxury companies are still primarily driven by their own objectives. SMEs located in both chains, representing the group that is affected by all sort of pressures coming from big brand owners, especially specify that what developed internally must be passed further upstream. Hence, resource and knowledge dissemination becomes an antecedent to sustainability integration.

What emerges is cognition suggesting that luxury fashion is reaching a point where partners that are not collaborative will be excluded from the market. Multidimensional conversations including different stakeholder groups are needed to further spread sustainability across the network. Each department, each position, each actor need to be a part of a more holistic approach, as suggested by the production planning and distribution manager of 'Leather 2' "... Material researchers, for example, play key roles because they choose and decide what will be used in the products. Thus, their engagement is fundamental....".

Community of practice development

Both SCs implement projects on community of practice development. In this sense, companies located in textiles SC mostly donate their overstocks and/or damaged products to schools, churches and associations (unless nobody buys them after the company attempts to resell those items in discounted prices as a common industrial practice). 'Textiles 1', on the other hand, recognizes a number of projects on training and community development.

'Textiles 1' shares this very mind-set with its direct suppliers, as confirmed by 'Textiles 6', which is a direct supplier to 'Textiles 1'. There are projects make industrial districts more environmental friendly and surroundings more liveable. To this end, in order for preserving national treasures, otherwise known as their own country, companies aim to improve working conditions and environmental impact mitigation. All in all, both SCs make philanthropic donations to local communities, provide their own employees with retirement benefits such as insurance, give education and training to their future employees in an attempt to preserve labour force and craftsmanship that are getting lost in Italy. Furthermore, female workforce is observed being empowered, such some companies as Textiles '1', '3' and Leather '2' create employment opportunities for women.

Linking financial goals with social and environmental priorities

As stressed by earlier studies, sustainability must be a shared work within all functions of a company and across its supply network. Though, sustainability management entails strong organizational commitments. This would imply that there must be an alignment between financial and non-financial goals. As exemplified by 'Leather 2', sustainability needs to be integrated in the business plan to demonstrate the use organic materials must be considered rather a cost reduction strategy than a financial obstacle. Environmental profit and loss is initiated by 'Leather 2' to take an important step toward linking financial statements with non-financial indicators.

Both SCs show that achieving environmental and social goals could help improve financial results. Furthermore, linking financial and non-financial aspects is observed making stakeholder relationships among the actors stronger in terms of communication and information sharing. Lastly, a wide range of educational events are held to address environmental and social priorities, including coaching and counselling meetings, fire and safety trainings organized, and code of conduct and ethical purchase education organized by both of the chains.

Hence, it is evident that sample companies are gradually paying attention to sustainability education, even though only own facilities and limitedly direct suppliers are provided with such activities.

It is fundamental to provide decent, agreeable and healthy working conditions to increase employee welfare. One of the most profound social outcomes is that 'sustainable' companies are to invest in decent work and labour management. It could be articulated that individual behaviours could collectively strengthen the chain. Five companies improved infrastructure at their production facilities to provide the artisans as well as the workers with a healthier working environment. As addressed by 'Leather 4', "(clients have become more conscious regarding labour management, and therefore) the illegal payments and (indecent) work have almost disappeared in this zone and everything is well regulated". This is further supported by 'Textiles 3', saying, "(The clients) want to be granted that the way our work respects social point of view".

Sustainable chains engaging in a number of managerial practices also improved some operational as well as organizational areas. In 2015, Great Place to Work® Institute ranked 'Leather 2' as the 7th greatest company to work, making the company the only luxury brand in the list. This shows that relationship based on trust between managers and workers, and the quality of the relationships with colleagues is prerequisite, and given that this point is rather missing in the chain at its entirety, companies must make further efforts to seed trust at their networks.

Companies are aware that they might indirectly generate negative impact on the environment and on the societies. Occupational health and safety investments largely made by seven of the 10 companies, however it becomes evident that commitment can only be effective when business models are aligned with SC sustainability in a proactive manner. Nevertheless, ensuring social sustainability involves further complications such as lack of visibility, difficulties to operationalize sustainability within daily conversations, lack of standardized measures

that prevents SMEs to measure their own performance, and financial burdens to provide improved conditions.

The results reveal that, as it frequently happened in traditional FSCs, some countries (as well as some regions in Europe), which are excelled in product quality, could fail in providing decent work and labour management conditions at supplier facilities. Therefore, it could be stated that practical capabilities as well as relational capabilities need to be proactively deployed by buying firms companies to spread principles across their chains at its entirety.

Barriers, Enablers and Critical Issues of Sustainability in Luxury Fashion SCM

Following emergent trends labelled in four categories in the previous section, this section subsequently aims at describing the issues considered critical and at summarizing the factors that would enable luxury fashion companies to strategically focus on such issues.

First and foremost, it is vital to elaborate the varying approaches of two SCs to comprehend what indeed differs between them. Emerging trends in sustainable product design are twofold, namely life cycle thinking and chemical reduction. Life cycle assessment is already a growing trend among luxury companies by which some of the chemicals have already been eliminated from the processes. However, chemical elimination is more challenging than one might think. That is, there exist some chemicals that are needed to give the fine feeling of the leather on the finished product. Hence, leather SC is found having struggles to substitute some components and eliminate them from their production processes. One example, LCA resulted in eliminating nickel use in clips production, nevertheless it seems to take significant amount of time to develop materials based research and to determine the replacements. Thus, leather SCs emerge that eliminating chemicals, albeit important, is yet another challenging practice not to compromise the end product quality.

As for the textiles SC, use of organic cotton is a growing trend. Notwithstanding its cost structure that is more expensive than other materials, use of certified and organic materials could actually result in cost savings in machinery. This implies that use of organic materials entails less chemical use, less water as well as energy use, resulting in reduced footprints. Furthermore, use of organic yarn is evidently increasing the product quality. What emerges as a novel practice is the use of a chemical matrix. Both SCs encompass companies that have developed chemical matrices in which chemicals used in products are registered, controlled and substituted to comply with regulations as well as client requirements. That is to say, processes are tracked and the company enables its production units to intervene and change what needs to be changed. Rather than testing the end product in terms of chemicals used within, displaying a matrix where chemicals are rated and systematically controlled eases product design and further guides the design team to mix more environmental friendly materials.

Client tests, on the other hand, emerge as a pivotal driver for suppliers to improve product quality as well as product related performance result. That is to say, SMEs pay close attention to chemical use and use of better quality materials, knowing that their clients will be double-checking the product in their own

laboratories. Sustainable product design, to this end, can be considered a growing trend; yet, there exist some factors challenging the companies. Primarily, big brand owners seem to be increasingly concerned about consumer perception. Sustainability and the use of word 'eco' and/or 'recycled' are still far from being attached to the luxury concept. As highlighted, especially Textiles SC, the end luxury consumers might still negatively perceive sustainability.

From the demand chain perspective, even though some studies stress that consumers are eager to pay more for eco products, the reality does not support this argument. Culture related difficulties are also raised. For example, sustainability is not considered being in the DNA of Italian luxury where the majority of the companies are family owned businesses. Luxury fashion design, as previously elaborated, is becoming an area where companies seek ways to make an impact. However, obstacles surrounding the design phase could be linked with lack of knowledge and lack of material knowledge. Consequently, SC collaboration and material innovation are required to set clearer goals for SC sustainability.

Further, knowledge development and dissemination must target the entire SC with an inclusion of retailers and downstream parts. Sustainability does not lead design concept of luxury, it supports the luxury business could show the main reason behind why sustainability is failing to be leading focus in luxury fashion.

Cost reduction is thus mainly driving companies to reuse purified water, store rainwater and reduce water use when possible. Process innovation, relatedly, is associated with operational performance improvement and impact reduction. Not only does new machinery and updated production systems improve the product quality and faster production times, but renewed processes can also result in cost savings due to energy efficiency achieved and less water used. Hence, cost reduction becomes the primary trigger for both SCs to embark on process innovation while environmental impact reduction is considered a secondary outcome.

As for varying aspects, leather companies are found taking further actions for wastewater management. It is exemplified that eliminating chemicals from products cannot ensure environmental stewardship. To illustrate, a product can be washed and some chemicals can be accordingly washed off the product, making the product have less chemicals and reach better values of chemical use. However, wastewater ends up having those hazards and being potentially discarded. To this end, leather companies have their own wastewater treatment units in their production plants, such as active sludge process, and they do not directly discard their wastewater, instead they purify water on site. Thus, chemical reduction followed by a proper waste management system is considered antecedents to reach water stewardship.

Textile companies pursue a reactive approach through arm's length and comply with regulations. SC complexity impedes companies to take larger steps toward operational sustainability excellence because they mostly outsource their products and raw material processing is never visible. Silk market in Italy, for example, is completely lost. Silk processing takes place in mostly Asia for which production processes are not directly controlled. SC complexity and commercial market

pressures bring further complications in the way toward sustainability. Globalization has made the luxury fashion industry more unpredictable, complex and uncertain in terms of both demand and supply. Thus, flexibility and speed emerge as critical operational factors, jeopardizing sustainability commitment.

Nevertheless, what emerges interesting is their commitment to their local communities. Textile companies are taking a wide range of actions to empower their local communities, to preserve welfare of their own people, hinting the existence of collectivistic cultural patterns, and improve their own environments where they are based to live and operate. Such a belonging feeling can actually enable some of the smaller companies to move beyond the regulatory compliance and to introduce some programs without receiving client requirements.

One barrier emerges in luxury fashion is none other than the peculiarity of luxury experience. Size of the shoe boxes, for example, are much bigger what a pair of shoes would require, however, as part of the consumer experience, big luxury brands provide oversized items to carry the product. In order not to damage such boxes during transportation and in order to ensure store availability, vehicles are not fully embarked while transferring products from distribution centres to the retail stores, resulting in carrying fewer items than they can actually do and generating in significant amounts of carbon footprint. Notwithstanding with some companies utilizing only hybrid vehicles in their car fleets, packaging size and logistic optimization appear to be an underestimated yet crucial issue.

Sourcing management, on the other hand, appears to be a critical issue in which luxury fashion companies seem to have difficulties in connecting the dots. Emerging trends could be named as traceability and supplier audits given that ensuring sustainability within sourcing practices are far complicated. Raw materials used by both SCs come from different countries and hence certificate of origin appears to be an industrial practice to ensure where materials come from. Nevertheless, such certificates and monitoring activities do not entail detailed appraisal methodologies. For example, certificate of origin can show where material comes from and/or whether a supplier facility employs child labour and/or how many hours an average worker works within the facility. However, there are scandals occurring in supplier facilities operating for luxury fashion brands, even in Italy, in which excessive working hours are registered. Therefore, traceability activities can only reveal a limited perspective of behind the scenes in supplier facilities.

To this end, leather companies are better positioned in ensuring SC traceability. To illustrate, SCs are shorter compared to textiles. For example, 'Leather 2' directly supplies from the tanneries while 'Leather 1' does have a direct influence on the tanneries through its direct suppliers. In this vein, two tier audit systems seem to be emerging as an industrial trend among leather companies, which is not a common case in traditional fashion SCM. There also exist some examples in which some holding groups are currently buying animal farms to grow their own animals and source from their own farmhouses to ensure full circle traceability.

Textiles, on the contrary, entail a number of intermediaries and traceability can only be ensured till the textile processor, leaving raw material production and processing stages unattended. Furthermore, trust established among SMEs, for

example companies located in the same industrial zone, can be considered rather a challenge than an advantage. That is, textiles companies seem to trust their network partners, otherwise called as their 'friends', and avoid asking detailed information, justifications and tangible results to check if they tell the truth. Hence, while operating in same industrial districts could deliver lack of proper interrogation over social aspects, it could unveil some positive aspects. For example, women empowerment projects, protecting female workforce, preserving young labour force by developing employee career path projects within the company, and creating health and safety related educational materials are some of the noteworthy practices putting forward social sustainability by textiles industry.

There is ample evidence that lack of awareness is the main problem in various organizational settings. Additionally, lack of a framework to understand what sustainable SCs would entail followed by higher investment costs are considered other main obstacles challenging luxury fashion companies. Last but not the least, lack of raw material visibility, lack of robust and rigorous sustainability assessment across the networks, and losing the skill base due to the fact that young generations' lack of interest in craftsmanship are very critical issues. Both textiles and leather industries need to develop technical and relational competences to ensure SC sustainability at its entirety. But, yet again, developing innovation related capabilities and deploying such practices are observed requiring supplier engagement and stronger collaborations throughout the network.

Top management commitment is essential to integrate sustainability in operational agendas. SMEs, supplying to big buying firms located in both chains, emerge to be more driven and more committed to sustainability due to following reasons. Firstly, they opt to make sure their clients will be satisfied with their operational performance outcomes, including responsiveness, delivery lead times and product quality. They are also eager to show their distinctive characteristics by proactively translating potential market requirements into their production strategies. For example, they launch sustainability-based programs and/or eliminate some chemicals long before their clients ask strategic changes.

Furthermore, companies are fond of their cultural values. Hence, preserving Italian values and promoting the Italian luxury product are important internal drivers for both big buying firms and their small sized suppliers. Developing a better region where they live, operate and promote has become more than an organizational commitment. Yet, 'Made in Italy Made by China' is still a profound challenge for the industry. Due to market complexities, SC structures and commercial pressures, family owned businesses incline to rent out their production facilities to Chinese entrepreneurs who set up their own businesses and end up employing Chinese employers (due to cheaper labour costs) while producing, packaging and distributing Made In Italy labelled products.

To this end, leather companies are found taking more proactive steps in preserving human capitals. It is observed that working conditions and production facilities as well as design ateliers are designed in very desirable conditions to satisfy employees and to provide them with further perks with an attempt to increase loyalty. Some of the most original practices emerged in both luxury SCs

environmental profit and loss account, carbon offset projects, retirement benefits, artisan satisfaction, multi-stakeholder dialogues, and community of practice development projects there are.

Having addressed the main findings and summarized barriers as well as enablers as the factors impacting sustainability, which are illustrated in Table 58 and 59, Figure 9 displays a depiction where the current state of sustainability in luxury fashion is displayed and factors that impede and enable such areas are interlinked to provide a clearer understanding on how SC sustainability could be furthered.

Table 58 Barriers Impeding Strategic Decisions about Sustainability

	Leather SC				Textiles SC						
	L1	L2	L3	L4	T1	T2	T3	T4	T5	T6	Total Count
Lack of knowledge	X	X		X	X	X		X		X	7
Lack of awareness	X	X	X	X	X	X		X			7
Lack of a framework for sustainability integration	X	X	X		X	X			X		6
Higher investment costs		X	X			X	X		X	X	6
SC complexity	X	X			X	X	X				5
Lack of information		X	X	X						X	4
Lack of financial resources		X	X	X				X			4
Competing priorities				X		X				X	3

Table 59 Factors Enabling Strategic Decisions about Sustainability

	Leather SC				Textiles SC						
	L1	L2	L3	L4	T1	T2	T3	T4	T5	T6	Total Count
Supplier engagement and collaboration	X	X	X		X	X	X	X	X	X	10
Knowledge dissemination		X	X		X	X	X	X			6
Innovation		X	X		X			X	X		5
Senior management support	X	X			X		X				4

Figure 9 Current State of Sustainability in Luxury Fashion SCM

6. THEORETICAL DISCUSSION

Natural resources are endangered by the implications of climate change. As such, atmospheric carbon dioxide concentration has reached 405 ppm and bio-diversity is dwindling. In this critical circumstance, natural resources' importance, their shortage and competition amongst corporations to control such resources affect companies' dependence upon such resources. There are strong links amongst ecology, environment, societies and companies. Thus, sustainability must be integrated holistically and managed proactively to create a strategic resource.

Company resources are significant when they are valuable, rare and inimitable. However, multinationals having globally dispersed supply networks encounter difficulties to create a business that respects natural systems, cultural diversity, that utilise resources strategically and that provides social inclusion, economic stability and environmental protection. Hence, there appears to be a need of consistently applying strategic actions to mobilize resources in a proactive manner.

Globalization results in the growing reliance on SC relationships. In this vein, a company cannot be considered more sustainable than its suppliers. Therefore, it becomes obvious that the human aspect must be acknowledged to sustain a competitive edge on the global front. Competition becomes more intense in luxury fashion where the level of scarce and valuable resources is extremely critical for financial sustainability. Different operational strategies, sustainability implementation and supplier engagement build upon various resources and are affected by different factors.

Albeit variances exist, the main trends in sustainability implementation in luxury fashion SCs are categorized in four clusters. Sustainability is integrated into product design with an application of life cycle thinking and chemical reduction. Operations management embarks on water management and energy efficiency programs. Sourcing management, relatedly, fosters traceability projects and audits practices, even though such actions are found limited. Lastly, organizational commitment results in multi-stakeholder dialogues and community of practice development based projects.

Consequently, critical issues for which proactive actions are needed include SC transparency, full traceability, industrial collaborations and supplier relationship management.

Developing strategies for product stewardship requires an understanding of interdependencies. Cross-functional coordination and management support are thus significant determinants of a successful product performance. Companies that approach life cycle issues as disconnected aspects are less likely to develop successful product stewardship strategies (Hart and Dowell, 2011). Collaborative development and planning, and dynamic SC execution are proposed as two constructs of product stewardship (Miemczyk et al., 2016). Yet, luxury fashion design is a strictly protected area and therefore design function is always done in-house. Thus, findings do not reveal any situation in which product stewardship strategies are

adopted by inclusion of external stakeholders in the product development and planning processes.

As for the execution, long-term relationship management is a common practice in luxury fashion. Specially, SMEs located in the same manufacturing districts develop and spread capabilities among them. Nonetheless, commercial pressures and already tight fashion calendars might impede big buying firms from engaging with their globally dispersed SC actors. Knowing that stakeholder management and sustainability integration could indeed conduct sustainability (Wagner, 2015), there is a growing need for vertical integration in luxury supply networks and further collaborations across the chain. This could be formulated into an upstream strategy. That is to say, capability development, long-term relationship management, and traceability projects could become some of the focal upstream modules.

Results find support that by establishing the environmental management strategy on resources, companies can lead to sustained competitive advantage (Vachon and Klassen, 2008) and that by working together with suppliers, companies could develop a set of resources leading to better environmental results (Sancha et al., 2016). In the textile supply chain, for example, use of organic cotton improves the final product quality.

Quality is a critical success factor in luxury industries that directly influence customers' purchase decisions. Therefore, using organic cotton that results in improved quality generates value for the chain.

Correspondingly, leather companies eliminate certain chemicals from tanning processes to reduce water consumption and to improve wastewater treatment performance. Respectively, some chemicals are eliminated from leather tanning processes and life cycle assessment methodology takes place to evaluate how certain chemicals must be substituted. Furthermore, creating sources that provide unique characteristics could create a potential to command a premium service. To this end, 'Textiles 1' has become 'fur free' before many of its main competitors, and it has managed to become one of the first luxury pioneers avoiding a competitive market. Product stewardship discourse is extended through the finding suggesting that new practices including biodiversity, material recovery and artisan welfare must be taken into account during the product design.

Small and medium sized suppliers belonging to both luxury fashion chains are observed being proactive in terms of knowledge sharing with their partners on how to improve process and product performance. To illustrate, leather companies combine their pollution control and prevention practices with other activities such as logistics optimization, environmental profit and loss, alternative tanning practices, process chemical elimination and two-tier monitoring. Textiles companies, on the other hand, group tangible and intangible resources, which altogether result in regulatory compliance, license to operate, and social welfare of those living in operating districts.

On the whole, results find evidence that the implementation of intra- and inter-organizational practices can lead to environmental efficiency and social responsibility (Gualandris et al., 2014), and that monitoring, management systems and

process development can make SCs socially and environmentally sustainable (Marshall et al., 2015).

It is also found that lack of knowledge must be eliminated by knowledge dissemination across luxury supply networks and radical strategies to embark on traceability and transparency must be enabled by supplier engagement and collaboration in luxury fashion. Resource transferability is therefore recognised as an imperative aspect to be able to propose a dynamic view of resources, as suggested by (Hart, 1995).

In order to deliver a more accurate depiction, literature was revisited and interpretation was saturated through a resource-based view perspective (Gold et al., 2010; Liu et al., 2017; Marshall, McCarthy, Heavey, et al., 2015; Miemczyk et al., 2016; Wagner, 2015; Yu et al., 2014). Environmentally and socially sustainable SCs could be formed by the existence of number of practices embedded in luxury fashion management strategies. Findings unveil that big luxury fashion buying firms could pursue a more relational logic to support their suppliers to develop and implement sustainability practices. Already powerful, influential and glamorous luxury fashion houses could easily provide their suppliers with financial capital, technical knowledge and innovativeness in comparison with other traditional industries.

SSCM could be better realised in the luxury fashion context should big buying firms internally integrate sustainability within their creative design teams and operational units while externally implement a more purpose driven data management to monitor, evaluate and improve their suppliers' sustainability performance by moving beyond tier 1 and by engaging suppliers. Securing intra- and inter-firm based sustainable supply management capabilities could drive environmental and social collaboration, resulting in prevention strategies, more efficient environmental stewardship programs and SC traceability.

Sustainability could be integrated in SCM at strategic, operational and upstream levels. Sustainability integration in upstream SCM strategy is aligned with sustainability purchasing and sustainable supply practices suggested by Mariadoss et al. (2016). Findings reveal that supplier management and transparency require multi-tier supplier engagement, honest communication and continuous dialogue.

Furthermore, upstream activities must also be transferred to downstream. Sustainable product design, sustainable purchasing and logistics activities ought to be combined with downstream practices by which promoting sustainable products could be promoted and luxury consumers could be made more aware of sustainable luxury. Regardless of the orientation, which could be risk- or opportunity-oriented SSCM, as suggested by (Schaltegger and Burritt, 2014), upstream and downstream integration must be ensured because listening to the stakeholders and creating multi-dimensional industrial conversations are needed in luxury fashion aspects to improve SC sustainability.

A critical analysis on the state of sustainability in luxury fashion SCs unveils that big luxury fashion buying firms do not exactly know their large supply networks. And therefore the actual risks are unknown. Similarly, SMEs do not have the visibility over their raw material suppliers. Leather companies have the advantage of directly working with the tanneries; yet, raw material is still the biggest challenge. Luxury

fashion can be one of the most thought-provoking examples in which vertical integration could be secured and the entire network could ensure traceability. Nonetheless, due to commercial pressures and purely financial objectives, many luxury companies, sample companies included, are not fully integrated with their suppliers, traceability and transparency are not fully ensured, as raw material suppliers do not have the visibility.

A comprehensive picture pertaining to SSCM performance is missing in today's luxury fashion. A more meaningful SSCM strategy for luxury fashion could be created for luxury fashion if material issues are communicated with suppliers and clear links are generated between business goals and sustainability. Today's luxury falls short in terms of supplier engagement and contextualising sustainability by which luxury success factors could be linked to overarching sustainable development goals. On the one hand, big companies do not know their smaller suppliers; on the other hand, smaller companies know their counterparts due to geographical convenience but feel shy to ask rigorous questions for a strictly controlled sustainability assessment.

There exists a current mismatch in terms of (lack of) trust and findings suggest that there is an urgent need to move closely with suppliers and subcontractors to cultivate trust and to acknowledge the human factor. To this end, values and common objectives could be shared across supply networks in luxury fashion. Hence, policies and strategies must be compatible throughout the chain for which collaboration and communication emerge as some of the most pivotal prerequisites. Not only would this secure transparency and accuracy in sustainability information but it would also ensure regulatory compliance and continuous performance assessment.

Transformative changes required in luxury fashion need integration and collaboration. In order to create long-term value, resources must be shared among SC actors and chain actors altogether must align their individual goals with overarching network goals. In this vein, luxury fashion SCs could become sustainable and generate value out of product stewardship, pollution prevention and sustainable development only when multiple tiers are managed and SCM evolves from business as usual towards differentiation. SMEs actually need big buying firms to create a shared value concept and big buying firms need SMEs to produce nuanced outcomes to improve performance outcomes and to drive change. Undoubtedly, industrial collaborations and reliable relationship management are greatly needed.

Embarking on sustainability in luxury fashion SCM requires important prerequisites. Sustainability must be translated into an operational language, which is to be utilized by different stakeholder groups. Figure 10 depicts what SSCM must entail in luxury fashion. From top management commitment, supplier development and transparency to information sharing, partner selection and long-term relations, such significant aspects must be incorporated to ensure sustainability in luxury fashion business agendas.

Figure 10 Prerequisites of SSCM in Luxury Fashion

Source: Own development

Sustainability integration must go beyond technical optimization toward the inclusion of stakeholder engagement, because, as suggested by Miemczyk et al. (2016), pollution prevention, product stewardship and sustainable development, as interconnected strategies of NRBV, are combined with the internal-external boundary spanning aspects between competitive advantage related concerns and broader societal legitimacy. Sustainability performance management and measurement must go closer to where the real impact is generated within supply chains (SCs) (Beske-Janssen et al., 2015); nevertheless, our results support earlier findings of Blome et al. (2014) and show that it is not clear how an ideal profile of sustainability collaboration could be drawn at the chain level (Blome et al., 2014).

In this study, we uncover factors impeding sustainability integration at the chain level. Knowing that there are fewer studies of barriers than the studies investigating drivers (Walker et al., 2008), we attempted to make a contribution and explored barriers luxury fashion companies come across.

Sustainability practices are made up of procedures and systems of learning that focus on process and chain levels for which participation of both internal and external stakeholders are needed. Nevertheless, existing barriers such as lack of awareness, knowledge as well as guidance and overhauling commercial priorities must be overcome in today's very competitive luxury market. It is addressed that the lack of SC sustainability integration can partly be due to lacks of information on how internal and external integrations could be achieved (Wolf, 2011); however, there exist much more specific factors to understand how and to what extent integration strategies are affected.

Barriers are grouped under internal and external factors. Pertaining to what factors inside the company impede strategic decision-making process to integrate social and environmental sustainability, results support earlier research (Perry and Towers, 2013; Shen et al., 2015; Walker et al., 2008) and suggest that financial constraints, lack of awareness and lack of information are the most challenging organizational elements that luxury fashion companies struggle with to trace their suppliers, launch sustainable product designs and invest in more environmental and social friendly production processes. Results also highlight the existence of some SC and market based factors impeding sustainability. To illustrate, lack of information and complexity of global production and distribution networks and SC power distribution are the main reasons behind SC related factors challenging sustainability in addition to commercial pressures and industry specific barriers associated with luxury.

From earlier conceptualizations about enablers of SSCM (Diabat et al., 2014a; Faisal, 2010; Lee and Klassen, 2008), top management commitment and awareness are pivotal for change management for sustainability in organizational settings. Technical capabilities and innovation, on the other hand, are needed to operationalize sustainability and generate actionable strategies. Relatedly, organisational responsiveness and management commitment to sustainability are defined as factors enabling companies' abilities to endorse environmentally and socially practices. Besides, these factors are pivotal to spread sustainability across supply networks. The CEO of the holding company of 'Leather 2' considers sustainability an opportunity for the business improvement. It thus becomes obvious that the ability to profit from sustainability actually depends on the managerial vision and cognition.

Stakeholder dialogue and supplier relationship management also emerge significant for SC traceability, which supports Miemczyk et al. (2016). Organisational and community based strategies and multi-stakeholder dialogues are vital to spread sustainability across supply networks and, therefore, one-to-one customer-supplier relationship focal-firm centred relations must be extended toward upstream and downstream partners. Communication, compliance and supplier development strategies, as Yawar and Seuring (2017) consider the components of responsible SC actions, are suggested to be fundamental components whose existence are critical to integrate sustainability internally and externally. This way dynamic and complicated nature of most of the issues in luxury fashion SCs can be better comprehended.

Companies that are rather proactive in the sample, including 'Leather 2 and 3' and 'Textiles 1 and 3', therefore reveal that leadership, commitment, stakeholder integration, continuous learning, long term relationships and innovativeness are needed to better manage sustainability internally and externally in luxury fashion. This also supports earlier conceptualisations addressing that technological integration and strategic level of purchasing influence collaboration (Gimenez and Tachizawa, 2012). Strategies aiming to improve today's products and production processes must go beyond to focus on the future and to use luxury fashion as an instrument to embrace sustainable development.

Our categorization in terms of internal and external sustainable SC integration contains of organizational and operational strategies to put forward sustainability within the company, and of upstream SCM and downstream SCM strategies to embed sustainability across supply networks. Such categories and practices are enabled with the existence of number of capabilities. Findings find theoretical support, as external and internal social performance is evidently improved by the introduction of innovation, collaboration and monitoring activities (Huq et al., 2016).

That is to say, the best fit for both environmentally and socially sustainable SC practices lies on integrating sustainability in internal and external strategies. Figure 11 developed based on a logical deduction from enabling and impeding factors of sustainability implementation in today's luxury fashion depicts an ideal case scenario. It is evidenced that management systems, sustainability education, process innovation, traceability and transparency activities, industrial collaborations and multi-stakeholder dialogues are pivotal for SC sustainability across luxury fashion networks.

Figure 11 An ideal case scenario for SSCM in luxury fashion

Luxury fashion companies are observed taking actions such as wastewater treatment, hazardous chemical elimination, supplier audits, and limited traceability efforts to put sustainability forward. Although these programs and activities are extremely important, more radical strategies are needed to integrate sustainability at large. Luxury fashion companies must do more than reducing negative environmental and social impacts of current operations and need to contemplate how to resolve social and environmental problems. To reach such an ideal scenario in luxury fashion, values must be shared with supply chain actors and SC actors need to align their individual goals with the chain's overall goals. Supplier integration must be secured and buying firms must engage with their suppliers as well as subcontractors. Environmentally and socially sustainable SCs could be formed through some practices but, first and foremost, luxury fashion top management must understand that arms-length approach is no longer an option.

This study aims to be helpful for researchers as well as practitioners trying to define and implement different types of social and environmental SC practice by contributing to the growing debate on SSCM and by increasing the awareness of sustainability practices in luxury fashion. Taking collaborative actions, promoting traceability and focusing on the entire SC could benefit societies and ensure environmental and social inclusion. There is ample evidence suggesting both social and environmental sustainability have their own enablers, barriers and antecedents. Sustainability, therefore, must not be used as a single concept, encompassing both environmental and social dimensions (Parmigiani et al., 2011), rather one must focus on social and environmental sustainability individually at different levels in terms of product, process and SC.

More research and more practice are needed for sustainability in luxury fashion. In spite of many studies and corporate reports introducing sustainability as a part of the organisational DNA, this is not realistic. Much work still needs to be done by which luxury fashion companies could understand the basics of sustainability and could use education to engage their suppliers to the end of sustainability. Only when sustainability is communicated and values are shared, mind-sets could change to spread awareness across network actors. Rather than dictate things, knowledge sharing must be developed and deployed across the chain to implement process- and SC-based sustainability practices. In agreement with what Stindt (2017) states, bringing together concepts and methods cannot deliver specific decision-support in a structured planning process. Thus, more innovative and strategy-changing solutions must be developed, shared and regulated across supply networks to utilise natural resources sensibly and to manage human resources responsibly.

7. CONCLUSION

This study aimed at exploring how social and environmental sustainability is integrated in the Italian luxury fashion industry that is dependent upon raw materials and a human skills base. Not only were social and environmental SC practices - implemented at product design, production process and SCM - explored but barriers and enablers of sustainability implementation were also interpreted to critically analyse issues pertaining to SSCM in luxury fashion. While studying sustainability integration, this study considered contingencies. In order to prevent inconsistencies that may occur due to various managerial as well as organizational structures (Rodriguez et al., 2016), this study considered contingencies and context specific variables. To this end, we focused on one country, that is, Italy and one industrial sector, that is, luxury fashion where most of the added value is generated by small and medium sized enterprises. Furthermore, by pursuing an industry specific investigation, this study managed to control variances in processes and materials, which would not be feasible in cross-industry settings Winter and Lasch (2016).

Following a systematic literature review, a classification framework was developed to categorize social and environmental sustainability practices across product, process and SC stages in accordance with the 3DCE framework. Consequently, this taxonomy enlisted 101 sustainability practices (62 practices for environmental sustainability and 39 practices for social sustainability) implemented in fashion operations and categorised 23% of all sustainability practices (23 out of 101) at product, 35% (35 out of 101) at process and the remaining 42% (43 out of 101) at SC stages. Successively, a multiple case study was conducted. By investigating ten companies located at multiple stages of textiles and leather supply chains, current industrial practices were methodically decomposed at product, process, and SC levels to better conceptualise SC sustainability.

The main trends of sustainability in luxury fashion pertained to in four categories. Life cycle thinking was pursued and chemical reduction was largely adopted at product design stage. Water management and energy efficiency programs were implemented in operations management. Traceability and audits programs were recognised as parts of sourcing management. Organizational commitment emerged whereby multi-stakeholder dialogues and community of practice development projects were realised.

Nevertheless, results demonstrate that sustainability practices were usually motivated by cost reduction benefits to a larger extent than environmental interests. SC traceability, on the other hand, was found to be limited due to a lack of end-to-end supply chain visibility even though there exist the criticality of raw materials and evidence of close and long-term trading relationships. On the whole, environmental and social sustainability activities were largely implemented to reduce negative impacts of current operations and fell short of the radical strategies required to integrate sustainability at large.

Type of sustainability practice and its specific impact was found being dependent upon the tier in which it was implemented. To illustrate, in order to become greener, upstream suppliers were looking for process-innovation while

downstream part was fostering product-innovation. The sense of belonging to a local community was also observed in Italian SMEs, which makes organizational commitment a natural act. Trust, collaboration and integration emerge as antecedents of SC sustainability so that companies can actually and horizontally transfer innovations from one another at the same tier of the chain.

How responsible business practices could vary depending on the product typology and on the network structure could provide nuanced insights and help managers to classify and improve environmental and social sustainability practices not only within their companies but also across their supply networks whilst it enriches the academic debate on the state of sustainability in luxury fashion SCs that is scarce in comparison to mid-market fashion SC-based research (Towers et al., 2013).

Findings summarize that SC transparency, traceability, industrial collaboration and supplier engagement appear to be critical issues in luxury fashion for which innovativeness, leadership, forward thinking approach, long-term relations and partner development for collaboration are suggested as strongly needed antecedents. Lastly, this study comprise unfamiliar suggestions such as radical industrial collaborations, optimizing LCA perspective and stakeholder demand integration into SCM strategies, which could be perceived novel compared to traditional sustainability integration strategies in luxury fashion. To the best of our knowledge, this study attempts to (i) increase knowledge, (ii) help in making strategies more actionable, and (iii) provide a fresh step in transforming fashion SCs to become more than less unsustainable.

The main findings of the study are summarized in Table 62, and each result is driven back toward its corresponding question. Table 60 Summary of the results in relation to the research objectives and methods pursued

Research Objective 1:

To develop taxonomy for sustainability in fashion operations

Research Question 1:

- Which are the environmental and social sustainability practices implemented in fashion operations and reported in the managerial literature?

Research Method Applied:

Systematic Literature Review

Results:

Taxonomy encompassing 101 sustainability practices in fashion operations

- Product Level: 16 environmental sustainability and 7 social sustainability practices
 - Process Level: 29 environmental sustainability and 6 social sustainability practices
 - SC Level: 17 environmental sustainability and 23 social sustainability practices
-

Research Objective 2:

To explore sustainability integration in luxury fashion SCs

Research Question 2:

- How do luxury fashion SCs (textiles and leather) integrate environmental and social sustainability?
-

Research Method Applied:

Cross Case Study Method

Results:

Similarities and dissimilarities between two SCs were elaborated. The main sustainability trends observed in luxury fashion operations were categorized as follows.

- *Product Design*: Life cycle thinking, Chemical reduction
- *Operations Management*: Water management, Energy efficiency
- *Sourcing Management*: Traceability, Audits
- *Organizational Commitment*: Multi-stakeholder dialogue, Community of practice development

Research Objective 3:

To uncover barriers and enablers impacting sustainability in luxury fashion SCs

Research Questions 3:

- How do barriers (internal and external) influence sustainability implementation in luxury fashion SCs?
- How do enablers (internal and external) influence sustainability implementation in luxury fashion SCs?

Research Method Applied:

Cross Case Study Method

Barriers	Leather SC				Textiles SC						Total Count
	L1	L2	L3	L4	T1	T2	T3	T4	T5	T6	
Lack of knowledge	X	X		X	X	X		X		X	7
Lack of awareness	X	X	X	X	X	X		X			7
Lack of a framework for sustainability	X	X	X		X	X			X		6
Higher investment costs		X	X			X	X		X	X	6
SC complexity	X	X			X	X	X				5
Lack of information		X	X	X						X	4
Lack of financial resources		X	X	X				X			4
Competing priorities				X		X				X	3

Enablers	Leather SC				Textiles SC						Total Count
	L1	L2	L3	L4	T1	T2	T3	T4	T5	T6	
Supplier engagement and collaboration	X	X	X		X	X	X	X	X	X	10
Knowledge dissemination		X	X		X	X	X	X			6
Innovation		X	X		X			X	X		5
Senior management support	X	X			X		X				4

Research Objective 4:

To identify critical issues in sustainability in luxury fashion SCs

Research Question 4:

- Which are the critical issues in sustainability in luxury fashion SCs?
- How do such issues influence sustainability in luxury fashion SCs?

Research Method Applied:

Cross Case Study Method

Results:

- Supplier traceability
- SC transparency
- Industrial collaborations
- SC power distribution
- (Lack of) Material component knowledge
- (Lack of) Raw material visibility
- Multi-tier audit and appraisal strategies
- Technical capability development

Research Objective 5:

To provide implications for SSCM in the luxury fashion industry

Research Question 5:

- How can SSCM be advanced in the luxury fashion industry?

Research Method Applied:

Cross Case Study Method

First Construct: Internal Sustainability Integration

Organizational Strategy

- Foster top management support
- Develop corporate education modules
- Embed sustainability among functions

Operational Strategy

- Deploy technical capabilities
- Integrate sustainability management systems
- Invest in process innovation
- Incorporate sustainability in product / process / SC stages

Second Construct: External Sustainability Integration:

Upstream SCM Strategy

- Ensure SC transparency
- Trace suppliers beyond tier 1
- Select suppliers based on sustainability criteria
- Develop capabilities across the network
- Establish stable relationships

Downstream SCM Strategy

- Promote sustainable products
- Increase awareness for sustainable luxury
- Integrate stakeholders' expectations
- Create multi-stakeholder dialogue
- Drive industrial collaborations

7.1. THEORETICAL IMPLICATIONS

This study contributes to the growing environmental sustainability research agenda (Caniato et al., 2012; Laari et al., 2017; Lee and Klassen, 2008; Vachon and Klassen, 2006; Wu and Pagell, 2011; Zhu and Cote, 2004) while simultaneously providing empirical and theoretical insights for lacking social sustainability aspects (Eizenberg and Jabareen, 2017; Missimer et al., 2017b; Perry and Towers, 2013). A specific industry context is investigated with an attempt to provide further implications for future research.

This study translates both social and environmental sustainability practices to first and second movers by focusing on two Italian luxury fashion SCs producing leather shoes and textile garments. Hence, an academic debate where SSCM appears to be restricted to typical buyer-supplier level and where SMEs are not often featured has been contributed. The taxonomy developed and case findings interpreted could be utilised by environmental sciences, social studies and operations management researchers, as it includes comparable sustainable SC practices as well as constructs.

The value proposition of luxury fashion could actually create better value propositions through its characteristics embedded in heritage, superior quality and made of origin. Well-crafted luxury products might be considered investment and might not be thrown away at the end of a single season. Natural resources must be utilised sensibly and human resources must be executed responsibly because raw materials and a human skills base are two very critical components of luxury fashion.

Nonetheless, results suggest that financial, technical and relational resources must be developed and shared with SC partners. Sustainability could be nurtured only when the focus is shifted from business as usual to SC transformation for which collaboration and innovation are suggested as antecedents. This implies that both practice and research must focus on supplier integration and traceability at macro and micro levels across supply networks.

One of the main contributions of this study is the identification of barriers and enablers to sustainability in luxury fashion SCs. Results reveal that SC complexity and lack of supplier information impede big buying firms from furthering sustainability. SMEs, on the other hand, encounters barriers in the form of competing commercial pressures, higher investment costs and lack of proper guidelines on how to implement sustainability. However, there exist some factors that could help companies manage SC transformation toward differentiation and make SSCM become a facilitator of inter-firm competitive advantage. Findings unveil that supplier engagement, collaboration, and technical as well as relational capability development across supply networks could enable luxury fashion SCs to advance product stewardship. Relatedly, stakeholder management, supplier engagement and collaboration could better form sustainability.

In the existing setting, incremental strategies result in performance improvement in terms of prevention of penalty, regulatory compliance, cost reduction, risk mitigation and improved product quality. Yet, leadership,

innovativeness, forward thinking approach and long term yet reliable network relations must be established as fundamental pillars of SCM in order to convert challenges into opportunities. More radical strategies are needed in luxury fashion for which sustainability could be integrated internally and spread externally. Elaborating impeding and enabling factors uncovers that luxury fashion companies could form socially and environmentally sustainable SCs when sustainability assessment and execution, and product as well as process development are accomplished across the network in a holistic manner.

Lastly, this study picks up on what Gandhi said: *'there is no beauty in the finest cloth if it makes hunger and unhappiness'*. Theory can be extended by the perception acknowledging that supply chains do not constitute machines because they constitute real people and their real problems. Luxury fashion is invited use product design as an instrument to increase sustainability by connecting people across SCs and by giving a voice to their struggles. This study contributes to knowledge by inviting researchers, practitioners and all individuals for the act of empathy and for changing our mind-sets to spread sustainability, accountability, integrity and kindness across supply networks.

7.2. PRACTICAL IMPLICATIONS

Luxury managers must remember that luxury is about being the best of the very best. Products coming with environmental and/or social footprint cannot be associated with exclusivity. Given that today's actions will be part of a luxury brand's heritage in fifty years, brand heritage and economic sustainability could only be empowered by holistically embedding environmental and social consciousness in product, process and supply chain oriented practices across the chain.

For practitioners, suggested sustainable SC practices could be used at design, process and SC levels and could be utilized to develop capabilities across supply networks. This could enable luxury fashion companies to enhance environmental and social SCM capabilities across their networks. Sustainability can only be secured with a joint effort along the chain. From design and sourcing to production and retail, long-term and ethically sound practices must be applied. In this sense, as a closing remark, Figure 12 suggests how sustainability principles could be holistically integrated throughout the life cycle of a luxury fashion product.

7.3. SOCIAL IMPLICATIONS

Luxury fashion provides its value proposition based on unique and high-quality materials. Some of the most commonly utilized raw materials are acquired from nature-based systems. However, the raw materials are affected by catastrophic environmental events, including droughts, the loss and degradation of biodiversity, water scarcity, which result in creating socio-economical consequences such as loss of businesses. Hence, luxury fashion is exposed to serious vulnerabilities. Correspondingly, societies whose financial independency depends on luxury fashion are entitled to have severe consequences.

To illustrate, luxury fashion's precious raw materials, including cashmere, silk, cotton, leather and exotic skin are at the risk of being diminished, and of reducing its

quality. This can consequently leave negative impacts on the societies that produce and process the materials. Socio-economic conditions must be controlled, and therefore it is vital for luxury fashion companies to improve their sustainability performance and to develop motivational as well as technical competences with their suppliers.

Stakeholder groups call out luxury fashion brands to build resilience in the face of threats of climate change. In addition to the risks associated with climate change, craftsmanship based skills appear to get lost. It was observed that young generations do not pursue traditional techniques in traditional industries any longer. Results show that there is a lost in the skill base. Thus, employee satisfaction, craftsmanship preservation and fostering traditional methods based trainings are getting increasingly significant topics for the companies to sustain, protect and improve the welfare of the societies whose financial freedom depend on luxury businesses.

Educating, motivating and improving the welfare of various stakeholder groups are vital. Stakeholder and human resource management are as significant as choosing product materials. Consequently, high levels of commitment, communication, and trust in encouraging and building strong communities are required. Unluckily, the fashion industry is where commercial pressures could jeopardize the process of building long-term and deeper relationships. Yet, big buying firms could create such positive impacts through their purchasing practices.

When aggressive price negotiations are forced, short notice periods are given and last minutes changes are made in the orders, the entire supply network is negatively affected. For example, if suppliers are forced to ask for lower prices the problem is likely to pass further upstream. Consequently, workers will be at risk of being paid unfairly toward the end of the chain. It was addressed that poor production planning and supply process would entail excessive and even forced overtime worker performance. Nonetheless, as it was observed in many social scandals, such issues create hidden subcontractors related social problems in which working conditions and health and safety requirements are often endangered. This study finally shows that integrative business models based on societal as well as environmental values are pivotal for the welfare of a wide range of stakeholder groups.

Design	Sourcing	Production
Use of eco-friendly materials Chemical reduction Reduced product weight Design for longevity Design for recyclability Sustainability education to designers Design for zero impact	Use of certified raw materials Supplier audits Procurement certification Use of sustainable materials Traceability and transparency Sustainability education to suppliers	Reduce water use Reduce energy, emissions and waste Certified processes Process innovation Multilateral conversation with all suppliers Multi-tier audits

End-of-life	Retail	Distribution
Recycle and reuse Support conscious consumption behaviour Foster after-sales service to increase product life span	Staff awareness programs Sustainability criteria in store decisions Reduce energy, water and emission use Innovation to reduce SKUs and the need for store-to-store transfer	Logistics planning optimization Use of more sustainable vehicles Use of more sustainable warehouses Sustainability education to drivers

7.4. LIMITATIONS AND FUTURE RESEARCH AVENUES

This study focused on 10 companies across two Italian SCs producing luxury textile garments and leather shoes. Even though attempt was to make the study as extensive as possible, it is not possible to claim that the study is without its limitations. There are some areas that could be possible avenues for future research. External conditions such as future uncertainties and market complexities could indeed affect the development of sustainability strategies. Therefore, further research is called out to investigate how companies could integrate, build and reconfigure internal and external capabilities to ensure SC sustainability in rapidly changing environments.

Relatedly, the extent to which resources and capabilities are shared within supply networks to advance SC sustainability could be explored more rigorously. Further research could also be conducted to see how sustainability is actually affected by the choice of the production country and how different context variables could affect the state of sustainability in luxury fashion. That is to say, a different country and/or a cross-country analysis can be an interesting angle to explore contingencies.

Moreover, different product typologies could be thoroughly examined. For example, this study focused on leather shoes; nonetheless, leather bag production might entail different sourcing and manufacturing stages, for example exotic material and precious skin use, which would result in operational differences. Hence, different products could be examined to disclose how luxury fashion would approach sustainability differently depending on the product typology.

This research investigated contemporary events without manipulating the relevant behaviours. The case study's unique strength was adopted, that was, the ability to deal with a number of evidence, incorporating documents, interviews, and direct observations. The sample companies varied in terms of competences; therefore, a semi-structured path was pursued. The interviews called for interviews with the managers pertaining to different functions within each company.

To this end, the president and/or the CEO attended the interviews at relatively smaller companies while at larger companies the managers in charge of operations and SCM as well as sustainability participated in the meetings. The managers interviewed were found being in charge of one or more of the functions of interest. This actually reduced the number of interviews, nevertheless increased the interviews' width and depth. However, number of interviews conducted at each company must be improved to gather further insights from other individuals within each organisation.

This study was established by pursuing the principles of relativism. That is, it was perceived that there would be multiple socially constructed realities that would be local and context specific. Hence, by pursuing the logic of there would be no object-subject separation, knowledge was generated by the interaction between the research team and the respondents. Knowledge was thus obtained through only interpretations.

It must be underlined that qualitative research methodology was applied by employing a multiple case study method to explore, interpret and enlighten the meaning. Therefore, research purpose was not to explain and/or measure any relationship or construct that were hitherto developed. In this vein, what this study channels cannot be generalized. Therefore, one single reality that is independent of observations cannot be declared and consequently deductive verification cannot be established. In order to generalize the findings and/or explain things, future research must externalize the observer from the phenomenon and exclude any value considerations from influencing it. To this end, this study's findings could be utilised and a broader explanatory study, for example a survey study, could be adopted.

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APPENDIX I

Theoretical Perspectives Utilized for Data Analysis

NRBV Implications for SSCM		
<i>Theoretical Perspective</i>	<i>Implications for SSCM</i>	<i>Reference</i>
Environmental proactivity	Going beyond legislative compliance Managing environmental risks	Adopted from (Bowen et al., 2001; Gold et al., 2010)
Product-based green supply	Recycling initiatives that require collaboration with suppliers Efforts with suppliers to reduce environmental impact	Adopted from (Bowen et al., 2001; Gold et al., 2010)
Greening the supply process	Strategic supplier selection Supplier evaluation Monitoring and mentoring activities to improve environmental performance	Adopted from (Bowen et al., 2001; Gold et al., 2010)
Environmental collaboration	Direct involvement of a company with its suppliers in planning jointly for environmental management and solutions	Adopted from (Vachon and Klassen, 2008)
Path dependency and learning from pollution prevention	Strategy complementarity through product stewardship, pollution prevention and sustainable development Development, learning and sharing	Adopted from (Miemczyk et al., 2016)
Antecedents of social sustainability inclusion	Drivers and barriers of integrating social aspects into GSCM	(Adopted from various SSCM models) Own development
Enabling factors and resources supporting SSCM	Organizational and operational structure Knowledge and learning processes Resources	(Adopted from various SSCM models) Own development

Topic Guide Utilised as the Interview Protocol

Appendix II – Sustainability Integration in the Textiles SC at Product, Process and SC Levels

3DCE Level	Category	Aspect	Practices Implemented	Textiles SC					
				T 1	T 2	T 3	T 4	T 5	T 6
Product	Environ.	Materials	Use of eco-friendly (recycled, organic) materials			X		X	
			Use of certified raw materials	X		X		X	X
		Water	Reduction of chemicals	X					X
			Water stewardship	X	X				X
	Social	Product & Services	Life cycle assessment	X					
		Labour Practices	Providing sustainable working conditions to artisans			X			X
		Society	Women empowerment through new jobs	X		X			
Process	Environ.	Materials	Use of locally sourced materials			X		X	
		Materials	Hazardous chemical elimination	X	X	X			X
		Energy	Renewable energy generation	X	X			X	
		Water	Wastewater treatment	X	X	X			X
		Emissions	Emission reduction	X					X
		Effluents & Waste	Waste reduction	X					X
		Effluents & Waste	Reduce/reuse of textile waste		X	X		X	
		Effluents & Waste	Process innovation	X	X	X	X	X	X
	Social	Compliance	Process certification			X			X
		Labour Practices	Providing a career path and better skilled human resource management	X		X			X
			Developing programs for labour practices and decent work conditions	X		X			X
			Protecting female workforce	X		X			

SC	Environ.	Society	Philanthropic donations to local communities	X				X	X	
		Materials	Hazardous chemical elimination at supplier facilities	X				X		
		Energy	Energy efficiency at supplier facilities				X			
		Compliance	Environmental certification of suppliers	X	X	X	X			
			Traceability	X		X			X	
			Procurement certification			X			X	
			Occupational health and safety	X	X	X			X	
		Supplier Assessment	Supplier / partner selection based on green and sustainability practices	X		X			X	
			Trainings on fire and safety							
		Labour Practices	Trainings on the Code of Ethics and ethical purchase	X						
	Coaching sessions and counselling meetings					X				
	Training and educational material for suppliers		X		X					
	Supplier development programs		X							
	Supplier management				X	X	X	X		
	Use of a supplier ranking system		X		X					
	Social	Two tier SC audit system	Two tier SC audit system			X				
			External and accredited auditors	X	X	X			X	
			Supplier audits	X	X	X				
			Multilateral dialogue with the bodies, institutions, associations and communities	X		X			X	
			Monitoring sustainable manufacturing			X				
			Monitoring factory compliance			X	X	X	X	
		Product Responsibility	Laboratory tests			X	X		X	X

Appendix III – Sustainability Integration in the Leather SC at Product, Process and SC Levels

3DCE Level	Category	Aspect	Practices Implemented	Leather SC			
				L1	L2	L3	L4
Product	Environ.	Materials	Use of eco-friendly (recycled, organic) materials		X	X	
			Use of certified raw materials	X	X		X
		Water	Reduction of chemicals		X	X	X
			Water stewardship	X	X		
	Social	Products & Services	Life cycle assessment		X		
		Labour practices	Providing sustainable working conditions to artisans		X	X	X
		Society	Women empowerment through new jobs		X		
Process	Environ.	Materials	Use of locally sourced materials				X
			Hazardous chemical elimination		X	X	
		Energy	Renewable energy generation				
		Water	Wastewater treatment	X	X	X	
		Emission	Emission reduction	X	X	X	X
			Waste reduction				X
		Effluents & Waste	Reduce/reuse of textile waste				
			Process innovation	X	X	X	
	Social	Compliance	Process certification				
			Providing a career path and better skilled human resource management		X		
		Labour practices	Developing programs for labour practices and decent work conditions	X			
			Protecting female workforce		X		
		Society	Philanthropic donations to local communities		X		X

SC	Environ.	Materials	Hazardous chemical elimination at supplier facilities	X	X		
		Energy	Energy efficiency at supplier facilities				
			Environmental certification of suppliers		X	X	
		Compliance	Traceability	X	X	X	
			Procurement certification			X	X
			Occupational health and safety	X	X		X
		Supplier Assessment	Supplier / partner selection based on green and sustainability practices		X		
			Trainings on fire and safety				
			Trainings on the Code of Ethics and ethical purchase		X		
			Coaching sessions and counselling meetings	X			
	Social	Labour practices	Training and educational material for suppliers	X	X		
			Supplier development programs		X		
			Supplier management	X	X		X
			Use of a supplier ranking system				
			Two tier SC audit system		X		
			External and accredited auditors				
		Society	Supplier audits	X	X		
			Multilateral dialogue with the bodies, institutions, associations and communities		X	X	X
			Monitoring sustainable manufacturing		X		
			Monitoring factory compliance		X		X
		Product Responsibility	Laboratory tests		X		

Appendix IV – Comparison of Sustainability Integration in the Textiles and Leather SCs

3DCE Level	Category	Aspect	Practices Implemented	Textiles SC						Leather SC				Total Count
				T1	T2	T3	T4	T5	T6	L1	L2	L3	L4	
Product	Environ.	Materials	Use of eco-friendly (recycled, organic) materials			X		X		X	X			4
			Use of certified raw materials	X		X		X	X	X	X		X	7
		Water	Reduction of chemicals	X					X		X	X	X	5
			Water stewardship	X	X				X	X	X			5
	Social	Product & Services	Life cycle assessment	X							X			2
		Labour Practices	Providing sustainable working conditions to artisans			X			X		X	X	X	5
		Society	Women empowerment through new jobs	X		X					X			3
Process	Environ.	Materials	Use of locally sourced materials			X		X					X	3
		Materials	Hazardous chemical elimination	X	X	X			X		X	X		6
		Energy	Renewable energy generation	X	X			X						3
		Water	Wastewater treatment	X	X	X			X	X	X	X		7
		Emissions	Emission reduction	X					X	X	X	X	X	6
			Waste reduction	X					X				X	3
	Effluents & Waste		Reduce/reuse of textile waste		X	X		X						3
			Process innovation	X	X	X	X	X	X	X	X	X		9
		Compliance	Process certification			X			X					2
			Providing a career path and better skilled human resource management	X		X			X		X			4
Social	Labour Practices		Developing programs for labour practices and decent work conditions	X		X			X	X				4
			Protecting female workforce	X		X					X			3

SC	Society	Philanthropic donations to local communities	X				X	X		X		X	5
	Materials	Hazardous chemical elimination at supplier facilities	X				X		X	X			4
	Energy	Energy efficiency at supplier facilities				X							1
	Environ.	Environmental certification of suppliers	X	X	X	X				X	X		6
		Traceability	X		X		X		X	X	X		6
		Procurement certification			X		X				X	X	4
		Occupational health and safety	X	X	X		X		X	X		X	7
	Supplier Assessment	Supplier / partner selection based on green and sustainability practices	X		X		X			X			4
	Labour Practices	Trainings on fire and safety											
		Trainings on the Code of Ethics and ethical purchase	X							X			2
		Coaching sessions and counselling meetings			X				X				2
		Training and educational material for suppliers	X		X				X	X			4
	Social	Supplier development programs	X							X			2
		Supplier management		X	X	X	X		X	X		X	7
		Use of a supplier ranking system	X		X								2
		Two tier SC audit system			X					X			2
	Society	External and accredited auditors	X	X	X			X					4
		Supplier audits	X	X	X				X	X			5
		Multilateral dialogue with the bodies, institutions, associations and communities	X		X			X		X	X	X	6
		Monitoring sustainable manufacturing			X					X			2
	Product Responsibility	Monitoring factory compliance		X	X	X	X			X		X	6
		Laboratory tests		X	X		X	X		X			5

APPENDIX V

Philosophical Stance

This section provides a summary of the contrasting belief systems pertaining to conventional and constructivist paradigms, based on Alvesson and Skoldberg (2000); Guba and Lincoln (1989, 1994), with an overarching attempt to express the influence of these amendments on this study's specific research design. The choice between qualitative and quantitative methods cannot be made in abstract because it should be related to a particular research problem and objective. To this end, ontology and epistemology emerge as the determinants of good social science (Alvesson and Skoldberg, 2000).

A paradigm is a worldview and a general perspective. As such, paradigms are embedded in the socialization and tell what is important, reasonable and legitimate. First and foremost, the basic belief systems of paradigms must be understood and articulated. Primarily, one must address what is there to be known. This is considered the ontological question concerning with issues of existence. To illustrate, the question can be put forward as 'what is the nature of reality?' This initial standpoint is chased by the relationship of the knower to the known. This is known as the epistemological question concerning with the origin, nature and limits of human knowledge. To illustrate, the question can be put forward as 'how can one be sure that he knows what he knows?' Lastly, one must apprehend the ways to find out knowledge. This is recognized the methodological question concerning with methods, systems, and rules to conduct the inquiry. To illustrate, the question can be put forward as 'how can one go about finding out things?'

Conventional paradigms, such as positivism and post-positivism, are grounded in the realist ontology, which declares that there exists a single reality that is independent of any observer's interest in it and it operates according to absolute natural laws, many of which taking cause-effect form. Truth is defined as set of statements, which is isomorphic to reality. In other words, the ontological question is answered by advocates of the conventional paradigm by stating that there exists an objective reality going on about its business regardless of the interest that an inquirer could have in it. Naïve realism, as an earlier version of realist ontology, held that reality existed and disciplined inquiry could eventually converge onto it. This version was almost globally rejected in favour of critical realism, holding that it is impossible to discover reality except within some particular, often disciplinary, perspective. Nonetheless, even the critical realism contains a belief in a substantial reality. Many of the underlying laws take the form of cause-effect relationships. Prediction could be accomplished on purely statistical bases.

Subsequently, how the epistemological question is dealt with depends on how the ontological question has been answered. The epistemological question is answered by advocates of the conventional paradigm by claiming that it is possible to sustain an objective posture, a dualism, regarding the phenomenon studied and, furthermore, it is possible to exclude, as part of this dualism, the values held by the inquirer or any other individual. It is this posture providing a warrant for claiming that scientific data must be absolutely accepted, if they were properly acquired, and

they are free of any possible stain of subjectivity or disjunctive values. Inquiry can be both objective and value free. The dualist objectivist epistemology declares that it is possible for an observer to externalize the phenomenon studied, remaining detached and distant from it and excluding any value considerations from influencing it.

Just as the response to the epistemological question depends on the prior response given to the ontological question, the response to the methodological question relatedly depends on the other two. Given realist ontology and objectivist epistemology, it makes sense to deploy a methodology, including covert observation and ambiguous instructions to subjects in order to eliminate reactivity and make real behaviours obvious. The interventionist methodology thus strips context of its contaminating influences, hence the inquiry could converge on truth and explain nature as it really is and really works, generating the capability to predict and to control.

The methodology employed in previous evaluations was exclusively scientific, grounded ontologically the positivist assumption, which there exists an objective reality driven by indisputable and definite natural laws, and epistemologically in the counterpart assumption of a duality between observer and observed, which enables the observer to stay outside the arena of the observed without either influencing it or getting influenced by it. Therefore, it could be articulated that the evaluator could claim to have produced findings, which represent 'the way things really are' and 'the way things really work' without any possibility of being influenced by the evaluator or anyone else.

Received view of science, encompassing positivism, post-positivism and critical theory, and first generation evaluation model, which advocates measurement second generation evaluation model, which advocates description and third generation evaluation model, which advocates judgement used scientific paradigms to guide the methodological work and sought theory identifications through propositions. Nevertheless, this extreme dependence on the scientific methods led to some unfortunate consequences. Firstly, it led to context stripping, that is, evaluating the domain as if it did not exist in a context but only under carefully controlled conditions, which are in force following a design is implemented. Such conditions are founded in the hope that irrelevant local factors could be left aside and more generalizable results obtained. However, when attention is paid only to general factors the local situation cannot be well served by the evaluation results. Furthermore, the resources required to institute and maintain controls compensate other uses where the inquiry may have been put; hence, the range of available information is reduced.

Secondly, commitment to the scientific paradigm inevitably seems to be largely dependent on formal quantitative measurement. The rigor, which that paradigm emerges to promise, relies on the hardness of the data. Hard data refers to quantifiable data, which could be measured with precision and analysed with significant statistical tools. Quantifiable data also ease the problems associated with prediction and control and they could be easily inserted in formulas.

Afterwards, these measuring instruments become the variables themselves, even though they were initially intended as scientific variables' operationalization. It pursues the logic that what cannot be measured cannot be real. Furthermore, the methods of science claims to provide us with information about the way things really are and the posture of truth is perceived to be non-negotiable. Things being evaluated, which are supported by positivistic evaluation are locked in as the right thing to do. And accordingly, evaluators are not accountable for what nature has declared. Thus, both managers and evaluators are rendered to be unassailable (Guba and Lincoln, 1989).

Use of scientific method limits alternative ways to think about the domain evaluated. As science discloses the truth about things, other alternatives should be error in this logic. Reasonable alternatives could not be entertained and there are not any negotiations about what is true. Lastly, value-free nature of science the evaluator is relieved from any moral responsibilities, pursuing the logic of 'one cannot be faulted to just tell the truth. It is also asserted that the evaluator has no obligations to follow up the evaluation. Under no circumstances, the evaluator cannot be held accountable for findings and the message, which simply reflects what exists in nature. Yet, there appears to be a need to attach the moral responsibility to the evaluator for anything emerges from the evaluation. It is commonly believed that societies share values and that there is some value set characterizing members of a society. During the last five decades, it has been understood that our society is value-pluralistic. Thus, the question of whose values would dominate in an evaluation, or, otherwise, how value differences may be negotiated have emerged as some major issues.

Notwithstanding the failure to accommodate value-pluralism, it was long debated that the results of an evaluation could be trusted, as the methodology utilized is scientific and science is value-free. The entire point of demanding objectivity is to remove the question of value influence. It was admitted that the evaluator has no control over how evaluation findings are utilized, and if individuals with different values choose to interpret the accurate findings in different ways, the evaluator could hardly be held accountable. Yet, the declaration of science being value-free is strongly challenged.

If science is not value-free, then it is the case that findings are subject to different interpretations, and furthermore, the facts themselves are determined in interaction with the value system the evaluator brings to bear. Accordingly, every act of evaluation becomes a political act. Indeed, every inquiry act becomes a political act in this sense. The statement of value-freedom is not reasonable because if it is the case, the value-pluralism of our society is a crucial matter to be focused on in an evaluation. This issue of value differences had not been accommodated in the evaluation approaches of earlier paradigms. On a more philosophical level, the theory- and value-free nature of facts could bring further complications.

It was then contemplated that a new evaluation model was required to go beyond previously defined measurement-oriented, description-oriented and judgment oriented generations toward a new level where the key dynamic was negotiation (Guba and Lincoln, 1989). A methodology of evaluation reflecting abovementioned assumptions must be grounded in an inquiry paradigm that is

radically different from scientific positivism. It is believed that the paradigm exists in what is called the constructivist paradigm (also called the interpretative and the hermeneutic paradigm). Constructivist paradigm relies on a relativist, rather than a realist, ontology, and on a monistic and subjective, rather than dualistic and objective, epistemology. Its exercise connects the evaluator and the stakeholders in an interaction, creating the product of the evaluation, using a hermeneutic dialectic approach aimed at establishing that interaction and sustaining it within quality bounds.

Furthermore, the product of the evaluation is not a set of conclusions, recommendations or value judgements, but rather an agenda for negotiation of those claims, concerns and issues, which have not been resolved in the hermeneutic dialectic exchanges. This can be, perhaps, considered the sharpest contrast to conventional methodologies. All in all, real or final answers are not raised. This approach is believed to lead to constructs that are reasonably informed and sophisticated but is certainly far from the universal truth. In fact, this paradigm supports to notion that universal truth does not exist. It is believed that continuing dialectic dialogue regarding what we should say will lead to reconstructions of greater power and worth, yet not of greater truth.

All in all, it is suggested that, through a hermeneutic dialectic process, a new construction will emerge and it will not be better and truer predecessor than its predecessors, but surely more informed and sophisticated. Constructivist paradigm, ontologically, refuses the existence of an objective reality, instead declaring that realities are social constructions of the mind and there are as many such constructions as there are individuals. Hence, if realities are constructions, absolute natural laws governing the constructions cannot exist. Epistemologically, constructivist paradigm denies the possibility of subject-object dualism and instead suggests that the findings exist because there is an interaction between the observer and the observed that creates what emerges from that inquiry. As a consequence of the ontological and epistemological assumptions already made, methodologically, the natural paradigm rejects the controlling and experimental approach characterizing science, and substitutes for it a hermeneutic and dialectic process, which takes full advantage of the observer and the observed interaction in order to create a constructed reality that is as sophisticated and informed as it can be made at a particular moment. Responsive focusing calls out for a constructivist methodology and constructivist methodology fits exactly the inquiry process requirements of responsive evaluation.

Constructivist paradigm indicates that evaluation outcomes are not descriptions of the 'way things really are' or 'really work' or of some 'true' state of affairs, but rather represent meaningful constructions, which individuals or group of actors establish to 'make sense' of the situations in which they find themselves. The findings are not the 'facts' in the ultimate sense but they are instead generated through an interactive process, including the evaluator and the many stakeholders that are put at some risk by the evaluation. What this process generates is that one or more constructions are the realities of the case. Consensus does not refer to a greater degree of reality for the things that is agreed upon; yet, it implies that those in agreement have come to share a construction, having reality for them. Besides, the

consensus is produced from human conceptual exchange in a particular setting; therefore it is not likely that this very same consensus would necessarily help other individuals make sense of their settings. Lastly, they are the product of human thought, consensual constructions are subject to human error, and therefore anyone cannot be considered true in an absolute sense or even an approximation of truth.

An evaluation is carried out in a way in which it recognizes the constructed nature of the findings, takes different values and different physical, psychological, cultural and social contexts into consideration, empowers and is entirely participative in that it extends both conceptual and political parity to all stakeholders. Constructivist paradigm relies on two essential components, namely responsive focusing, which refers to determining which questions are to be asked which information is to be collected on the basis of stakeholder inputs, and constructivist methodology, which refers to carrying out the inquiry process in ontological and epistemological assumptions of the constructivist paradigm. On the whole, the main logic lies on a responsive mode of focusing and a constructivist mode of doing.

Responsive evaluation possesses its advance organizer, namely the claims, concerns and issues about the investigation that are designated by stakeholders. A claim is any declaration that a stakeholder might introduce that is favourable to the evaluand. A concern is any declaration that a stakeholder might introduce that is unfavourable to the evaluand. An issue is any state of affairs about which reasonable persons might disagree (Guba and Lincoln, 1989). On the one hand, responsive evaluation seeks out different stakeholder views; on the other hand, it responds to those items in the subsequent collection of information.

Different stakeholders could hold very different constructions regarding any particular claim, concern and issue. Hence, one of the major tasks of the evaluator is to conduct the evaluation in a way in which each group should confront and deal with others' constructions, a process that is defined as a hermeneutic dialectic. In this process, some of the original claims, concerns and issues could be settled without recourse to new information, which is not already available. As individuals deal with the constructions posed by others, their own constructions change by becoming better informed and sophisticated. Preferably, responsive evaluation seeks to reach consensus on all claims, concerns and issues. The final conclusions and recommendations emerging from such a negotiation, following what has already been reached in the hermeneutic dialectic, are derived jointly.

All things considered, the contrasting conventional and constructivist belief systems could be abridged as follows. The conventional methodology does not contemplate direct work with stakeholders and their constructions and it is tied to the verification mode and cannot deal with discovery processes. The conventional paradigm also eliminates contextual factors instead of taking them into consideration, and aims at generalizations and not at specifications and because value-free posture is logically disjunctive with evaluation's goal of making value judgements.

The posture of the constructivist paradigm, on the other hand, is very different. Firstly, it starts with the assumption that realities are not objectively 'out there' but are

created by people, often under the influence of a variety of social factors leading to shared constructions. However, socially shared constructions are not equivalent to the positivist's reality and there isn't a reality except that constructed by people as they attempt to make sense of their surroundings. Not only are such socially constructed realities not independent of the observer (or constructor) but also they are absolutely dependent on him for any existence they might have.

Constructivist – Interpretive – Hermeneutic Posture

As elaborated in the previous section, constructivist paradigm, which is also known as interpretive and hermeneutic stands up for the relativist ontology declaring that there exist multiple, socially constructed realities ungoverned by any natural laws, casual or otherwise. Phenomena are defined depending on the kind and amount of prior knowledge and the level of sophistication that the constructor carries to the task and constructions could be shared.

The development of more informed and sophisticated constructions should not be understood to mean that they are truer constructions because they are simply more informed and sophisticated. The constructivist paradigm defines the truth as the most informed and sophisticated construction where there is consensus between individuals most competent to form such a construction. Any construction is continuously open to alteration, yet it might be treated regarding its truth.

Subsequent to the relativist ontology, accordingly, the subjectivist epistemology declares that an inquirer and the inquired-into are interconnected in a way that the findings of an investigation are the creation of the inquiry process. That is to say, the epistemological question is answered by claiming that it is impossible to separate the inquirer from what is inquired. It is precisely their interaction that generates the data, which will eventually emerge from the inquiry. 'What is there that can be known?' and 'What is the relationship of the knower and the known?' are not possible to be asked independently.

An unavoidable component in the inquiry mix is the values of the inquirer and a whole variety of other individuals in and around the inquiry. Inquirers are human beings and cannot be separated from their humanness. They simply cannot set aside their own subjectivity nor could they stand outside the arena of humanness generated by the other individuals involved. The values of the inquirer unavoidably enter the inquiry in connection with the whole series of decisions involved in designing, accumulating and monitoring. The values of involved individuals also exert influence, especially because inquiries take place in value contexts. Values are reflected in the theory that could undergird the inquiry in the constructions that the inquirer and others bring to the inquiry and in the inquiry paradigm. Hence, values cannot be ignored and furthermore, their very influential role in all inquiry must be acknowledged.

Correspondingly, the hermeneutic methodology involves a constant dialectic of iteration, analysis, critique, reiteration, and reanalysis, leading to the emergence of a joint construction among etic and emic views. The methodological question is answered by claiming that the inquiry should be carried out in such a way that would

expose the constructions of the variety of concerned stakeholders, open each to critique in the terms of other constructions and provide the opportunity for entirely or revised new constructions to emerge, that is, a hermeneutic methodology. The fundamental pragmatic criterion for this methodology is that it leads to consecutively better understanding and to making sense of the interaction where one usually is to be engaged with others.

The process is hermeneutic in which it is aimed toward the development of joint constructions, a meaning closely linked with the more traditional usage of the term to denote the process of evolving continuously more sophisticated interpretations. It is dialectic in which it contains the combination of conflicting ideas, forcing reconsideration of earlier positions.

Interest must be turned from the work itself towards the author behind the work. As depicted, the authors cannot be seen in isolation and they need to be placed in their social context that could be further advanced to their whole historical background. Finally, the entire world becomes the whole to which it is necessary to refer to understand a single part. Thus, from seeking to understand single textual passages from the whole, the domain of hermeneutics are gradually widened to include the understanding of acts whose contexts are the whole (Alvesson and Sköldberg, 2000).

The interpretation of understanding has also become growingly linked to empathy. In the last instance one individual's mind is not accessible to the reason of another individual, trying to analyse it from the outside. Only intuition could assimilate the mental universe of another human being. Since the empathy is complemented by the interpreter's knowledge, it becomes possible for interpreters to understand agents better than the agents understand themselves. Experience is pivotal and represents what with which every exploration of reality must start. Experience is different than the perceptions because it does not constitute a passive reception of something outside the subject, instead it is active as well as not only creating but also provided with meaning. Further, experience covers an overall subjective situation rather than an isolated fragment that makes it more connected to the whole.

Table provides a depiction of the contrasting belief systems pertaining to several paradigms and aims to justify the influence of such theorems on this study's formulated questions and research method pursued.

This study has been established on a ground that is ontologically relativist, and local and specific, epistemologically transactional, subjectivist and methodologically hermeneutical/dialectical aiming to interpret and seek findings. On the whole, it represents a posture that is comprehensible in the form of multiple, intangible mental constructions that are socially based and specific in nature and dependent for their content. Findings have been accordingly generated as the investigation moved forward. It strictly followed the logic asserting that individual construction could be refined only through interaction between researcher and respondents. These varying constructions aimed to be interpreted by using a hermeneutical and to be compared through a dialectical interchange to distil construction of consensus that is more sophisticated.

Table - Summary of research paradigms

	OBJECTIVE					SUBJECTIVE
	Positivism	Post-positivism	Critical theory	Pragmatism	Social-constructivism	Constructivism
	REALISM					RELATIVISM
Ontology What is reality?	Naive realism declaring that there exists a single reality that is independent of any observer's interest in it. Truth is defined as set of statements isomorphic to reality	Critical realism asserting that objective external reality does exist, yet is incorrectly comprehensible	Reality is constructed by social, cultural, economic and political values	Reality is one that is practical and socially controlled	Reality is socially constructed and dependent on the culture. Relativism is advocated	There is no single reality. There are multiple constructed realities that are local and context specific. There is no object-subject separation, as relativism is the main component
	CONVENTIONAL					CONSTRUCTIVIST
Epistemology How to know reality?	The dualist (value-free) objectivist epistemology declaring that it is possible for an observer to externalize the phenomenon studied, remaining detached and distant from it and excluding any value considerations from influencing it	Modified dualist (value-free) objectivist asserting that objectivity and reality could only be guesstimated. Yet, they can never be achieved	Knowledge is value-dependent, subjectivist and influenced by power relationships	Knowledge is obtained from observation of interaction among participants	Knowledge is constructed through dialogue and negotiation. Hence, knowledge is relative to social and historical constructs, values are influential and encompassed in the inquiry	Knowledge is in an individual's internal constructions and generated by the interaction between researcher and respondent. Knowledge is subjectivist and obtained through interpretations
	RESEARCHER DETACHED					RESEARCHER ATTACHED
Methodology How to go about finding out?	Interventionist methodology strips context of its contaminating influences. Deductive verification of hypotheses are established	Modified experimental methodology is often applied. Deductive non-falsification of hypotheses	Dialogic/dialectical, action research, critical debate	Observation of subject in context, action research, mixed methods	Hermeneutical/dialectical, naturalistic inquiry, phenomenology, interpretive	Hermeneutical/dialectical, naturalistic inquiry, phenomenology, interpretive
	QUANTITATIVE					QUALITATIVE
Methods Which techniques to be used?	Often quantitative methods, including surveys, statistical analysis, control experiments	Quantitative but also more natural setting based qualitative techniques, such as grounded theory is used	Open ended questions interviews, open ended observations, focus groups,	Often qualitative combination of many techniques	Case study, interviews, participant observation, life history, theme identification, narrative	Case study, interviews, participant observation, life history, theme identification, narrative

		are applied	historical insights	including interviews, participant observation, case study, narrative		
	GLOBAL					LOCAL
Research purpose	To explain, measure, test hypotheses, generalize and define cause-effect	To discover, measure, falsify theories and explain	To integrate knowledge and action to enable, transform and change	To solve problems and test theories in practice	To explore, interpret, enlighten and seek meaning	To explore, interpret, enlighten and seek meaning

Source: Adopted from Alvesson and Sköldberg (2000; Crotty (1998); Guba and Lincoln (1989,1994)

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All things considered, in order to provide insights into human behaviour and to deliver an insider approach to uncover emic views in which the meaning of investigated individuals and groups are unveiled, this study opted to pursue an interpretive path by conducting exploratory case study research. The purpose of the inquiry was to understand and reconstruct the constructions, which were held by individuals. Knowledge transfer was provided through multiple case study method. To this end, trustworthiness criteria were set through credibility, transferability, dependability and conformability while authenticity was ensured for fairness, ontological, educative and tactical authenticity. Considering that there exist not only control variables but also contextual variables, further contextual information was important to be provided in this study's research phenomenon. Theorems applied to this study's form of inquiry (based on Guba and Lincoln (1989)) are as follows:

Inquiry problematic: This research pursued the socially constructivist inquiry as the humanly devised way to treat constructions about states of affairs subject to continuous modification, revision and replacement. The basic ontological assumption was followed as socially constructed realities.

Nature of truth: The truth of any proposition aimed to be determined by submitting it to the judgment of a group of sophisticated stakeholders of what might be varying constructions. Any proposition achieving consensus through such tests was regarded as well informed till reconstructed through advanced sophisticated. Socially constructivist truth was represented through exploratory agreements and consensus among individuals.

Limits of truth: No proposition was neither tested nor untested. Findings were to be only considered true in relation to and in terms of sophisticated constructions.

Measurability: Constructions existing in the minds of constructors were not divided into measurable entities.

Independence of facts and theories: This study pursued the foci of facts being always theory-laden and having no independent meaning except within some theoretical framework. Hence, there could be no separate observational and theoretical languages. This justified the presumption asserting that realities were mental constructions. Henceforward, facts and their organizational structure were not independent.

Independence of facts and values: Facts and values were ensured to be dependent. Facts were accepted to have no meaning except within some framework and they were value-laden. There could be no separate observational and value based languages.

Causation: This study pursued the logic that the constructivist paradigm discussed from the base of the continuous reconstruction where it was articulated that anything happening could provide new information. Yet, such reconstructions would not occur in linear paths.

Successful inquiry: The success of constructivist inquiry was judged on if it displayed ever-increasing comprehension of the phenomena.

The origin of problems: Phenomena, problems included, exist only in some constructions and have no meaning except in that context where they are identified. So that it was accepted that if problems would be embedded into constructions, it would be the construction, which would need to receive attention.

Applicability of problem solutions: Problem solutions developed through reconstruction would have only local applicability.

The change process: Change was accepted as an ongoing process, which would not require either outside stimulation or direction. It was argued that the actions people take depend in the last analysis on the constructions they embrace.

Implementing the change process: Change was accepted to be a nonlinear process, which was involving the infusion of new information and advanced sophistication of involved human constructors. The infusion received from constructivist inquiry was taken into account. This study took into consideration not on scientifically justified products but on changed constructions, noting that not all information entering into constructions could or should be information collected from some kind of disciplined inquiry.

Nature of evaluation: Evaluation was a form of the inquiry and therefore had all the attributes of the context.

Values and evaluation: Evaluation produced reconstructions where facts and values were associated. Valuing was accepted to be an intrinsic part of the evaluation process providing the basis for attributed meaning.

Objectivity of evaluation findings: The researcher was a subjective partner with stakeholders in the creation of the evaluation data.

Function of evaluators: The researcher was an orchestrator of the negotiation process, aiming to culminate in consensus on more informed and more sophisticated constructions.

The interest in empirical material that represents the core in the qualitative method involves a kind of bottom line for research. Yet, the focus on data collection and data processing in most qualitative methodological theories is mostly unreflective and should be questioned. Instead, an essential hermeneutic element penetrates the research process from beginning to the end. Interpretation, instead of representation of reality on the basis of collected data, becomes a principal element. It is articulated that unmediated data or facts do not exist; these are the results of interpretation. However the interpretation does occur in a neutral and ideology free space. Nor is an autonomous and value free researcher responsible for it. Interpretation as a political-ideological expression represents a significant complement to the hermeneutic brand of interpretation.

The process performed was hermeneutic, as it was interpretative in nature, and it was dialectic, as it represented a comparison and contrast of different views with a perspective of achieving a higher-level synthesis of all of them. The process exposed and clarified several divergent views and allowed the building of a negotiation agenda. However, there appeared to be a complex relationship between knowledge generation processes and the various contexts of these processes along with the researcher's (knowledge producer's) involvement. Thus, paying attention to how to think about thinking emerged to be an essential criterion.

Interpretation comes to the forefront of the research and therefore the utmost awareness of the theoretical assumptions, the significance of language and pre-understanding are essential since all of these elements constitute major determinants of interpretation. In this vein, the centre of significance was shifted from handling the empirical material towards a consideration of the cognitive, theoretical, linguistic, inter-textual and cultural circumstances forming the backdrop to the interpretations.

Systematics and techniques in research procedures were ensured. To illustrate, this qualitative research aimed to follow a reasoned logic in interacting with empirical material and utilized rigorous data processing techniques. Clarification of the primacy of interpretation aimed to be provided. In this vein, research was seen as an essentially interpretive activity. Hence, method was not detached from theory and other elements of pre-understanding, as presumptions and notions defined interpretations and representations of the study's object.

The methodological principles guiding this research could be as follows:

- ✓ Coherence: the interpretation to be logically consistent
- ✓ Comprehensiveness: regard for the whole work
- ✓ Penetration: the central problematic to be laid bare
- ✓ Thoroughness: all questions raised by the text to be answered
- ✓ Appropriateness: the questions to be raised not by the interpreter
- ✓ Agreement: the interpretation to agree with established interpretations of the text
- ✓ Suggestiveness: the interpretation to encourage the imagination
- ✓ Potential: the application of the interpretation to be further extended

Interpretation Patterns

First and foremost, the principal set of interpretations of a certain text, which had been the coherent whole of partial interpretations was provided. The pattern of interpretation corresponds to the theory of various extra-hermeneutic dissertations.

Interpretation patterns were assured to be internally and externally consistent, in the sense that it agrees with the other existing interpretation patterns in the same area and it consists of reasons for not agreeing with them. Interpretation patterns were generated to make the text's individual details understandable whilst growing from them. Interpretation patterns were also allowed to contain facts from the interpreted material and above all were not contradicted by them. The pattern was elaborated in a dialogue with the text, beginning from the researcher's preconceptions that were also transformed during the process. The pattern was aimed to generate a deeper understanding of the text beyond what was immediately granted by reading.

Facts or data was not interpreted, but text itself. Hence, facts emerged from the text through a process of interpretation. They were seen as results rather than as departure points. The text influenced interpretation patterns, enriching it and adjusting it during the hermeneutic process. What were considered facts were both affected by the entire research-sociological situation. This work should not be read out of context, for example without due regard to its cultural, social or historical context. Hence, it could become possible to relate single parts of a text to the text as a whole, and the perspective and regard of the text could also be shifted as a part, seeing it in relation to its whole all-embracing context.

In relation to the text, hermeneuticians do not pursue a monologue form similar to that of positivism, or they do not proceed through a passive reception of the text as in the grounded theory. Instead, the procedure of asking questions to the text was used and listening was ensured through a dialogue form, as suggested by

hermeneuticians. The questions were developed and transformed during the process. Thus, an active attitude was attempted. Dialectic between distance and familiarity was consulted not only to show respect to the autonomy of the subject matter under interpretation but also to enter it, as suggested by (Alvesson and Sköldberg, 2000). In other terms, consensus was aimed between the old aspect imposed on the text in the sense of pre-understandings and the new understanding. Questions directed at the whole alternated with the questions directed at the parts then two kinds could cross-fertilize each other. Hence, the research problem transformed during the process whilst the transformation influenced facts and patterns of interpretation.

During the process of interpretation an imagined dialogue is entered and therefore it is important to discuss arguments and counter-arguments and to reach the most plausible result, beginning from the current knowledge where theoretical, methodological and factual aspects are in interaction. In general, logic of argumentation is reached rather than logic of validation in this study's specific domain.