

Sustainable Supply Chain Management in the Luxury Industry: how to enhance quality, transparency, and sustainability through suppliers' collaboration?

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Introduction

In the recent years, sustainability has become a major trend affecting the world globally. Every institution, government, organization, and citizen are required to actively engage and to be aware of the current changes in the environment, society, and economy that are happening worldwide: sustainability is an international phenomenon that is equally impacting the entire world. Thus, due to their relevance across the globe, organizations are required to be the drivers of the transition towards a more sustainable living.

Particularly, it has been decided to inquire the luxury industry since it is one of the principal contributors to the generation of pollution and waste, environmental degradation, and societal problems leading to huge economic losses globally. Hence, luxury brands must embrace this change towards the implementation of sustainable practices within their business models in order to maintain and gain additional competitive advantage as well as performance improvements in the long run.

Therefore, since sustainability is a transversal concept to be applied and executed within all the organizational functions, the aim of the present research project seeks to investigate the sustainable management of luxury supply chains to understand the strategies that luxury brands are currently implementing in order to make their networks truly sustainable while ensuring quality, traceability and transparency, particularly leveraging on suppliers' collaboration and cooperation as a means to achieve authentically sustainable value chains.

The reason why it has been chosen to scrutinize this particular organizational unit is given by its cross-border nature: indeed, the supply chain encompasses all the processes, materials, and information flows needed to manufacture a luxury item to be delivered to the final consumer. At the same time, this can be regarded as the sustainability's intrinsic characteristic of being a transversal concept: thus, the two elements must be examined together.

Hence, this study is structured as follow: in the first chapter it will be given a wide overview on the sustainable supply chain management theory through a literature review on the definition of supply chain management and sustainability concepts, the main drivers that require the adoption of sustainable SC practices, and the principal criticalities hindering the implementation of such initiatives common to all business sectors.

In the second chapter, the sustainable supply chain management (SSCM) notion will be applied to the specificities of the luxury industry by analysing the necessities for sustainably manage luxury SCs, and the challenges that companies operating in this industry currently face. Then, it will be deeply focused on suppliers' management, specifically on collaboration and coordination among partners by analysing their heterogeneous characteristics and the principal aspects of suppliers' management being their selection, evaluation, and development processes. Indeed, suppliers will be highlighted as being of outmost importance for implementing sustainability along the entire supply network ensuring quality, transparency, and traceability of SC operations and activities.

Therefore, there will be presented two research questions to be answered in the last chapter of the present project by conducting a questionnaire to be submitted to a sample of 15 companies operating in this industry in order to appreciate the current sustainable SC strategies concretely implemented to increase collaboration and cooperation among partners as well as the instruments practically applied to select and evaluate suppliers' behaviour, aimed at enhancing the adoption of sustainable practices along the entire value chain. Thus, in the third chapter it will be presented the employed research methodology, then, the results of the survey will be reported and deeply discussed in order to answer the previously addressed research questions. Hence, the final considerations and conclusions of the research study will be drawn.

Chapter 1 – Sustainable Supply Chain Management: a general overview

1.1 Definition of Sustainable Supply Chain Management

The term Sustainable Supply Chain Management (SSCM) is composed of two elements that come together: the concept of “sustainability” and the “Supply Chain Management”. In order to understand the definition of the firstly mentioned term, it is essential to analyse and investigate the meaning of its two components to derive a wider perspective on the topic considered.

1.1.1 Literature review on Supply Chain Management

As stated by Khan et al. (2021) Supply Chain Management (SCM) is considered pivotal for the success of any company that operates globally. As a matter of fact, corporate achievements are highly related with an effective management of the SC, because large parts of the revenue stream are created by the activities that occur within the SC (Dubey et al., 2017; Reefke H. and Sundaram D., 2017). Moreover, SCM has been an integral component of human activities throughout history, and nowadays it has become a crucial point, especially due to the uncertainty of the current historical situation that is contributing to the evolution of the SCs. Consequently, they are required to adapt and to be resilient to new possible disruptions and unstable external situations (Mahmoudi A. et al., 2022).

In order to gain a broad understanding of this concept, a literature review has been conducted developing a general overview on the topic.

Seuring S. and Müller M. (2008) in their research paper defined the Supply Chain (SC) as comprehensive of the entire range of operations involved in the movement and conversion of goods, both up and down the chain, starting from the extraction of raw materials till the end consumer is reached along with the corresponding exchange of information. Consequently, Supply Chain Management (SCM) refers to the combination and mixture of these activities achieved through enhanced relationships among SC participants with the objective to attain a sustainable competitive advantage.

Tay M. T. et al. (2015) have given a theoretical explanation of the SC as a concept that encompasses the complete physical journey from acquiring raw materials to the final product delivery to the final consumer, together with the flows of information exchanged during the process. Moreover, SCs typically involve numerous interconnected companies that play a role in meeting the particular requirements of the end users. It encompasses the manufacturers and their suppliers as well as transportation providers, warehouses, retailers and even the customers themselves.

To advance the comprehension of the concept, Fritz M. (2019) defined SCM as “*the management of products or services from the design phase to the different production stages starting with raw material extraction and*

ending with the delivery of the product/service to the end consumer and, eventually, the reuse, recycling, or disposal phase, depending on the product/service, industries, and business models of firms". In his definition, the author underlines the importance of the management of both human resources and of flows of material, information, and capital. He also stresses the relevance of cooperation among all the actors of the chain, both within the same company and across different companies: they must work closely together to achieve the goal of cost-effective, efficient, and timely delivery to the consumers, while maintaining product/service quality. Having analysed what generally means Supply Chain Management, it is now important to gain a deeper understanding on the topic of sustainability, in order to derive the final concept of SSCM.

1.1.2 Literature review on Sustainability

During the recent years, the concept of sustainability has evolved and now it has become the focal and central topic of discussion due to its extreme importance for the survival of both people and planet. Although a explanation of what exactly sustainability means is currently missing, it is possible to consider the widely accepted definition of sustainable development that has been framed by the Brundtland Commission in its Report "Our common future" in 1987: "*it meets the needs of the present without compromising the ability of future generations to meet their own needs*". Connected to this theoretical meaning, it has been tried to operationalize the notion of sustainability through the triple bottom line (TBL) approach, that states that firms' performance must be achieved while considering the environmental, economic and social aspects at the same time (Seuring S. and Müller M., 2008).

Companies are required to concretely translate this definition within the sustainable management of their operations and practices, therefore there is the need for them to address sustainability-related issues through the adoption of a sustainable management of their business activities.

Sustainability can be defined as composed of three different but linked dimensions: economic, environmental, and social. To ensure the sustainability of their operations management, companies must address simultaneously these three perspectives. Ranfagni and Ozuem (2022) have tried to frame the concept of sustainability by identifying and explaining its components as synergistic and not antagonistic.

The economic dimension of sustainability is referred to two different facets: the achievement of pure financial performance and the pursuit of external stakeholders' economic interests.

Concerning the environmental feature, it addresses the correct usage of natural resources (air, water, and soil), the preference for the adoption of renewable resources instead of non-renewables, and the compliance with the maximum possible absorptive capacity of hazardous and polluting waste and materials. As outlined in the previously mentioned study, this dimension accounts for both positive and negative effects on corporates' management: firms must report in detail their environmental performance which leads to high efforts in the compilation of bureaucratic procedures, they also face additional costs associated with environmental audit and assurance for the adoption of innovative technologies useful to reduce the firms' emissions and

environmental impact. On the other hand, there are some benefits in operational performance in terms of saved costs, thanks to the reduction of energy and water used as well as in waste produced, safeguarded stakeholders' interests and enhanced competitiveness and flexibility, leading to an improved strategic positioning of the company.

Regarding the social aspect of sustainability, it consists in ensuring the well-being of both people and communities in terms of security, health, and education, contributing to their development by encouraging diversity and inclusion as well as eliminating disparity in sources' consumption, fair salary, and poverty's reduction.

1.1.3 Sustainable Supply Chain Management

In order to give a complete and comprehensive definition of what SSCM is, it is necessary to fuse together the two concepts analysed in the previous paragraphs. As a matter of fact, Sustainable Supply Chain Management refers to the integration of the three sustainability pillars within the SC processes and activities in order to maintain and enhance the firms' competitive positioning in the market adopting a long-term perspective (Seuring S. & Müller M., 2008; Dubey R. et al., 2017; Ansari Z. N. & Kant R., 2017; Reefke H. & Sundaram D., 2017; Rajeev A. et al., 2017; Saeed M. A. & Kersten W., 2019; Fritz M., 2019; Jaegler A. & Goessling T., 2020; Siems E. et al., 2021).

Regarding the environmental aspect of sustainability, previous research studies have underlined the prevalent role of its related SC performance over the social one, thus contributing to the development of Green Supply Chain Management (GSCM). In the past, the academics mainly focused on "greening" the SC, instead of targeting on making it more sustainable, which requires the adoption of a wider perspective on the matter. Fritz M. (2019) has elaborated a path towards SSCM as comprehensive of different steps that are one part of the other starting from Reverse Logistics, an aspect integrated in GSCM, which is assimilated in the broader concept of SSCM.

Associated with this, the Reverse Supply Chain Management must be considered too: it can be defined as the successful and streamlined management of the different tasks needed to recover a product from the end user aiming at its disposal or its value restoration. Since the gathering process is expensive in terms of time and financial sources required to the investment, coordination among the different participants to the process is considered fundamental for the achievement of the final result.

Considering only the environmental impact of the SC and being associated with the Reverse Supply Chain Management (RSCM), the GSCM is just a part of the broader concept of SSCM (Mahmoudi A. et al., 2022). It can be described as the assimilation of the environmental reasoning into all the activities to be managed within the Supply Chain (product design, material sourcing, selection and purchasing, manufacturing processes, packaging, warehousing, transportation and delivery to the end user, and product EoL management), avoiding the pursuit of social objectives (Rajeev A. et al., 2017). Also, it has been delineated

as comprehensive of all the efforts made to minimize, regulate, and oversee the environmental effects of business operations throughout the entire SC, with the exclusion of social aspects (Fritz M., 2019).

By incorporating the environmental dimension into the SCM of an enterprise, there is the urgent demand for modifying and reorganizing all the activities of its supply chain through the aid of external experts, such as engineers, in order to measure the environmental impact of each product's journey from its planning till its end-of-life (EoL) phase. As a matter of fact, the GSCM entails evaluating suppliers' environmental performance and urging them to reduce their products' environmental impacts across all their evolution stages, while considering and measuring the damage associated with waste produced in their execution (Mahmoudi A. et al., 2022).

As it has already been described, SCs are composed of many activities where each participant exercises a key role. Since suppliers are directly involved in the purchasing of green strategies in SCM, their selection procedure is fundamental. This selection process allows companies to choose their suppliers by evaluating their environmental performance against specific measures established in line with their codes, key objectives and managerial guidelines or deliberately established through industry standards. Firms have the option to enforce the suppliers to adhere to specific environmental requirements or to choose suppliers who meet them constantly auditing their green conduct (Fritz M., 2019).

Furthermore, consumers are extremely valuable (Ansari Z. N. and Kant R., 2017), and they must be engaged to actively participate in the green management of SCs. Organizations can improve consumers' participation in effectively act in the EoL stage of the product or service by spontaneously sharing knowledge on the administration and execution of environmental strategies to enhance end users' adoption of related actions that have a beneficial impact on the environment (Fritz M., 2019). Also, in the product development stage, firms can introduce specific standards that are valuable for customers, meeting their expectations and desires.

Additionally, since different stakeholders actively intervene in the SC process, the collaboration and coordination among all of them must be ensured to fulfil the environmental objectives of GSCs efficiently and effectively. The reason is linked to the fact that stakeholders usually have more knowledge and competencies about the main features and criticalities of environmental aspects that concern their specific SC.

Mahmoudi A. et al. (2022) brought the research a step forward by focusing the attention on SC resilience as an element that can lead to gain a competitive advantage in the medium-long run: resilience is intended as the capability of companies to recover in a time and cost-effective manner, after a disruption occurs, either to its initial situation or to a meliorate one. By combining green aspects into SC resilience, the researchers derived the term "gresilience" intended as the capacity of a GSC to recover efficiently and promptly from a disturbance and return to its original or enhanced state. Within a "gresilient" SC the elements that characterize both the resilience of SC and its green attributes are brought together.

Specifically, to measure if a SC is "gresilient", the authors propose a specific framework that comprehends the speed and level of recovery, the loss of performance while recovering, the energy and material consumption, waste, and the amount of pollution released. The authors suggest that this framework can also

be useful while evaluating the environmental performance of suppliers, when hit by interferences and disturbances to their operational activity.

Having analysed one of the aspects that characterize SSCM related to the environmental dimension of sustainability (GSCM), it is now necessary to give a wider and more appropriate definition of SSCM starting from a research paper published by Seuring S. and Müller M. (2008). Their attempt consisted of furnishing a conceptual framework on the main attributes and characteristics of SSCM. From the conducted literature review, it has been observed that this study is considered as the milestone and pillar of the research on SSCM, therefore it is possible to start defining SSCM by using the outcomes of this analysis, and then explore more recent examinations related to this concept.

The inquiry conducted by Seuring S. and Müller M. (2008) starts from understanding the meaning of SC and SCM as well as of sustainability individually, then they identified a research gap in the former literature investigations that mainly focused on GSCM neglecting the social aspect of sustainability; finally, they derive the definition of Sustainable Supply Chain Management as comprehensive of all three dimensions of sustainability.

SSCM can be defined *“as the management of material, information and capital flows as well as cooperation among companies along the supply chain while taking goals from all three dimensions of sustainable development, i.e., economic, environmental and social, into account which are derived from customer and stakeholder requirements”*.

Therefore, SSCM is inclusive of a broader spectrum of concerns as well as a vast array of performance goals, encompassing the economic, environmental, and social aspects of sustainability. It implies a heightened demand for collaboration among partner companies and actors that operate in the SSC.

Having firstly delineated the concept of SSCM broadly, it must be stated that following research studies have tried to shape its main features in the more recent years in order to provide managers with insightful information and advice on the proper strategies to adopt while managing the SC with sustainability objectives and requirements.

Fritz M. (2019) defines SSCM as the management of SCs that incorporates the sustainability goals and demands outlined by the company, suppliers, customers, and external stakeholders. To achieve the sustainability of the SC, the objectives must comply with the three pillars that define sustainability. As a matter of fact, SSCM is linked to the simultaneous pursuit of cost reduction, environmental performance, and social interests, since it is constituted by the assimilation of sustainability pillars into each particular phase of SC, from the early design of the product till its EoL stage.

Moreover, Saeed M. A. and Kersten W. (2019) highlighted the importance of integrating sustainability-related goals and objectives at the supply-chain level in order to achieve a competitive advantage in the long-run, which in turn would enhance the competitive positioning of the organization, leading to enduring and persistent economic advantages. Indeed, the pursuit of long-term environmental and social goals is essential

for firms to attain sustainable economic benefits over the long run as well as an improved and protracted performance.

Accordingly, Dubey R. et al. (2017) clarify that the goal of SSCM is to obtain results both in the short and long run, encompassing profitability, stakeholder expectations and interests, competitive advantage, and corporate resilience.

In line with this research stream, Ansari Z. N. and Kant R. (2017) showcase the importance of implementing sustainability in SCs operations due to the fast-increasing competitiveness among firms globally. They define the SSCM as a concrete option for organizations to differentiate from their competitors.

Furthermore, Jaegler A. and Goessling T. (2020) argue that the sustainability of SC processes and procedures involve integrating the three dimensions of sustainability throughout the whole SC by utilizing incentives and conducting audits to promote and investigate sustainable behaviours.

Adopting a more specific perspective, Boukherroub T. et al. (2015) focus their research on analysing the adaptation of sustainable principals to SC planning. They highlight the need to switch from a limited perspective based on cost minimization, to the development of decision-making models that take into consideration the triple bottom line (TBL) approach, to advance and upgrade the CSR (corporate social responsibility) objectives. While the CSR stresses the importance of social-related aspects, the TBL approach addresses all three dimensions of sustainability.

Consequently, the study developed by Reefke H. and Sundaram D. (2017) added a further conceptualization by considering not only the planning strategies inside the SC, but also other aspects. They emphasize the complexity of both the SCs' structure and related management of the relationships and interactions among its players as well as the difficulty in the elaboration of related sustainability requirements and objectives. They draw attention to the strategic need for firms and their top management to carefully plan and execute their SC activities and conscientiously coordinate and collaborate with the other players of the SC.

The study also underscores the need for further investigation over the role of governance, risk management and compliance to ensure a sustainable performance for companies in the long run.

Accordingly, Siems E. et al. (2021) developed an examination where they outline the placement of SCs in a fast-changing and dynamic environment, which requires the necessity for SCs to acquire and develop specific dynamic capabilities (DCs) to facilitate the SC ability to adapt to the evolving conditions of the external context in which it operates.

As a matter of fact, dynamic capabilities constitute the company's capacity to intentionally incorporate, generate, or reconfigure both competencies and resources that are internal and external to its organizational boundaries. Acquiring DCs allows firms to additionally advance their competitive positioning in unstable markets by developing new abilities as required.

Moreover, DCs consent the improvement of employee's satisfaction and engagement as well as the acquisition of additional knowledge on performing and operating with a lower environmental impact, producing positive outcomes on both the social and environmental performance of organizations. For these skills to be developed

along the chain, there is the need to a concrete alignment among all the SC participants: structures and procedures of both the firm and its suppliers must be harmonized and transformative in order to adapt to any possible change ensuring SC resilience.

In addition, Seuring S. et al. (2022) have theorized a framework in which they tried to conduct a deeper investigation of some aspects that concern the SSCM, contributing to the definition of its main elements and attributes. Specifically, their study focuses on understanding the triggers for SSCM, which will be explained in detail in the following section, the importance of suppliers' management to reduce risk and increase the company's performance and, finally, the meaning of SCM for sustainable products.

Considering the Sustainable Development Goals (SDGs) as an international framework for sustainable development, companies are required to adapt their strategic choices to them by reflecting the indicators and targets of which each goal is composed (UN, 2015). These 17 goals have been defined in 2015 by the United Nations in the Agenda 2030 as strategic objectives to be fulfilled by 2030 in order to address the environmental, social and economic issues on a global basis.

Zimon D. et al. (2019) developed a research study that tried to investigate how the SDGs can be inserted within the operational performance of SSCs of firms in order to foster the creation of sophisticated strategies for managing SCs sustainably making them more resilient, streamlined, and socially responsible. Although the implementation of SDGs within the SCs can result in positive outcomes assuming environmental, social, and economic perspectives, the authors underline the difficulties linked to this execution due to their extensive coverage over various topics. In their study, the researchers developed a dynamic SSCM SDG model that has the objective to connect the SDGs and SC practices.

To ensure the effective and tangible implementation of SDGs, active participation of major corporations is necessary as well as evaluating the distinctive characteristics of various industries and businesses. SC management processes are multifaceted and complex as well as the interactions along the chain, therefore the model investigates each goal singularly to appreciate what kind of sustainable strategies can be implemented by firms in relation to the specific target considered.

The application of the aforementioned strategies requires substantial investments and the adoption of a long-term vision: by assuming a short-term perspective it could be difficult to understand the advantages of operating sustainably, but the model implies the consideration of the total costs to promote new and additional value apart from the mere economic profit. This implies the transformation of the way the business is run and the method to manage the relationships with stakeholders: there is the need to adopt a synergic approach to maintain and optimize the organization's competitive advantage.

The research paper stresses the need for adaptation to each business specificities and to stakeholders' interests that can diverge for various firms operating in different sectors. By applying the model's postulates, it is possible to integrate the expectations of employees, customers, and external stakeholders with the SSCM objectives and the assessment of intangible and essential factors that influence business procedures and operations.

Since the SC crosses all the firms' functions and it implies the participation of a wide range of players, sustainability must be assimilated with the various layers of SCs, particularly governance and top management, operations, production and among all the actors that play a role in executing SC mechanisms. The absorption of sustainability-related objectives within the daily management of SCs can be conducted in parallel at distinct stages, and there can be an additional possibility for lower tiers to address bottom-up initiatives that lead to the transformation and evolution of strategic choices from the top management (Fritz M., 2019).

Furthermore, the sustainability of the SC can be purely reached by building both efficient and effective cooperation and coordination among all the parties involved within the network: they must operate closely to ensure that the strategic sustainability objectives of the focal company are achieved, while meeting the demands of both customers and stakeholders at the same time. This collaboration can act as a trigger to enhance the implementation of sustainable practices within the focal company's business (Saeed M. A. and Kersten W., 2019).

As a matter of fact, a study conducted by Brun A. et al. (2020) features sustainability as a concept that "*goes beyond organizational boundaries*". Consequently, it becomes imperative to focus on the connections within SCs promoting the adoption of sustainable practices by embracing collaborative approaches.

In line with this mindset, Siems E. et al. (2021) mention the pivotal role of key suppliers as well as of the importance of developing efficient and effective strategies for their management: due to their crucial positioning in the functioning of the SC, they should collaborate with the focal company to promote the sustainable guidance of the chain. Also, they stress the importance of transparency and trust among SC participants which can create a virtuous way of operating that enhance the sharing of the single actors' knowledge and competencies to boost the adoption of sustainable strategies throughout the network.

Having defined the SSCM through a literature review, it is possible to outline specific strategies that can be adopted by firms to concretely implement a SSCM.

In order to maintain and gain competitive advantage in the long-run, organizations can leverage on designing the product, considering how it can be recycled or reused once it has reached its EoL stage, providing fair salaries and appropriate working conditions for the employees, ensuring diversity and inclusion as well as the respect of human rights along the chain, managing innovation, diminishing the environmental impact of the SC activities by focusing on guaranteeing material and energy efficiency (Ansari Z. N. and Kant R., 2017).

To verify suppliers' collaboration and to enhance trust among the SC participants, companies can implement monitoring systems such as audit measures (Siems E. et al., 2021).

The implementation of these sustainable SC strategies can assure the company of gaining a long-term competitive advantage, improving its brand positioning and reputation generating beneficial effects on the financial performance as well as on cost savings due to a more efficient operations management. Also, it is fundamental that the interests of all the actors of the chain are aligned to ensure the pursuit of the same environmental, social, and economic objectives.

The combination of sustainability principles within the company's SC implies the transformation of the corporate culture and its internal structure: top management plays a fundamental role as a driver towards the adoption of sustainable practices along the chain.

1.2 Drivers for the adoption of SSCM

As it has been stated in the previous section of the present research work, firms are required to implement sustainable practices within their SC processes and operations in order to maintain and gain additional competitiveness in the market. In this section, there will be analysed the main reasons and drivers that push companies towards the pursuit of sustainable objectives in their daily SC management.

Drivers are considered as motivating factors or enablers that press organizations to act or decide to adopt SSCM (Ansari Z. N. and Kant R., 2017; Saeed M. A. and Kersten W., 2019; Zimon D. et. al., 2019). To theorize the main drivers towards SSCM, previously conducted studies have been analysed in order to give a broader view on the main elements to be considered.

Various research studies (Tay M. T. et al., 2015; Saeed M. A. & Kersten W., 2019) have categorized drivers into two distinct segments, assuming the focal company's perspective: internal and external drivers, or internal pull constraints and external push pressures, adopting the definition given by Zimon D. et. al. (2019). Starting from this classification, it is possible to further investigate the concepts related to them.

1.2.1 Internal drivers

Internal drivers have been identified as the enablers that come from the inside the organization that shove the latter to move in the direction of embracing SSCM practices (Tay M. T. et al., 2015). They have been defined as the internal pull constraints that derive as the competitive output of diverse strategic assets such as economic, technical, and human resources (Zimon D. et. al., 2019); finding an equilibrium among them, the firm examines different possibilities of application to accomplish its SSCM objectives.

Particularly, internal drivers have been divided among three issues depending on their nature: drivers at people, strategic or functional levels (Tay M. T. et al., 2015).

The first group refers to the motivations that come from both the top management (Ansari Z. N. and Kant R., 2017) and the employees, which are linked to the company's culture (Zimon D. et. al., 2019): if people within the company are actively committed to reach sustainability objectives, they role as advancers for the overall firm towards SSCM.

From a strategic and functional perspective, the company must adopt strategic choices aligned among all its internal functions, especially purchasing (Khan S. A. R. et. al., 2021), supply, and performance and risk management, which must be not only related to financial issues, but also to social and environmental concerns.

They need to be in line with sustainability principals and taking into consideration the firm's competitive positioning to improve it.

Accordingly, Dubey R. et al. (2017) identify internal pressures as coming from the enterprise's employees: they increase the organization attention towards social-related aspects, particularly on creating a virtuous *modus operandi* that aims at ensuring the health and wellbeing of employees as well as the provision of suitable working conditions for them.

Also, a clearly delineated corporate strategy plays a proactive role (Saeed M. A. and Kersten W., 2019; Zimon D. et. al., 2019): commitment, from both the top management and from all SC participants, as well as codified social values and ethics that reflect the organizational culture, through the formalization of a well-defined code of conduct, contribute to boost the development of sustainable strategies within each SC level (Fritz M., 2019; Saeed M. A. and Kersten W., 2019; Jaegler A. & Goessling T., 2020). This responsibility taken by the top levels of the organization provide an opportunity to enhance the involvement of the other organizational and SC levels setting the sustainability-related targets and boosting the employees' as well as SC players' participation in fulfilling them through the execution of suitable communication and engagement strategies. There are two supplementary internal enablers identified by Saeed M. A. and Kersten W. (2019): organizational resources and characteristics.

The initial ones refer to the availability of natural and human resources: since the first are scarce, companies are forced to apply sustainability principles to make their employment and utilization more efficient and coherent with their limitedness. Regarding human resources, once companies apply sustainability procedures, they enhance their professional competencies and knowledge in sustainability management, thereby motivating them to pursue additional initiatives linked to sustainability.

Concerning the characteristics of the organization, size is evaluated as a driver due to larger firms being more pressured than smaller ones in implementing sustainable SCs.

Moreover, the organization's positioning within the SC actively affect its sustainable conduct: particularly, actors located in the down part of the chain experience greater pressure to assume a sustainable behaviour instead of participants in the upper part of the SC. Furthermore, the geographic location where the firm operates, and the regulation associated with it, as well as its degree of internationalization, exercise a greater or reduced pressure over the company's sustainable procedures.

1.2.2 External drivers

External drivers have been distinguished as coming from a wide range of stakeholders that work outside but closely to the focal company, which can be identified as the government, competitors, communities, customers, suppliers, investors, and NGOs (Tay M. T. et al., 2015). They have been defined as external push pressures exercised by local government and society, especially considering customers and broader stakeholders' perspectives. The external drivers execute an outward tension on the SC, bringing the firm

approaching the incorporation of specific sustainability requirements that would transform the SC into a more sustainable one (Zimon D. et. al., 2019).

Accordingly, as it has been outlined in the previous section, Seuring S. et. al. (2022) identify as the primary reason for organizations to engage in SSCM, the influence of stakeholders since they exercise a certain force on focal firms and offer stimulus and encouragements beyond internal factors. Their study mainly focuses on the role of stakeholders' management and pressures and incentives as both motivators and obstacles. The criticalities will be further analysed in the following paragraph.

An additional element to be considered consists of institutions and regulatory authorities that exercise a certain pressure on the organization (Dubey R. et al., 2017; Saeed M. A. and Kersten W., 2019; Khan S. A. R. et. al., 2021).

Since they operate in a regulated and institutionalized environment, enterprises are required to follow the norms and laws to which they are subjected: if these regulations require them the adoption of sustainable criteria to measure their performance, companies must follow these directions, leading to the implementation of righteous practices (Ansari Z. N. and Kant R., 2017).

Particularly, Saeed M. A. and Kersten W. (2019) recognize three institutional pressures: coercive, normative, and mimetic.

The first comes from the government and regulatory authorities, which are deemed as the most significant ones. Secondly, normative pressures emerge from social duties and are employed by NGOs, trade unions and society at large. Finally, mimetic pressures are generated by competitors when operating sustainably, claiming for other players to embark on the same behaviour to compete with them in the market.

A further important element to be considered is represented by the pressures coming from the market (Saeed M. A. and Kersten W., 2019): they act as crucial drivers for companies to embrace a sustainable strategic direction.

An additional element boosting the implementation of sustainability within companies' SCs is competition since it is at the core of organizations' strategic decisions: as it has been already stated, they decide to operate sustainably to both gain competitive advantage in the long run while at the same time maintaining competitiveness in the market.

Among the wide range of stakeholders of which the SC is surrounded by, suppliers are pivotal for SSCM. Therefore, another important driver is reflected by the strategic collaboration between the focal company and its suppliers: they can influence the organization's overall performance by encouraging it to spend resources in and adopt more sustainable operations. Also, as it will be further explained in detail progressively, efficient suppliers' management and strategic assessments (Zimon D. et. al., 2019) can help the focal company to avoid eventual financial constraints in the implementation of sustainable SC mechanisms as well as contributing to build a collaborative approach with the firms' upstream suppliers and downstream customers leading to processes aiming at creating additional value (Ansari Z. N. and Kant R., 2017).

As the SC and the company's performance are highly dependent on it, an additional aspect to be considered consists of customers' role in directing the corporate strategic guidance (Saeed M. A. and Kersten W., 2019; Khan S. A. R. et al., 2021). They are becoming more aware and interested in the sustainability of their purchasing decisions; therefore, because of these choices, companies must enact to fulfil their requirements in order to attain customers' satisfaction and loyalty, which are important elements for a long-term competitive advantage.

As a matter of fact, not addressing customers' desires may have negative effects on the firm's performance overall. While satisfying customers' expectations would positively impact the enterprise's reputation, conducting to reputational benefits, generating favourable consequences on both economic results as well as on employees' motivation, leading to an improvement of the firm's sustainable performance.

Among the external elements that force companies towards the adoption of SSCM practices, Sodhi M. S. and Tang C. S. (2021) have identified possible disruptions and uncertainty that characterize the current historical period and that could be a present and future challenge to be handled by all SC participants. Natural or humanmade disasters, climate change, biodiversity losses, pandemics, geopolitical instability, technological innovations, financial disruptions and uncertainty in supply and demand are some of the attributes and features that portray the current situation worldwide: this requires companies to proactively operate in order to make their SCs more resilient by concretely addressing environmental, social, and economic issues within their SCM.

1.3 Issues and criticalities to the implementation of SSCM

Having described the main drivers and motivations that boost the adoption of sustainable practices within firms SCs, it is fundamental to deeply investigate the issues and criticalities that companies face while implementing sustainability-related initiatives among their value chains. Khan S. A. R. et al. (2021) underline the firms' difficulties in implementing sustainability within their SCM since they may not appreciate any beneficial effects through their integration in the short term. Therefore, they emphasize the need for supervision and examination of potential barriers to their proper application.

Symmetrically to what have been reported in the previous section that analysed the drivers of SSCM, Tay M. T. et al. (2015) have distinguished among two different types of barriers that hamper companies' SSCM efficient implementation: internal and external obstacles.

Internal impediments consist of inadequate corporate architectures and protocols, high dependence on conventional accounting methods, and absence of top management commitment. The latter is considered as the most significant one: without top management being completely engaged in sustainability related initiatives, any potential progress made by the company in undertaking them would be worthless.

Another internal constraint that prevents the establishment of SSCM, encompasses the additional costs needed: high investments in infrastructure, training programs for the employees, and product and process innovation are required to transform the firm's SC into a sustainable one.

Accordingly, Xiao C. et al. (2019) showcase the pressures experienced by companies in their trial to transform their SCs into SSCs. Precisely, they concentrate on addressing the trade-off between short-term profitability and long-term sustainability: companies are more prone to adopt strategies aiming at achieving the immediate economic performance, instead of adopting a wider perspective with the aim to reach sustainability goals in the long run. The reason is given by the high amount of financial resources needed to invest in the present moment in order to gain an economic return later in time: top management's commitment is therefore crucial to secure sustainability in the company's SCs.

It must be highlight that the problem consists of these costs being faced by companies in the short run, but the return from these investments is predicted to be in the long run. Hence, this discrepancy in expenses and payback period results in organizations' mistrust in undertaking these economic efforts to build SSCM.

In accordance with these concepts, Rajeev A. et al. (2017) emphasize the positive impact that firms experience while applying sustainable practices within their SCs considering a long-term perspective; these can be delineated as cost reduction, augmented efficiency, and customer satisfaction, which consequently leads to enhanced market shares and sales, and a more adequate and reliable risk management and mitigation efforts. However, the research study draw attention to the complexity for firms in recognizing the effective value gained in contrast to the high investment needed while implementing sustainable practices. These high investment costs applied by government in developed and high-income regions together with strict regulations, related to both the environment and society, could contribute to firms' decision to externalize the most contaminating portions of their organization towards less developed or emerging economies. The reason is due to these countries' intrinsic nature: since they need to completely evolve compared with developed countries, the social and environmental normative is not as rigorous and production costs are considerably lower. This choice could place the focal firm in reputational disadvantages if suppliers are not properly managed and the chain is not fully controlled.

Regarding the external hindrances, Xiao et al. (2019) consider the different interests among a wide range of stakeholders that operate within the SC as an additional barrier to the building of SSCM. Frequently, distinct perspectives diverge and compete among the SC participants: ensuring all of them is a difficult task that demands for a proper, efficient, and effective stakeholders' management.

For instance, customers represent one critical point that needs to be addressed (Tay M. T. et al., 2015): they would demand for products and services at lower prices. Since companies are forced to face the already mentioned increased costs to build SSCs, they would probably fail in meeting clients' expectations on price, resulting in a negative trade-off that could lead to sacrifice long-term sustainability objectives preferring to achieve short-term financial performance.

Moreover, focal firms face additional challenges in finding qualified suppliers due to more stringent environmental quality standards and improved social conditions required. As a matter of fact, in the previously cited paper published by Seuring S. and Müller M. (2008), the researchers emphasize the high relevance of suppliers' management within SSCM.

Specifically, the authors contributed to the definition of specific challenges in establishing SSCs by delineating the following issues: expensive investments, difficulties in finding the correct coordination and collaboration, and the lack of communication among the different interests of the actors of the chain. In their research, the academics suggest that monitoring and evaluating as well as reporting could represent a powerful and effective means to address the subjects expressed formerly.

Consequently, Seuring S. et al. (2022) focus on the extremely hard challenge represented by suppliers' management. By analysing the interconnections and interrelations among the focal organization and its multi-tiers suppliers, they identify supplier selection and evaluation as critical aspects that must be addressed and carefully managed and planned. Connected to this, they believe that risk and performance management must be carefully and attentively assessed to reach the desired result.

Accordingly, Brun A. et al. (2020) emphasize a crucial risk associated with suppliers' management. Focal companies require them to operate efficiently and effectively following certain standards of quantity, quality, and cost.

With SCs handling their activity on a global scale, firms have connections with both suppliers that run their business in low-income and developing countries as well as in developed ones. The former suppliers give the focal company additional advantages in terms of cost and lead time of their production, but the risk associated with them is given by the fact that they could incur into non-sustainable behaviour and unethical activities such as child labour and exploitation, release of toxic chemicals and substances, and workplace accidents. As a result, the brands' image risk of being exposed to a negative word-of-mouth by customers increases as well as encountering potential harmful effects on their financial performance.

Furthermore, employees' engagement has been pinpointed as a noteworthy difficulty: it demands for radical evolution of both professional and personal habits and procedural patterns (Dubey R. et al., 2017). Employees could experience reluctance in assuming a more sustainable behaviour due to their intrinsic nature of being averse to potential changes; hence their engagement should be properly and efficiently addressed in the delineation of the corporate sustainable SC strategy.

An additional barrier to be considered is the inadequate training and expertise for employees of both the focal company and suppliers (Ansari Z. N. and Kant R., 2017): this would lead to the adoption of non-sustainable actions that slow the process towards SSCM. This element, together with high costs and lack of top management and suppliers' commitment are the greater challenges that companies face while implementing SSCM.

Moreover, Ghadimi P. et al. (2019) have highlighted the urgency to find applicable tools and indicators to concretely measure the sustainable performance of firms. Specifically, they focus on the difficulty in

measuring social-related outcomes of sustainable strategic actions implemented by the corporate within its SC, leading to firms' reluctance in addressing social issues due to the lack of instruments able to concretely measure their efforts. In this way, they tend to prefer addressing environmental and economic issues, failing to manage all three dimensions of sustainability.

Also, Ansari Z. N. and Kant R. (2017) have recognized some of the significant obstacles at implementing SSCM, which include insufficient information and transparency. As a matter of fact, information asymmetry is a critical aspect that limits the development of SSCM: since the parties along the chain do not have the same amount of information, they are more prone to adopt unsustainable behaviour by pursuing their individual interests rather than focusing on making them to converge.

Additionally, limited financial resources, sophisticated designs to reduce materials and energy usage, unsuitable infrastructures for implementing reverse logistics systems, and scarce IT networks and competencies, obstruct and prevent enterprises' implementation of sustainable initiatives in their supply chain management.

Chapter 2 – SSCM: focus on the luxury business sector’s characteristics and challenges

In the first chapter of the present research project, there have been identified the main features, characteristics, and criticalities of SSCM common to different industries and sectors.

In this section, there will be further analysed the principal attributes and challenges that arise when implementing sustainability within a company’s SC, specifically operating in the luxury industry. In order to understand these elements, it is important to investigate the main aspects of sustainable luxury and then deeply focus on SSCM’s dominant traits and constraints concerning this specific business sector.

2.1 Understanding the concepts of luxury and sustainability related to Supply Chain Management

2.1.1 Sustainable luxury

Having analysed how the literature frames the concept of sustainable supply chain management, the drivers, and criticalities to its implementation, it is possible to state that there is the urgency for companies operating in different industries to implement sustainable practices along their value chains.

The aim of the present research project seeks to investigate the sustainable management of SCs specifically related to the luxury industry. The reason why it has been chosen to deeply explore this business sector is given by the need for making luxury operations sustainable due to the high amount of pollution, waste, and losses of resources generated in all the processes involved to manufacture a luxury item. Also, another cause can be found in the raw materials’ sourcing: they are scarce, rare, and valuable; hence, they require to be preserved and sustainably managed.

Luxury brands offer excellent quality items at a premium price, using unique raw materials to provide their consumers with an extraordinary and exclusive experience (Ko et. al., 2019; Kapferer J. N. and Michaut-Denizeau A., 2020; Grigorescu A. and Ion A. E., 2021; Ranfagni S. and Ozuem W., 2022). As a matter of fact, luxury products are designed to last, which is in accordance with the long-term perspective provided by the definition of sustainable development (Campos Franco J. et al., 2020; Wells V. et al., 2021; Ranfagni S. and Ozuem W., 2022). This contributes to the reduction of waste, since high quality products would face obsolescence later in time ensuring the respect of environmental, social, and economic aspects in all the processes and activities involved to manufacture luxury items enhancing their sustainability (Böhnert A. et al., 2023).

However, it must be underlined that the manufacturing of luxury items is often associated with practices that could adversely affect animal safety, the environment, and humans: the luxury industry is a significant

facilitator in the production of GHG emissions as well as a major polluter (Shashi et al., 2020; Bhandari N. et al., 2022; López B. et al., 2023). This is caused by the contamination generated due to the chemicals used in the production processes, emissions created during the transportation phase, waste, intensive usage of scarce raw materials, and not proper disposal of unsold garments: for instance, brands used to incinerate what had not been sold to safeguard their reputation and image.

Hence, sustainability emerges as a chance for luxury companies to distinguish their products and offerings from their rivals in the market with the aim of maintaining their traditional customers and obtaining new ones in meeting their transformed desires and demands (Brun A. et al., 2017; Shashi et al., 2020): to maintain and gain additional competitive advantage in the long run, luxury brands are required to implement sustainability within their strategies and operations (Karaosman H. et al., 2020; Wells V. et al., 2021).

To reach this, in the definition of their strategic guidance, luxury organizations must embrace recent trends that include the modification of social norms as well as the evolving interests of a wide range of stakeholders. As a matter of fact, stakeholders' expectations are changing rapidly. Specifically, customers drive the decision-making process of luxury organizations since their purchasing decisions strongly affects the performance outcomes of brands. They are currently more aware and concerned about the organizations' behaviour (Jaegler A. and Goessling T., 2020; Eastman J. K. et al., 2021; Graffe S. N., 2022; Böhnert A. et al., 2023): they are willing to spend money to purchase products that have been manufactured according to sustainable principles, such as respecting the environment, by lowering the impact of production processes, and generating a beneficial effect on society with their activity.

Since customers' desires are transforming rapidly, organizations must adapt to these changes following their new requirements and interests (Kunz J. et al., 2020; Osburg V. S. et al., 2021; Slaton K. and Hurst J., 2022; Böhnert A. et al., 2023). Indeed, they are key actors for the survival of luxury brands and nowadays their purchasing choices are extremely influenced by the sustainability of a product: they quest for transparency, quality, and sustainability of both the product itself and on the processes implemented to design, manufacture, and deliver the desired item.

Therefore, luxury brands' operations must follow this growing demand for sustainability by adapting their strategy to new requirements coming from their customers' base. Indeed, luxury brands need to encompass sustainability within their strategic view, business model, and operations to address the change in stakeholders' expectations, requirements, and awareness while ensuring that their sustainable strategies are properly and correctly communicated externally, guaranteeing engagement and dialog with their consumers (Grigorescu A. and Ion A. E., 2021; Akrouit H. and Guercini S., 2022).

In order to address and face the aforementioned shifts, firms' strategic perspective is required to evolve and adapt: top management must evaluate sustainability as a differentiation tool leading to increased competitiveness in the long run instead of considering it as a constraint to follow for short-term goals. As a matter of fact, it has been observed a transformation of companies operating in the luxury business sector

(Böhnert A. et al., 2023): they are becoming the main contributors in incorporating sustainability within the luxury definition by acting as drivers of change.

2.1.2 Luxury concept within SSCM: literature review

Having shaped the principal elements related with sustainable luxury, it is necessary to appreciate the reasons why it has been chosen to concentrate the research on understanding the sustainable management of luxury supply chains: the SC is a transversal function within luxury organizations since it encompasses all the processes, actors, and material flows needed to manufacture a luxury item to be delivered to the final consumers. Hence, as it has been explained above, luxury enterprises are currently required to implement sustainability within their business models and operations: to achieve this objective, they need to build a sustainable value chain in order to spread a sustainable culture within the entire network.

To transform into effectively sustainable companies (Kunz J. et al., 2020) and to both attain and preserve their achievements in the market, organizations need to build structured, resilient, and flexible sustainable supply chains, since the international competition remarkably depends on them (Brun A. et al., 2017). Accordingly, sustainable value creation of the SC includes the benefits generated towards every SC player, the environment, and the society at large (Yang Y. et al., 2017): luxury firms that operate in a sustainable way are required to be the drivers for the adoption of sustainable practices among all the actors and activities at all levels of the chain (Ranfagni S. and Ozuem W., 2022; Böhnert A. et al., 2023).

The urgency to build strong sustainable supply chains is related to the global relevance of luxury supply chains in the international market. Indeed, luxury brands are increasingly acquiring the role of multi-national enterprises (MNEs) operating in an international environment, which adds further complexity in the sustainable management of SCs: they need to jointly operate with strategic SC actors located in different parts of the globe, such as suppliers and customers.

Hence, the literature (Kano L., 2017; Kano L. et al., 2020) has shaped the need for companies to manage global value chains (GVC) efficiently to be able to implement sustainability within their international network: this approach seeks to provide strategic guidance for managing the global fragmentation of MNEs' chain by furnishing insights on where is located the principal source of value in order to preserve and develop it by drafting all the relationships and activities taking place within a specific network.

As a matter of fact, the adoption of this perspective must comply with each firm and its related suppliers' specificity, particularly when the buyer organization highly depends on its key suppliers, for instance due to raw materials' scarcity, as it is in the case of the luxury industry. Thus, there is the need to compare this managerial method with other possible solutions in order to find the most efficient strategic direction that would enable the focal enterprise to properly manage globally dispersed supply chains.

While managing international fragmented supply chains, consequent beneficial or negative impacts could be generated on society, governance, economy, and the environment. While on the positive side there could be

the creation of economic growth, increasing job opportunities, and boosting the development of local firms, on the other side, there could be produced adverse effects such as poor labour conditions, intensified social disparities, and environmental degradation (Kano L. et al., 2020). Therefore, luxury brands are required to preventively address these potential issues by sustainably managing their network: they can act as drivers for international development through sustainability.

Specifically, the literature (Yang Y. et al., 2017; Chen L. et al., 2017) has shaped a model of value co-creation within the SSCM of luxury companies intended to enhance collaboration, cooperation, and coordination with multiple stakeholders that are directly or indirectly affected by the specific SC activities and operations. In particular, suppliers play an essential role in delivering precious insights and information to the focal firm regarding the sustainable sourcing and innovation of raw materials. Related to this, some concerns arise on the way this information is communicated and on the truthfulness of the facts and details disclosed, which will be deeply studied in the following paragraph: it requires a strong trust to be built within the different parts of the chain.

Therefore, to effectively manage their SCs sustainably, luxury brands should delineate the specific performance objectives using sustainability as a means to differentiate their SCs, leading to reach a long-term competitive advantage (Brandao M. S. et al., 2021). As a matter of fact, the supply chain encompasses all the processes needed to create a luxury item: therefore, a sustainable network is demanded to maintain and acquire additional competitive advantage, consumers' trust, brand identity, recognition, and reputation, and, more broadly, to meet stakeholders' interests positively impacting the overall performance.

Regarding the transition towards sustainability of the various SC processes, it must be specified that it implies for companies to invest in innovation to be applied at all stages of the value chain from the initial raw material sourcing, through production and logistics, till the distribution and post-purchasing phase through consistent evolution and improvement of the specific systems associated to these functions by generating a virtuous conduct within their supply network.

Precisely, companies aim at enhancing not only their own operational performance, but also that of the other participants by driving innovation across their technology, procurement, production, packaging, operations, logistics, retailing, reusing, and recycling systems (Shashi et al., 2020). Thus, sustainable sourcing is a currently developing practice tied to SSCM: in this sense, procurement becomes a crucial function that must be carefully and attentively administered by the top management because it gives the direction to the sustainable behaviour of the company (Bhandari N. et al., 2022).

As a matter of fact, sustainable sourcing is defined as comprehensive of different methods and approaches employed by a firm when acquiring raw materials, products, and facilities from its suppliers with a simultaneous emphasis on assessing the social and environmental impact of its supply chain policies and activities complying with regulation. In fact, sourcing of raw materials has been identified as a critical aspect that requires further investigation: materials are gathered from disparate geographic regions depending on the

kind of component requested implying specific raw materials' suppliers' management, which will be further analysed later.

Consequently, firms should search for environment-friendly materials and sources to be used in the manufacturing process with the aim of diminishing the impact on the environment and the consumption of scarce and rare resources. At the same time, they should communicate these efforts and the associated beneficial effects to consumers and to stakeholders generally in order to enhance their competitive advantage as well as reputation and image positively affecting brands' overall performance (Adamkiewicz J. et al., 2022; Di Leo A. et al., 2023).

Connected to these aspects, among the literature it has been identified a common research stream regarding the high relevance for companies to be traceable and transparent sharing and implementing best practices throughout the entire network (Yang Y. et al., 2017; Karaosman H. et al., 2020; Faccioli G. and Martin K., 2022; Di Leo A. et al., 2023).

Traceability has been highlighted as being a supply chain's performance goal through a transparent gathering, recording, assessing, and upkeeping of data over the product, enabling the tracing of its origin, history, and location (Brandao M. S. et al., 2021). Hence, this becomes pivotal while managing global supply chains due to the high degree of dispersion of both activities and stakeholders, which are located in different regions (Kano L. et al., 2020). Being able to efficiently trace materials and information flows within international supply chains, would address customers' demand for transparency, which would consequently generate a positive impact on their purchasing decisions boosting the brands' reputation, competitiveness, and sustainable performance.

In fact, customers are increasingly asking for transparency on both environmental-related practices, concerning the amount of pollution and waste produced, and social and ethical topics, with a specific attention for the working conditions of employees and suppliers as well as of animals' treatment (de Boissieu E. et al., 2021). As a response, top players of the luxury market have begun to build and communicate transparently and efficiently their activities to their stakeholders; therefore, they act as guidance for the other companies operating in their business environment to adopt such virtuous practices (Böhnert A. et al., 2023).

An additional important role in the implementation of an efficient management of luxury brands' SSCs is played by the responsiveness (Brandao M. S. et al.; 2021; Bindi B. et al, 2021). This is attributable to the high competition in the luxury business sector, and it can be defined as the velocity through which the SC is able to address changes in demand while increasing the efficiency and rapidity of the SC. In fact, the luxury market is facing rapid alterations in consumers' and stakeholders' requirements, which must be properly and effectively addressed by promptly restructuring the SC when needed. Related to this aspect, is the need for luxury supply chains operating in an international environment to be both resilient and flexible being able to face potential disruptions within their network operations and activities that could arise due to their global distribution worldwide.

A further and significant factor that has been detected by the literature on the sustainability of luxury SCM is quality, which has been delineated as the first performance objective to be reached by luxury brands, since it is embedded in the intrinsic nature of luxury offerings (Karaosman H. et al., 2020; Kapferer J. N. and Michaut Denizeau A., 2020). It is an extremely important asset and pillar for the luxury industry, and it can be considered as an identification and a symptom of the sustainable way in which the company operates: it must be ensured not only within the product itself, but also in each stage of the manufacturing process as well as in each tier of the value chain.

Indeed, the global structure of the luxury supply chain implies an international presence of its stakeholders, which have different requirements and interests depending on where they are geographically located. Thus, ensuring the same quality standards by partnering with other players, that may not be aligned with their criteria in every step of the SC process, represents a significant challenge that demands for an attentive management to be handled by luxury organizations operating around the world.

By adopting sustainable strategies, luxury brands have the power to make quality a synonym of sustainability: quality is one of the key elements to be fulfilled in the market, so it should sustainability be. Indeed, luxury organizations are required to find the correct balance between these two elements: ensuring the achievement of quality standards should coincide with reaching sustainability objectives and vice versa (Brandao M. S. et al., 2021).

Following this research stream, it is possible to state that the quality management approach is intensely related to sustainable management: enhancing quality within both products and processes would lead to diminish the production of waste and minimize the associated costs pursuing different stakeholders' interests concurrently (Karaosman H. et al., 2020). Through the employment of specific materials and highly specialized workers, the uniqueness of the brand is enhanced while contributing to the fulfilment of sustainability objectives related to all three sustainability dimensions (Brandao M. S. et al., 2021).

2.2 Challenges and issues emerged in the implementation of sustainable SC practices within the luxury industry

Having acquired an overall knowledge on the main characteristics of luxury sustainable supply chain management, the aim of this section is to delineate and describe the challenges that luxury brands face while adopting sustainable strategies within their SCs in order to gain a broader and more profound comprehension on the main issues to be addressed while sustainably manage global luxury networks.

Through the analysis of the recent literature, there have been outlined various challenges that currently emerge in the sustainable management of luxury supply chains which are strongly related to each other: in order to understand their main facets properly, they will be analysed separately, but it must be considered that a high interdependence exists among them.

One of the major challenges emerged in the sustainable management of luxury supply chains regards ensuring traceability and transparency all along the entire value chain. As previously mentioned, these elements are key means for companies to certify stakeholders that they are acting and operating sustainably; yet, securing their execution is a concrete obstacle that luxury brands constantly face.

The main reason is given by the absence of an end-to-end SC visibility, which encompasses the complete and real-time surveillance, tracing, and management of every element of the SC, from the primary supplier to the ultimate consumer. For instance, brands are repeatedly denounced of adopting harmful practices for both the environment and society consequently damaging companies' sustainable SCM and performance (Brun A. et al., 2020; Karaosman H. et al., 2020; Kunz J. et al., 2020; Kapferer J. N. and Michaut-Denizeau A., 2020; Osburg V. S. et al., 2021; Wells V. et al., 2021; Ranfagni S. and Ozuem W., 2022; Böhnert A. et al., 2023).

As a matter of fact, due to the global expansion of luxury SCs, brands need to ensure transparency and traceability of their processes and activities; however, some potential problems arise relating to a lack of a proper data sharing due to the asymmetric information among SC participants, which increases the difficulty of monitoring and trace materials and information's flow along the entire value chain (Wells V. et al., 2021; Akrouit H. and Guercini S., 2022; Ranfagni S. and Ozuem W., 2022; Di Leo A. et al., 2023; López B. et al., 2023).

Moreover, another element that could potentially harm traceability and transparency of luxury SCs, regards the need for companies to reduce production costs: they tend to locate their manufacturing facilities in poorer geographic areas, or to select suppliers that own their industrial plants in such regions, which could be deleterious for achieving social and environmental sustainability goals. In fact, these choices are likely to bring problems related to safety within the working environment, low wages, modern slavery, children's exploitation, forced labour, and animals' abuses (Brun A. et al., 2020; Kapferer J. N. and Michaut Denizeau A., 2020; Campos Franco J. et al., 2020; Brandao M. S. et al., 2021; Adamkiewicz J. et al., 2022; Akrouit H. and Guercini S., 2022).

Furthermore, the luxury sector experiences severe problems regarding grey markets as well as counterfeiting issues, which could highly damage the environment while consistently harming society (Jaegler A. and Goessling T., 2020; Wang Y. et al., 2020; Brandao M. S. et al., 2021; Böhnert A. et al., 2023). As a matter of fact, while grey markets encompass illegitimate sales network where branded items are exchanged, counterfeiting consists of replacing genuine luxury goods with products of a lower quality through replicated packaging decorated with false signatures and marks (de Boissieu E. et al., 2021). Hence, the traceability of luxury items is harmed posing a significant challenge in terms of SC transparency, and control (Brandao M. S. et al., 2021; de Boissieu E. et al., 2021; Faccioli G. and Martin K., 2022).

Consequently, these aspects would negatively affect the brand image and reputation leading to a fall in profits and a poorer performance (Brun A. et al., 2020): hence, selecting the right suppliers becomes fundamental to avoid these detrimental effects, as it will be further analysed in the following section.

Another important point of attention to be scrutinized when considering the problems related to the sustainable management of luxury SCs, regards the raw materials' sourcing, which is directly linked to transparency and traceability issues.

Raw materials are both fundamental and critical in the manufacturing of luxury goods: they come from resources which are scarce in nature and located in disparate and constricted geographical regions (Karaosman H. et al., 2020). Introducing objectives of sustainable sourcing into the luxury industry carries risks: the outcome of any effort, focused on the three sustainability dimensions, is uncertain and difficult to predict, making brands reluctant to implement such virtuous practices (Bhandari N. et al., 2022). Hence, by favouring the financial objectives of lowering production costs, luxury organizations risk to source their raw materials from suppliers that are located in low-income or developing countries, at the expense of the achievement of sustainability goals and quality requirements (Wells V. et al., 2021).

Moreover, raw materials experience frequent shortage, mainly due to their scarcity in nature, which implicates the raising of the items' delivery time to the market, causing delays that could potentially augment the firms' expenditures as well as contributing to lose performance objectives and competitiveness (Bhandari N. et al., 2022).

Being the luxury sector constantly under the scrutiny of public opinion's attention and being one of the major polluters in the world, the sustainable management of luxury supply chains presents significant complications related to waste generation (Jaegler A. and Goessling T., 2020; Kunz J. et al., 2020; Campos Franco J. et al., 2020; Akrouit H. and Guercini S., 2022).

As a matter of fact, since this industry is extremely water and energy intensive, there is a significant environmental footprint generated by the whole SC processes due to the generation of CO₂ emissions through the usage of toxic chemicals and materials (Brun A. et al., 2020), unsustainable packaging (Böhnert A. et al., 2023), and due to air pollution associated with transportation (Jaegler A. and Goessling T., 2020): not being able to manage and arrange waste safely and properly unfavourably contributes to environmental pollution and degradation (Akrouit H. and Guercini S., 2022).

To address transparency and traceability, raw materials' sourcing, and waste generation related issues successfully, while ensuring both quality and sustainability along the entire value chain, luxury brands need to build strong collaborations with SCs participants. Hence, stakeholders' management has been delineated as an additional pivotal element to address while managing luxury supply chains sustainably: the challenge consists of finding the efficient and effective balance between the luxury brand's interests and stakeholders' expectations and requirements (Jaegler A. and Goessling T., 2020). As a matter of fact, stakeholders, particularly suppliers, are extremely varied and multifaceted enhancing the complexity of SSCM since it is hard for the focal firm to supervise and monitor the whole luxury SC (Yang Y. et al., 2017; de Boissieu E. et al., 2021).

Therefore, there is a huge need for trustful coordination and collaboration to be built, starting from the leading organization, and spreading it among all the actors of the chain, gaining additional competitive advantage by ensuring transparency, traceability, and quality to reach sustainable performance objectives in the long run.

2.3 The role of suppliers' management to enhance collaboration and transparency along the value chain and elaboration of research questions

2.3.1 Suppliers' collaboration and coordination to increase traceability, transparency, and quality in luxury SSCM

Having deeply investigated the main obstacles to the implementation of sustainability within luxury SCs, it is possible to highlight that the key issue and critical aspect in stakeholders' management regards suppliers: they exercise a pivotal role in strengthening the luxury SC transition towards sustainability. Thus, suppliers' management must be analysed and further investigated due to the difficulty for luxury firms to control their actions. Hence, this section will focus on and further investigate the most relevant aspects concerning suppliers' management in order to derive the research questions to be addressed by studying and analysing real cases of luxury brands' sustainable strategies in SCM.

It has been declared that suppliers are the most critical aspect to be managed by luxury brands due to the high complexity, fragmentation, and global presence of their supply chains: therefore, there have been identified coordination and collaboration among SC actors as the most adequate and effective proposed solutions to direct suppliers, although the question arises on how to sustainably manage the relationship with such heterogeneous partners properly and efficiently.

As it has already been stated previously, luxury companies can drive the transition towards sustainable practices and activities not just for enhancing their own performance, but also for boosting their suppliers' development (Karaosman H. et al., 2020). Since the absence of sustainable initiatives could be detrimental for brands' competitive advantage, they need to build strong and long-lasting connections, interactions, and exchanges with suppliers along the value chain, which would also be beneficial for intensifying SC visibility and transparency (Campos Franco J. et al., 2020; Brandao M. S. et al., 2021; Di Leo A. et al., 2023).

As a matter of fact, the literature has focused the attention on the foundation of sustainable value generation: it lies in the nurturing of collaboration and cooperation among SC partners, which is considered as an essential aspect in building strong, transparent, and sustainable SCs. Luxury companies should work synergically and communicate smoothly with their suppliers in order to mature specific assets to enhance their sustainable SC performance transferring and sharing their knowledge and competencies (Touboulis A. and Walker H., 2015; Yang Y. et al., 2017; Jaegler A. and Goessling T., 2020; Akrouit H. and Guercini S., 2022).

Accordingly, traceability is considered as a topic of fundamental importance in reaching an efficient and sustainable SCM within the luxury industry: raw materials are scarce and rare, so ensuring their transparent tracking, from their initial extraction till they reach the end consumer, is pivotal to enhance brands' reputation and image, leading to build an exclusive, strong, and durable competitive advantage. Thus, due to the intrinsic nature of luxury, brands need to build powerful and resilient relationships with their suppliers in order to foster SC transparency and traceability (Holmqvist J. and Kowalkowski C., 2023). Moreover, enterprises are required to implement sustainability along the entire SC to achieve Scope 3 of the GHG (Green House Gas) protocol, which aims at defining a standard to measure the carbon footprint, which implies the CO₂ emissions generated by all the SC participants worldwide (GHG protocol, 1998).

This implies the establishment of trustworthy partnerships among SC actors globally, since cultural and regulatory differences given by their disparate location could increase the various possible procedures to be executed conducting the business activities among such heterogeneous partners (Zou T. et al., 2023). Through reliable international relationships among organizations, their performance would be improved, quality would be ensured, and knowledge transfer would be enabled, while diminishing the risk of potentially harmful behaviour.

In order to acquire a profound comprehension of the essential role performed by suppliers' management and engagement to enhance SSCM within the luxury industry, there will be reported various research on the topic developed by the recent literature.

The study conducted by Karaosman H. et al. (2020) proposes the implementation of constructive dialogue and collaborative communication to foster cooperation and transparency among business partners along the luxury SC. In this way, common interests can be achieved through the development of stakeholders' participation and incremental progress as well as through the dynamic analysis, evaluation, and creation of specific strategies in accordance with business operations. For instance, collaboration and coordination contribute to build beneficial elements that would positively influence the implementation of sustainability within SCs through diminishing waste, developing innovative green technologies, minimizing toxic substances, and collectively creating recyclable products (Touboulic A. and Walker H., 2015).

Moreover, it has been developed a theory called "*relational view*" (Brun A. et al., 2020), in which the connections and interdependencies among organizations in the SC are seen as fundamental providers of competitive advantage: since expertise and skills are shared and fused, they provide more benefits than being stand-alone, increasing constructive competition for companies that do not cooperate relying only on their assets. According to this theory, high investments are required for the merging of competencies and information among business partners; nevertheless, they bring to the creation of "*relational rents*", which are the basis for the generation of new competitive advantage. As a matter of fact, combining exclusive sources can serve as building barriers for competitors and potential new entrants in the luxury industry, since it would be extremely time and capital consuming for third parties to imitate these processes and outputs. Also, the

importance of efficiently and effectively sharing competencies and knowledge derive from the need in the luxury market to minimize the likelihood of counterfeited items (Brandao M. S. et al., 2021).

Analysing the sustainable management of luxury SCs, Akrou H. and Guercini S. (2022) brought the literature forward by identifying and highlighting some aspects that are required to be carefully managed. Particularly, a relevant attention point that emerges from the study regards the quality not only in both the processes and products, but also in the buyer-supplier relationships, considering the cultural differences among business partners for developing sustainable luxury goods and services. As a matter of fact, the usage of certifications that demonstrate the aforementioned business interrelations and the suppliers' sustainable commitment, enhance traceability and transparency, which are essential to ensure the sustainability of companies' activities to build trust among the actors of the supply chain.

Establishing enduring and positive partnerships among SC participants stands as a fundamental precursor to achieving sustainability in the value chain: sustainability cannot be accomplished by focal companies operating solitarily. Indeed, a holistic dialogue marked by valuable communication has the potential to significantly reshape the mechanisms of the SC, mitigate information imbalances, and consequently enhance the quality of declarations (Brun A. et al., 2020).

Accordingly, Jia M. et al. (2023) developed the theory of “*sustainability-oriented supplier development*” which consists of any brand's effort focused on enhancing supplier sustainability performance or its ability to address at least two sustainable dimensions. This can be reached directly, by transferring explicit competencies and skills, or indirectly, by transmitting implicit expertise, from the focal company to its suppliers in order to ensure the adoption of the given quality standards. To apply this approach, audit and cooperation between business actors are required: therefore, the most relevant role is played by the leading company driving suppliers' development.

In order to gain a proper understanding on how to reach transparency and traceability through collaboration and coordination for implementing sustainability along the entire SC, it is fundamental to deeply investigate the management of suppliers' relationships within the luxury value chain.

2.3.1.1 Multi-tier suppliers: differences in market segmentation, size and geographic location

As it has been explained in the previous sections, luxury SCs operate on a global scale with a high number of actors involved in the process. Specifically, suppliers' base is extremely heterogeneous, diversified, and variegated in terms of their categorization, positioning along the chain, the market segment that they serve, their size, and the geographic region where they are located.

Suppliers serving the luxury market can be divided among two different categories: raw materials suppliers and contract manufacturers (Marketline, 2022). The first group furnishes to the focal brand the raw materials and sources necessary for the leading brand to manufacture and produce a luxury item. They present a high

contractual power since raw materials' sourcing is extremely critical in the luxury industry; particularly, for producing certain luxury items, such as jewellery or leather goods, the materials needed do not present equivalent resources that can be used as alternatives, increasing raw materials suppliers' contractual power. Conversely, contract manufacturers usually present a reduced dimension and a higher specialization that allow them to manufacture luxury items, which increase their dependency towards the buyer firm since their profit is linked to the other company's performance, lowering their contractual power.

Having defined the two different categories of suppliers in luxury SCs, it must be highlighted that these SCs are characterized by extreme complexity mainly due to their multi-tier suppliers' structure (Choi T. Y. et al., 2021; Kähkönen A. K. et al., 2023). As a matter of fact, brands struggle in exercising a direct control over their sub-suppliers and they also require additional costs to be held in order to be acknowledged about the operations and exchanges that take place within the suppliers' activities (Jaegler A. and Goessling T., 2020; de Boissieu E. et al., 2021; Bhandari N. et al., 2022): indeed, the number of suppliers needed to manufacture a single luxury item is extremely high and they are extremely heterogeneous (Brun A. et al., 2020; Karaosman H. et al., 2020). These elements rise the challenge for luxury brands to monitor and control suppliers' behaviour and conduct.

Therefore, it is pivotal to analyse the different types of suppliers that work in the luxury industry, in order to derive the possible strategies and actions that luxury brands can adopt to efficiently manage them while implementing sustainability across the value chain.

Assuming the buyer firm's perspective, there exists two types of suppliers: direct and indirect suppliers. Direct suppliers are the ones with whom the focal brand directly interfaces, and they are identified as first-tier suppliers. They are visible by the leading organization, and it can easily exercise a direct control over them: while implementing sustainability along the chain, luxury brands usually act upon these suppliers to make them aware, conscious, and engaged in sustainability practices.

Moreover, there is a second group of suppliers which are not directly managed by the focal brand: they can be labelled as indirect suppliers, which are commonly referred to as the second-, third-...tier suppliers. Therefore, the management of the upstream part of the chain becomes extremely complex and critical considering these suppliers overall. As a matter of fact, they are the suppliers of the focal brands' suppliers and the suppliers of the suppliers of the focal brands' suppliers and so forth. Hence, the buyer company experiences enormous barriers in managing and controlling these parts of the chain, since it indirectly interacts with them.

Given this intense hurdle in controlling and interfacing with all the actors that are located in these different levels of the chain, leading organizations usually focus on engaging and efficiently managing first-tier suppliers, in order to be able to develop collaborative and trustful relationships with them that would enable them to build truly sustainable SCs. They intend to engage these partners in order to make them able to transfer the acquired capabilities and the sustainability-related knowledge over their sub-suppliers and so on (Kähkönen A. K. et al., 2023).

By utilizing this strategy, the coordination costs as well as the capital needed to invest in suppliers' development decrease; however, there is the risk for luxury brands to incur in supply chain disruptions, due to sub-suppliers' inadequate infrastructure, resources, and needed capabilities, or to be negatively affected by actions taken by suppliers that are distant from their management domain. Indeed, these suppliers could engage in unsustainable practices, such as child and labour abuse, or sourcing raw materials without respecting environmental criteria, which would consequently adversely impact brands' reputation and image as well as their sustainable performance and competitiveness (Choi T. Y. et al., 2021).

Therefore, the literature has shaped as a valid and concrete solution the possibility for buyer firms to proactively engage with their suppliers by effectively coordinate and cooperate at all levels of the chain in order to avoid reputational damages and to minimize suppliers' risks while increasing the adoption of sustainable initiatives and practices within the entire value chain (Huang H. B. et al., 2020; Choi T. Y. et al., 2021; Kähkönen A. K. et al., 2023).

An additional element of complexity within the management of luxury SCs, is given by the segmentation of the market, which in turns affects the fragmentation of suppliers' base.

Suppliers are highly specialized and serve different market segments: this differentiation adds an element of complexity to the SSCM, since luxury conglomerates presenting a diversified portfolio of products, services, and experiences, must interface with dissimilar suppliers in terms of market, geographic region where they are located, and size (Choi T. Y. et al., 2021). This means that the adopted strategies to manage suppliers must be different depending on the type of suppliers with which the company partners.

As a matter of fact, these fundamental variables must be considered to shape and define the suppliers' base with which luxury brands need to establish business partnerships in order to intensify cooperative approaches and advance sustainability along the whole supply chain (Huang H. B. et al., 2020). Hence, while luxury brands desire to monitor the behaviour of their suppliers, they must consider that these dimensions could obscure visibility, transparency, and traceability of the chain, making it critical to assess the suppliers' sustainability performance. Nevertheless, this heterogeneity in suppliers' base enhances the need for buyer brands to monitor and to share competencies and expertise with their suppliers to boost the implementation of sustainable initiatives along the chain.

Thus, it becomes pivotal to analyse each variable in order to be acknowledged on the potential effects and impacts arising in supplier management.

Adopting the definition provided in the report developed by Bain & Co (D'Arpizio C. et al., 2022), the luxury market can be divided into 9 different segments: luxury automotive, Personal Luxury Goods (Fashion and Leather Goods, Watches and Jewellery, Perfumes and Cosmetics), Hospitality, Wines and Spirits, Gourmet Food and Fine Dining, High-end Furniture and Housewares, Art, Private Jets and Yachts, and Luxury Cruises. Suppliers operating in each of them are remarkably heterogeneous, for example in terms of emissions generated, energy and water usage, and technological knowledge required: so, luxury brands face disparate

challenges in their management as well as in implementing sustainability within their operations (Huang H. B. et al., 2020; Kähkönen A. K. et al., 2023).

For instance, companies that supply raw materials for the jewellery market segment must address important problems related to two major issues: blood diamonds and conflict minerals. These sources are typically extracted from developing countries and sometimes are linked to wars and conflicts that take place in these regions. To make the SC sustainable, brands operating in the jewellery segment require their suppliers to use international certifications such as the KPCS (Kimberley Process Certification Scheme) to attest that these sources have not been extracted in such areas, which would address sustainability requirements enhancing transparency along the chain (Choi T. Y. et al., 2021; Marketline, 2023).

However, obtaining these certifications is not always easy and it requires huge investments and a high level of commitment towards sustainability from suppliers as well as in providing reliable data and information about their operational activities. Also, since luxury items' inner nature regards the association with quality, this would not be achieved if raw materials are sourced unethically. Hence, this could potentially damage brand reputation and performance as well as competitiveness, since customers would not be willing to spend money on luxury items that are not produced sustainably, shifting their purchasing decisions towards more sustainable options (Marketline, 2022).

Therefore, it becomes essential for buyer organizations to verify and inspect suppliers in order to remove from their SCs raw materials coming from these unsustainable sources (Huang H. B. et al., 2020). Luxury brands need to find the most efficient and effective tools in order to build strong, trustworthy, and durable relationships with suppliers to avoid the risks of being associated with unsustainable practices, such as sourcing minerals from conflicting regions.

Another example that underlines the need for adopting suppliers' management strategies considering each partners' specificity, can be identified in the luxury automotive segment. Suppliers in this market, are extremely specialized and they usually provide luxury brands with the material components, technologies, and digital infrastructure needed in order to assemble the vehicles and to offer the final consumer not only a unique and exceptional means of transport, but also to make them taste and feel the luxuriousness of the driving experience.

The current automotive industry is still recovering from the Covid-19 crisis, which have brought disruptions along the entire value chain and severely relevant challenges in sourcing the required materials to manufacture these products. This has been mainly caused by lockdowns that have simultaneously occurred worldwide as well as due to the difficulty in finding the resources and materials needed to fabricate these components to be sold to luxury manufacturers. After the critical phase of the pandemic ended, the market started to recover from the shortage of these strategic assets, but another event is currently challenging and causing additional complications in acquiring components for luxury cars: the ongoing war between Russia and Ukraine (D'Arpizio C. et al., 2022).

An additional element that must be considered in managing suppliers within the automobile segment, regards the intensely fast and rapid growth in developing advanced technologies within this market segment, the implementation of which requires a highly specialized workforce. As a matter of fact, this segment is linked not only to an upward complexity of the supply chain itself, but also to the extremely elevated intricacy of the engineering processes that are conducted in order to produce the final items. In recent years, suppliers in this segment have increased their participation in designing luxury products, leading to gain a higher relevance and power within the chain, since the product development phase strongly relies on them. Also, this boosts positive competition among suppliers, which raises obstacles for the buyer firm in finding the right partner (Mahmoudian A., 2019).

As a matter of fact, luxury brands need to source innovative components and systems with an incredible quality in order to ensure it to their consumers (Barbieri P. et al., 2023). Since there is the urgency to constantly innovate and to be able to embrace such innovations within their processes and products, luxury buyers need to find suppliers with the adequate resources, capabilities, knowledge, and infrastructure collaborating with them to develop innovative solutions to be proposed to the public, ensuring absolute quality of their offerings and sustainability along the chain.

These processes require highly specialized employees, therefore selecting the most suitable suppliers becomes essential as well as providing development and training programs by the focal company towards its suppliers to ensure that they are aligned with the quality and sustainability standards required. Hence, luxury brands need to carefully consider suppliers' specificities and current challenges in sourcing raw materials components for their production: luxury conglomerates while managing to implement sustainability along the automotive SC need to be carefully aligned with suppliers' needs and requirements in order to avoid losses during the process, which could be caused by the disruptions described above.

A further aspect of discrimination among suppliers regards their size, both in terms of revenue and employees: luxury brands should adapt their suppliers' management's strategies depending on their dimension. In fact, suppliers' size increases SC's complexity since they have different availability of resources and infrastructure, legal requirements, and commitment to sustainability, related to their dimension: luxury brands cannot adopt a unique strategy to manage them, but they need to consider these differentiations to find the strategy that fits most with each supplier's specificity.

Therefore, it is possible to analyse the main characteristics of each supplier depending on their size in terms of revenue and employees.

Considering small suppliers, they usually present less resources and assets, both financial and non-financial, less specialized workers, less developed infrastructure or not adequate ones, and less capabilities and skills to address the requirements of cost, quality, and sustainability given by luxury firms. Moreover, the discrepancy in organizations' dimensions tend to increase power imbalances within the buyer-suppliers' relationships: larger leading firms tend to exercise their power over smaller suppliers in order to make them work under their

conditions, which could be detrimental to the implementation of responsible SC partnerships hindering the sustainability of SC activities and practices (Choi T. Y. et al., 2021).

Besides, smaller firms do not have the capital sources needed to invest in ameliorating their structure or they are less inclined to do so: they tend to be more reluctant in investing their capital in innovation and technologies due to the uncertainty and long-term outlook of the actual return. This aspect could be perceived as beneficial if all the actors are willing to collaborate in order to acquire the missing knowledge through partnering between one another. Accordingly, they would perceive as necessary to cooperate and collaborate with the leading company in order to reach common goals and share competencies and knowledge to acquire new capabilities from the partnership enhancing their sustainable development.

Regarding larger suppliers, they typically have more contractual power towards the focal brand due to their already consolidated positioning in the market; therefore, they can apply higher prices because they have formerly invested in improving their knowledge and expertise, and they are generally less willing to cultivate collaborative approaches with the focal firm, since they already present a well-developed competence-base (Barbieri P. et al., 2023).

A supplementary component of differentiation that must be taken into consideration while analysing sustainable suppliers' management, regards the geographic area where partners are located.

Suppliers' dissimilarities linked to the geographic dimension belong to two attributes: the physical element of geography, which implies the consideration of issues related to environment, nature, and space, and the social geography, which absorbs the cultural, linguistic, economic, and societal features of each suppliers' locations (Choi T. Y. et al., 2021). This brings differences pertaining to environmental and social policies and legislations for sustainability as well as about the way of conducting the activities implemented by geographically dispersed partners (Huang H. B. et al., 2020).

As a matter of fact, suppliers located in distinct regions are subjected to variations in regulatory requirements, culture, and operative methods that luxury brands must examine while selecting, evaluating, and partnering with them, being subjected to high efforts in terms of money and time spent to acquire the resources needed. These peculiarities associated with suppliers' geographic areas can act as barriers to the leading firms' efforts in developing collaboration with business partners along the value chain: local specificities must be attentively managed. For instance, as it has been explained in the previous paragraph, suppliers located in developing countries are more likely to engage in certain practices that can be considered as unsustainable and unethical such as humans', animals' and resources' exploitation, low salaries, lack of safety in the working environment, and generation of pollution and waste.

Accordingly, it has been observed (Kähkönen A. K. et al., 2023) that suppliers located in low-income regions usually pertain to lower-tier levels of the chain, which account for 90% of GHG emissions produced, and present a smaller size, which implies the ownership of limited resources. Hence, these elements jointly can negatively impact the brand's reputation, competitiveness, and sustainable performance: they are extremely

challenging to manage enhancing the complexity of SSCM; in fact, a proper methodology to select, evaluate, and monitor suppliers is needed to avoid the aforementioned risks.

Also, sales of luxury items are mainly driven by Americas, Asia, and Europe (D'Arpizio C. et al., 2022), bringing additional costs, both economic and environmental, regarding the transportation of raw materials from the suppliers' location to the manufacturing site of the luxury brand, and finally of delivering the finished goods to the end consumer. As a matter of fact, logistics and transport are one of the main sources of pollution and emissions generated within the luxury industry, which implies focal brands to coordinate not only with their suppliers, but also with TPLs (third-party logistics) companies in order to acquire the raw materials and deliver the final products timely and cost-effectively, aiming at diminishing the detrimental effects on the environment and society of these movements (Choi T. Y. et al., 2021).

Related to this aspect, it must be underlined the growing relevance of the Asian market in the luxury industry: this is an emerging economy where production costs are lower than the ones faced in developed regions, and it is also experiencing an incredible growth of Asian luxury consumers. Hence, as an effect of globalization of the luxury industry, brands are currently directing their strategic decisions towards the choice of locate their manufacturing facilities in these areas, for example through foreign direct investments (FDI), or to select suppliers placed in these countries (Berry H and Kaul A., 2023). In this way, they would leverage on the cost advantages together with advanced expertise and sophisticated infrastructure provided in these territories (Kano L. et al., 2020). It has been demonstrated that companies coming to produce and operate in these regions concretely contribute to their economic growth, thus simultaneously enhancing their sustainable development (Glushkova S. et al., 2019).

Indeed, some problems could arise regarding the sustainability of the activities conducted in these zones: for instance, an exceptional amount of pollution and waste as well as poor working conditions for the employees could be experienced. Therefore, finding and choosing the most adequate suppliers becomes pivotal to concretely implement sustainable practices along the luxury supply chain.

2.3.1.2 Suppliers' selection

As it has been previously reported, there is the urgency for luxury brands to select the most suitable suppliers in order to collaborate with them to enhance transparency, traceability, quality, and sustainability along the entire value chain: the first step for building strong and long-lasting relationships with suppliers regards their selection phase.

This step is extremely critical, since powerful collaboration and trust among partners must be built in order to be able to cooperate to reach SC sustainability: they are fundamental in enhancing the implementation of sustainable initiatives along the luxury value chain. As a matter of fact, they can create key synergies that would allow to take advantage of potential economies of scale as well as diminishing manufacturing costs by

developing innovative technologies and techniques. In order for this coordination to be developed, there exist some requirements to be fulfilled: deep trust among partners, aligned interests, symmetry in the information provided, strong dedication, and the capability to assimilate the transmitted expertise or absorptive capacity. Also, social aspects need to be considered like organizational heritage, confidence, flexibility, and openness to cooperate.

Therefore, suppliers' selection becomes a paramount challenge to be overcome, since identifying the right partner is at the basis of building strong and long-lasting collaboration enhancing competitiveness. As a matter of fact, it has been reported that some luxury conglomerates have started to rigorously assess and measure their suppliers' operations in order to verify and evaluate their sustainable behaviour (Wells V. et al., 2021). This becomes increasingly essential in the sustainable management of luxury SCs due to their global fragmentation, and it implies the participation of heterogeneous parts: as it has been previously stated, a huge number of actors is required to manufacture a single product.

Suppliers are considered as a source of competitive advantage, boosting focal firms' profitability and quality, reducing suppliers' associated risks, contributing to reach diminishing costs associated with SC activities, enhancing brand reputation and image as well as meeting consumers' expectations. In fact, firms' competitiveness and sustainability achievements depend on their ability to coordinate efficiently and effectively with qualified and competent suppliers: through the right selection of partners, brands can achieve cost and time reduction as well as better material quality, contributing to enhance the adoption of sustainable initiatives along the entire value chain.

Although in the past luxury brands focused only on cost, time, and quality while selecting suppliers, in the current society they are also required to consider the three pillars of sustainability in the selection process. Hence, in SSCM the sustainable selection of suppliers has been considered as the main issue to be addressed (Alikhani R. et al., 2019; Taherdoost H. and Brard A., 2019; Caristi G. et al., 2022; Hou Y. et al., 2022; Khokhar M., 2022; Saputro T. E. et al., 2022) since it is extremely critical to find business collaborators that share the same values and perspectives of the focal firm.

This is exacerbated by the asymmetric information that exists among business partners, consequently leading to lack of trust, proper communication, and transparency: the data divulged and reported are subjected to suppliers' discretion, hence they may not be completely true and aligned with the actual practices executed by them increasing the need for the adoption of proper suppliers' selection procedures (Yang Y. et al., 2017; Karaosman H. et al., 2020; Bhandari N. et al., 2022). As a matter of fact, due to this absence of appropriate knowledge sharing, the brand's difficulty in selecting and evaluating suppliers' sustainable commitment and performance increases.

Also, this is worsened by the inadequacy of instruments to quantify and assess their sustainable efforts: a global framework on sustainable measurements do not currently exist, so partners can be evaluated only through the usage of economic and financial indicators, which renders it challenging to assess and evaluate potential suppliers' sustainable performance efficiently and effectively, making the search for the right

partners highly critical. Hence, the outcomes of the analysis are frequently altered, and they do not furnish an exact and comprehensive vision on suppliers' sustainable behaviour (Jaegler A. and Goessling T., 2020). At the same time, focal brand's top management commitment is essential to direct competencies towards sustainability: if this responsibility is missing, it would be more difficult to effuse a sustainable culture within the brand itself and consequently all along the SC (Jia M. et al., 2023).

The literature has tried to frame possible methodologies to be applied to execute an efficient suppliers' selection process.

A study conducted by Taherdoost H. and Brard A. (2019) defines the steps to be followed in order to properly evaluate and select suppliers considering the specific characteristics of each organization.

The first step consists of acknowledging the need for a structured suppliers' selection procedure not only driven by cost-reduction needs. Then, brands should concentrate on defining the resources needed, the strategies to acquire them, and the potential suppliers that could satisfy their demand. Finally, among all the possible suppliers, companies are required to individuate a smaller number to be deeply investigated through the usage of a predetermined method for their evaluation and selection.

The ability to efficiently choose among various potential suppliers depends on both the adopted selection methodology as well as on the preliminary phase of problem layout. Therefore, there have been identified as the initial stage of the suppliers' selection process, the definition of various criteria, such as quality, competencies, price, and sustainable performance, which depend on the specific strategies and the competitive positioning of different companies (Taherdoost H. and Brard A., 2019; Caristi G. et al., 2022; Saputro T. E. et al., 2022). As a matter of fact, the luxury industry is characterized by extreme complexity in global SCs and highly precious as well as scarce raw materials, which in most cases are the main sources of the strategic competitive advantage of the brand.

The first issue to be considered regards the purchasing price, which luxury brands are subjected to pay in order to acquire the resources needed to their manufacturing process. Due to the intrinsic nature of raw materials for producing luxury items, potential partners can exercise a high contractual power since they are able to provide brands with the primal sources required to be successful in the market, which would allow suppliers to increase the price applied to raw material sourcing. So, luxury companies must have adequate infrastructure and competencies to negotiate with them to secure an inferior cost for receiving the demanded materials.

Secondly, it is desirable for brands to develop durable and long-term oriented relationships with suppliers, hence, their selection process must be directed towards the long run. This implies the need for the focal company to evaluate top management commitment, integrity, trustworthiness, and efficient reporting of potential suppliers during the selection phase: the effective observance of these features is essential to develop strong partnerships among the focal firm and its suppliers.

Moreover, other elements must be attentively considered by luxury enterprises in order to choose the most suitable suppliers: particularly while searching for partners that can provide firms with strategic and critical

materials, they should examine their suppliers' risk, innovation and technological infrastructure, and their commitment to address environmental and social issues.

The literature has shaped a possible method, based on the previously mentioned criteria, to be applied by organizations during the suppliers' selection process, which comprehends the evaluation of both qualitative and quantitative aspects. In the most recent years, the adoption of qualitative and quantitative tools and measurements in decision-making have prevailed, leading companies to be able to evaluate their potential partners by using measurable and comparable tools.

Thus, MCDM (Multiple-Criteria Decision Making) approach has been defined as the most effective strategy to be used in suppliers' selection (Taherdoost H. and Brard A., 2019; Saputro T. E. et al., 2022). Since suppliers are extremely heterogeneous and there is not a unique and standardized procedure to follow for their selection, brands can choose the most suitable method to be used to efficiently select the most appropriate suppliers considering their specific environment. Nevertheless, it must be underlined that this tool depends on the subjective weights that companies decide to attribute to the chosen criteria, so it might lead to disparate outcomes if suppliers are evaluated with different metrics. However, this is regarded as a useful instrument since it will enable organizations to enhance their competitive positioning as well as to ameliorate their performance and sustainability objectives.

Through the usage of such tools, focal brands are able to evaluate not only suppliers' behaviour and operational approach, but also the associated risks and sustainability commitment, which are pivotal to build partnerships aiming at the implementation of sustainability within the SC. By using this methodology and the associated criteria, brands are enabled to evaluate and select suppliers taking into consideration sustainability objectives and determining the optimal solution among the potential pool of suppliers.

Another method that can be used by companies to sustainably select suppliers has been developed by Alikhani R. et. al. (2019). As a matter of fact, they have proposed a framework to be used by companies in their decision-making process that tries to combine and correlate the risks associated with sustainable suppliers' selection as well as the need for specific suppliers' knowledge and expertise. This methodology gives the possibility to focal companies to evaluate suppliers by ranking them through the associated sustainability commitment and risks as well as through a developed correlation among these two; also, suppliers' risks are associated with their key capabilities. Hence, by adopting this approach, firms can select suppliers considering the risks associated with them.

2.3.1.3 Suppliers' development and quality management

Having shaped the main aspects related to suppliers' selection, it is possible to affirm that there is the urgency for firms to select the most suitable suppliers among a wide range of possibilities. This necessity is extremely impellent for luxury brands that must offer products and services with exceptional and excellent quality.

Quality can be considered as a fundamental driver in luxury customers' purchasing decisions, hence luxury brands must comply with their customers' requirements and expectations in order to maintain and achieve additional competitive advantage in the long-run and consequently enhance their overall performance.

Thus, quality management becomes extremely critical in luxury supply chains due to their complexity, especially during the definition of specific strategies to manage a wide range of heterogeneous suppliers. As it has been previously analysed, luxury SCs present a multi-tier structure which implies an incredible effort in selecting the right supplier to cooperate and collaborate with: this becomes increasingly essential if considering that quality must be ensured among all the SC processes, products, and participants (Tse Y. K. et al., 2019). This challenge is mainly caused by the difficulty for luxury brands to assess, monitor, and control the performance of their suppliers, especially the ones located in lower tiers of the SC.

As a matter of fact, ensuring quality at all SC stages is of fundamental importance for luxury enterprises: delivering products to luxury customers with a lower quality increases the possibility for brands of being subjected to customer dissatisfaction, damaging their reputation and image adversely affecting their competitiveness and performance (Kang M. and Um K. H., 2023), while delivering luxury items with exceptional quality enhances the brands' competitive positioning and consequently overall performance (Hoque I. and Maalouf M. M., 2022).

Hence, suppliers' selection can be regarded as a useful tool to choose suppliers evaluating specific quality criteria during the selection process. This can be considered as an ex-ante quality control mechanism that can prevent buyer firms to incur in quality-related risks such as products' defections (Lou Z., et al., 2021). Indeed, these flaws could potentially harm the overall SC performance due to delays in products' delivery to the final consumers, negatively impacting the brands' financial performance, or due to the increasing amount of precious resources wasted during the manufacturing process, both financial and non-financial, given by not-respected quality standards.

As it has been previously analysed, suppliers are remarkably heterogeneous in terms of market segment, geographic location, size, and level of competent and skilled employees; thus, the quality delivered is not always the same among all these diversified suppliers. In fact, there can be outlined the principal origins of imperfections in products and processes' quality due to errors attributable to employees, production machines, materials' flaws, and organizational methodology of manufacturing processes (Hoque I. and Maalouf M. M., 2022)

For instance, considering the leather goods market segment, brands need to purchase leather from tanneries, which have their own raw materials' suppliers that deliver them the leather to be treated. A potential criticality that the luxury brand could face during the quality control phase of the semi-finished or finished product regards the quality of the leather that may not satisfy the standards and requirements established for their goods. Hence, the item must be discarded because it does not have the exceptional quality desired. This problem could be caused by the raw material sub-suppliers of the tannery, which could have provided a source

that has passed the quality controls of suppliers, yet it did not comply with the quality requirements of the brand itself.

Otherwise, this criticality could have been originated in the strategic choice made by tanneries to change their raw material sub-suppliers, which could potentially lead to a shift in raw materials' quality. This would bring to delays in product delivery to the market, waste of valuable and scarce resources, such as leather, losing both money spent in manufacturing an item that would not be sold due to its original defections, and the potential money that could have been possible to acquire by selling that particular good as well as precious time that could have been used differently and more efficiently. Also, this could damage the environment and society by increasing the amount of discarded materials coming from animals. Therefore, luxury brands need to establish well-defined quality standards that must be aligned with their direct suppliers as well as with lower-tier suppliers in order to avoid wasting time, money, and resources.

Another example in the leather goods market regards sub-contractors. Quality standards must be perfectly matched among them and the buyer firm: any discrepancies during the quality control phase may result in delays during the manufacturing process and consequently in the delivery time-to-market. This misalignment could potentially occur when the supplier believes the item to have passed the quality control, while the buyer company does not agree due to the utilization of different criteria for assessing the final control outcome. Hence, this would create serious bottlenecks harming the SC operativity as well as the business continuity generating serious delays that could hinder the brand's competitiveness and performance.

Therefore, the literature has shaped as a valid and consistent solution to address quality-related risks, the possibility for buyer firms to contribute to suppliers' development by adopting collaborative approaches based on sharing knowledge, competencies, expertise, and capabilities among business partners (Tse Y. K. et al., 2019; Hoque I. and Maalouf M. M., 2022; Kang M. and Um K. H., 2023). This solution requires focal brands to invest resources and time in building trustful relationships with their suppliers, but it would ensure the minimization of risks associated with quality. Thus, partners would be more engaged in the process: suppliers' development can be defined as a quality control mechanism before the actual defection of materials within the SC processes could occur.

As a matter of fact, due to the specificities and characteristics of the luxury business, which entails an extremely high difficulty for companies to acquire the necessary raw materials, due to their scarcity in nature, and to ensure the exceptional quality standards required, luxury brands should develop strategic and long-term oriented partnerships with their suppliers. The achievement of this, requires cooperation and commitment from both the focal brand and its engaged suppliers: at the beginning of the business relationship both partners are more inclined to cooperate to fulfil the desired results, then, after the partnership has taken place for a continuative period, this commitment tends to decrease bringing the relationship to be damaged or to an end, which is not desirable for the previously cited reasons.

However, even if suppliers are willing to cooperate and to implement sustainable practices within their activities and operations, they could potentially lack of the necessary resources and infrastructure. Thus, luxury

brands are required to contribute to suppliers' development by investing a large amount of assets, both financial and non-financial, aiming at enhancing their sustainable performance. Nevertheless, lots of corporations show reluctance to execute such efforts due to the insufficient top management's commitment and support: if the top management is not willing to transfer sustainable values firstly to its employees, to the brands' suppliers, and finally throughout the SC, sustainable practices will never be truly implemented (Yang Y. et al., 2017; Bhandari N. et al., 2022).

Hence, focal firms need to build initiatives oriented to their suppliers' development in order to guarantee that their partners achieve the desired results in improving their abilities and sustainability-related skills (Barbieri P. et al., 2023) , which implies willingness to cooperate and collaborate from both partners.

Thus, the focal company can act directly or indirectly in order to boost its suppliers' development: through direct investments aiming at training and directing the suppliers' behaviour towards a more sustainable one, or through indirect help by providing them with the amount of capital or resources needed to reach the desired objectives.

By collaborating with suppliers and through the sharing of knowledge and competencies, it is possible to observe beneficial effects not only of suppliers' sustainable performance, but also related to the focal firm's performance (Huang H. B. et al., 2020): business partners could enhance innovation and consequently positively contribute to the implementation of sustainable initiatives along the entire SC.

In fact, by providing partners with the necessary support, the suppliers' risks of losing quality or of not respecting the standards given by the focal firm are reduced: by placing suppliers in the adequate conditions to operate sustainably, following the required quality standards, would enhance both the brands' performance and consequently their suppliers'.

Indeed, since buyers' success depends on the quality accomplished by suppliers, it is in its personal interests to actively contribute to the development of suppliers' operations and activities. At the same time, it is convenient and beneficial for suppliers to comply with quality criteria and requirements from the focal brand in order to maintain their competitive positioning avoiding the buyer firm to switch towards sourcing their raw materials from alternative suppliers.

In order to concretely implement suppliers' development, the leading enterprise could organize continuous improvements programs: the brand's employees, which are experts of quality control, could visit its suppliers on-site to teach and train them on the adopted quality control mechanisms and methodology to enhance the alignment of quality standards among them boosting suppliers' engagement (Hoque I. and Maalouf M. M., 2022).

Moreover, another strategy that can be implemented by leading buyers to strengthen collaboration with their suppliers consists of practicing specific quality control mechanisms in both suppliers' selection and development stages to check the partners' respect of the predefined quality standards: this proactive approach aims at implementing preventive actions to minimize potential criticalities linked to eventual quality

defections during the SC process implementing risk management practices that could foster the SC overall performance.

To ensure the positive outcome of the collaborative relationship, a long-term oriented cooperation based on trust is needed to be built between business partners enabling the positive effects of suppliers' development to produce beneficial impact on quality and sustainability performance of the SC globally.

2.3.2 Elaboration of research questions

Having deeply analysed the main aspects concerning the sustainable management of suppliers, there must be outlined some potential problems that are detrimental to the efficient and sustainable management of suppliers (Touboulic A. and Walker H., 2015). Firstly, the discrepancy between available technologies and resources for the focal company and its suppliers could slow the process of implementing sustainability within the SC since it would increase the complexity of working in parallel and of finding the proper alignment in the objectives to pursue.

Moreover, suppliers tend to be reluctant to transform their procedures and strategies, therefore the focal company should invest in building right and efficient incentive mechanisms that would push its suppliers to embrace their sustainable evolution and development, which implies significant efforts in providing the necessary resources.

Furthermore, there have been identified (Bhandari N. et al., 2022) additional deterrents to suppliers' engagement. Specifically, the information spread among the SC participants is asymmetric: if knowledge and data are not communicated properly and efficiently among business partners, suppliers would be less inclined into observing the sustainable guidelines given by the focal company, which in turn would experience diminished brand reputation and image since they are not able to communicate transparently to other stakeholders about their products and processes.

Finally, another important aspect that must be considered regards trust (Brandao M. S. et al., 2021; Akrou H. and Guercini S., 2022): business players worry that their interests would not be adequately taken into consideration in strategic decision-making processes, consequently being frightened of sacrificing their authority.

Therefore, both the performance of the leading firm and of its suppliers would be harmed: what it must be understood and embraced is that the positive outcome of implementing sustainability within their SC can guarantee beneficial effects to each actor of the chain if they are willing to collaborate to pursue their common interests.

Among the possible strategies that can be implemented by the focal firm to avoid and overcome these issues, there can be identified the development of training programs, educational activities, and continuous improvement initiatives aiming at guiding suppliers on the correct behaviour to conduct as well as offering economic helps when needed to improve the sustainable performance of the entire SC.

As a matter of fact, once suppliers have been selected, the focal brand should build strong strategic partnerships adopting a long-term perspective. In order for suppliers to receive and to be qualified for the needed assistance, they have to exhibit a specific degree of compliance towards sustainability; consequently, the focal firm engages in authentication and certification activities in order to attest the validity of their sustainability commitment. For instance, to scrutinize and prove that they are behaving responsibly, suppliers can utilize external and independent attestations.

By building strong relationships and trust with first-tier suppliers, the leading organization can reach the sub-suppliers more easily: if direct suppliers are incentivized by brands to engage in sustainable initiatives, they would consequently transfer the adoption of such practices towards lower-tier suppliers reaching the upstream part of the chain by generating a virtuous effect.

Additionally, the fulfilment of sustainability application within the SC highly relies on the suppliers' absorptive capacity of embracing the adequate instruments and virtuous practices from the focal firm. For example, suppliers should pay attention on hiring specialised workers with sustainable knowledge and competencies or that are willing and opened to be trained on such initiatives. Besides, suppliers should guarantee the observance of the sustainable guidelines furnished by the focal firm's code of conduct, that would serve as a grant for assessing its sustainable behaviour (Liu L. et al., 2019).

Finally, an extremely relevant role is played by other stakeholders such as institutions, NGOs, regulatory agencies, government etc.: they can act as an external leverage to be used by focal companies in order to boost suppliers' adoption of sustainable initiatives. In fact, they can help focal brands to inspect and certify the sustainable behaviour of suppliers, by providing specific standards that they are required to obtain and follow (Brun A. et al., 2020; Marketline, 2022; Jia M. et al., 2023; Kähkönen A. K. et al., 2023).

Taking into consideration the analysis conducted above, it is possible to state that the main issue to the implementation of the sustainable management of luxury SCs regards the difficulty for brands to control the actions of suppliers operating in the upstream part of the value chain.

The reasons why suppliers' management is critical for firms relies on the structure of luxury global SCs, which is extremely complex with players operating at different levels that imply the leading brands to adopt tailored strategies for each specific supplier. Also, they are characterized by an extreme heterogeneity in terms of market, size, and location, which add elements of complexity to the sustainable management of luxury supply chains.

Thus, suppliers' selection becomes one of the main elements to be addressed while defining SC strategies in suppliers' management: it is pivotal for firms to find the most suitable partners to enhance quality and sustainability along the entire network. As a matter of fact, quality is considered one of the main prerogatives and sources of competitiveness in the luxury business sector, since brands are required by their stakeholders to respect specific quality standards as well as certain sustainability criteria, which must be applied not only to their products, but also to the processes, activities, interactions, and relationships that are part of their value chain.

Hence, not only finding the right partners becomes crucial, but also, once they have been selected, it is paramount for luxury brands to build collaborative and durable partnerships through suppliers' development programs and initiatives to address the sustainable development goals in the long run.

Moreover, companies have to be able to efficiently communicate stakeholders their sustainable initiatives, in order to become drivers in sharing best practices to be adopted by all the actors of the value chain. To achieve this, they must operate transparently avoiding the proliferation of problems that characterize the luxury business, such as grey markets and counterfeiting issues. Also, companies are required to ensure traceability of their raw materials, processes, and activities throughout the whole supply chain and to communicate it adequately and transparently to their stakeholders.

In order to ensure materials and processes' traceability and transparency to enhance the sustainability and visibility of their supply chains, it has been highlighted the crucial role of building strong, trustful, and long-lasting relationships with suppliers. The main reason is given by the fact that sustainability is a multifaceted concept that needs the participation of different actors in order to reach its objectives and requirements. The current society is becoming increasingly conscious on the urgency of implementing true sustainable practices, also thanks to the Covid-19 crisis, which has brought to the attention of the public the exigency in building sustainable and resilient supply chains. Due to the collaborative and inclusive nature of sustainability, companies are demanded to jointly cooperate and to coordinate their actions wisely and efficiently in order to achieve actual sustainability within their business environment.

However, it is challenging for luxury enterprises to ensure quality and sustainability through collaboration and transparency along the chain. It requires strong commitment and trust from both parties that sometimes could lack for reasons linked to overcited problems such as asymmetric information or availability of resources and infrastructures. Hence, finding the best strategic approach to implement is not achievable: the best solution does not exist, but it is possible to identify the best fit, considering all the variables that interact within the luxury SC.

Furthermore, it has been derived that ensuring quality within the SC is the most prominent and critical challenge in the sustainable management of luxury SCs, so the question arises on understanding if suppliers' selection and development initiatives could be efficient and effective solutions in enhancing quality, and consequently sustainability, in globally dispersed luxury supply chains.

Therefore, the aim of the current research project seeks to investigate and inquire the SC strategies that luxury organizations are implementing to ameliorate the coordination, cooperation, and engagement with their heterogenous suppliers in order to enhance quality, transparency, traceability, and, consequently, sustainability of their supply chains.

Moreover, having shaped the main challenges that could arise in suppliers' management, an additional objective of the present study aims at understanding what kind of measurements are used by luxury brands in order to assess and evaluate suppliers efficiently both in their selection process as well as during the development phase of their strategic alliance.

Consequently, the following research questions arise:

RQ1: What kind of SSC strategies are being implemented by luxury conglomerates in order to enhance suppliers' collaboration and cooperation?

RQ2: Which are the instruments (such as measurement tools, indicators, and codes) that are used by luxury brands in order to select, evaluate, and assess the sustainable behaviour of their suppliers?

To answer the aforementioned research questions, a questionnaire will be submitted to a sample of companies operating in the luxury industry. From the derived outcomes there will be conducted a further analysis to extract the final results of the current study determining if suppliers' collaboration and coordination can be regarded as an efficient and effective solution in ensuring quality through traceability and transparency, to address the challenges emerged, consequently enhancing the implementation of sustainable practices within luxury SCs.

Chapter 3 – Research Methodology: questionnaire and results analysis

3.1 Research Methodology

In this chapter, it will be presented the research methodology utilized in order to derive and further discuss the results emerged from the analysis.

3.1.1 Description of the adopted research methodology: questionnaire

The objective of the present research project seeks to investigate the strategies and instruments concretely implemented by companies operating in the luxury industry aiming at enhancing collaboration and cooperation with their suppliers to boost transparency, traceability, and quality in order to build truly sustainable supply chains.

Thus, in the previous chapter there have been outlined the research questions to be addressed through the adoption of the questionnaire methodology: indeed, it has been chosen this method since it is considered as an extremely useful tool to acquire knowledge on concrete actions taken by luxury brands, based on their real experience, oriented towards the implementation of sustainable practices and initiatives within their value chains.

There have been defined and applied different steps as a procedure to develop the questionnaire aiming at obtaining valuable information and data to answer the above questions.

Firstly, the survey has been drafted based on the knowledge acquired in the first two chapters of the present study. Secondly, it has been defined the sample of firms to be scrutinized. Then, the questionnaire has been submitted to the panel companies and the data have been collected and elaborated to extract significant insights. Finally, the findings have been analysed, interpreted, and reported to derive meaningful observations that answer the aforementioned research questions.

The questionnaire has been presented to selected companies operating in the luxury industry: through the available resources it has been possible to choose a sample of 15 luxury firms pertaining to different market segments, with disparate size, in terms of employees and revenues, and presenting manufacturing facilities located in different parts of the globe. The reason why it has been determined this sample is given by the need to make comparisons between heterogeneous organizations pertaining to the same industry.

Each interviewee has the role of expressing and declaring the strategies and instruments concretely implemented to sustainably manage their network of suppliers: indeed, in the previous chapter it has been highlighted the urgency for luxury brands to build strong and long-lasting collaborations with their partners in order to enhance their SC sustainability.

Hence, by providing information on real-cases application of specific strategies and tools, the enterprises under investigation could contribute to the definition of effective actions to sustainably manage globally and fragmented luxury supply chains.

After the sample have responded to the questionnaire, it has been possible to gather the furnished data and to analyse them by decoding and clarifying the outcomes in order to be able to provide significant conclusions aimed at addressing the predetermined inquiry topics. As a matter of fact, it has been decided to evaluate the results at two distinct levels: firstly, there have been reported and interpreted the collected information and data to address the research questions overall; subsequently, the sample of companies has been divided into two different groups depending on their market segment in order to conduct a comparison analysis on the variables already examined. Therefore, it has been possible to appreciate both the analogies and disparities of the outcomes of the study depending on the elements considered.

Ultimately, there have been developed helpful and practical considerations on the research objectives.

3.1.2 Questionnaire structure

Having shaped the employed research methodology, it is essential to describe the structure of the conducted survey in order to acquire a broader understanding of the main topics that will be further developed in the results' analysis.

The questionnaire has been divided into three sections: the first one has been used in order to gain knowledge on the principal characteristics of the brands within the sample; the second part focuses on the adopted strategies, and it has been developed to address the RQ1; the third section analyses the implemented instruments in order to derive consistent answers on RQ2.

The first division seeks to acknowledge the main characteristics of the company under scrutiny by acquiring information on the market segment, size, in terms of revenues and employees, and geographic location of both the enterprise itself and its suppliers. The information and data obtained related to these aspects are an extremely useful tool that enable researchers to make comparisons and to empirically observe the behaviour of various luxury brands. By crossing and intersecting the acquired data, it is possible to derive insightful correlations among the variables employed in the study.

The second section of the questionnaire aims at responding to the first research question by focusing on the strategies, currently implemented by each selected organization, in order to enhance suppliers' engagement towards the implementation of sustainable initiatives.

Thanks to the literature review conducted in the previous chapter, it has been possible to derive seven potential strategies to be selected by the panel companies in order to be acknowledged on their effective application in practice. The adopted variables are reported as follows:

- Suppliers' audits and assessments
- Suppliers' development and training programs

- Suppliers' engagement programs
- Suppliers' risk assessment
- Implementation of incentive mechanisms
- Utilizations of third-parties' attestations, certifications, and standards
- Development of digital platforms and technologies

To properly address the aforementioned RQ1, it has been asked to the panel to express their degree of satisfaction for each selected strategy, in order to acquire a wider understanding on the efficiency and effectiveness of the applied strategies related to the company's performance. Then, the panel companies have been requested to express the main criticalities hindering the implementation of the adopted strategies for each selected one in order to frame the areas where further improvement is needed.

Finally, the third section of the questionnaire seeks at answering the RQ2 by inquiring about the instruments that every firm within the sample currently utilize in order to monitor the sustainable behaviour of their suppliers.

To obtain the potentially implemented tools, it has been used the same methodology described above; from the previously conducted literature analysis there have been defined the following measures:

- Suppliers' environmental performance indicators
- Suppliers' social performance indicators
- Suppliers' ethical and governance indicators
- Suppliers' traceability and transparency SC indicators
- Suppliers' product-related indicators
- Suppliers' key performance indicators or KPIs
- Codes of conduct to be shared with suppliers
- Public reporting indicators on suppliers' sustainable behaviour
- Market perception and reputation on suppliers' sustainable conduct

For each adopted tool, the panel under study has been required to indicate its degree of satisfaction to gain a deeper understanding on the efficacy of the implemented mechanisms. Then, the companies have been asked to express the main challenges interfering to the efficient usage of the selected instruments to clarify the factors that currently undermine the effectiveness of the selected instruments.

By utilizing this research methodology, the acquired results have been merged and cross-analysed enabling the study to collect valuable information on both the degree of efficiency and the main problems related to each selected strategy and tool in order to answer the two research questions by deriving useful insights for managers to be considered during their strategic decision-making process.

After having submitted the questionnaire to the panel companies, it has been possible to report the data and information acquired, which will be deeply analysed to determine the final result of the present research project.

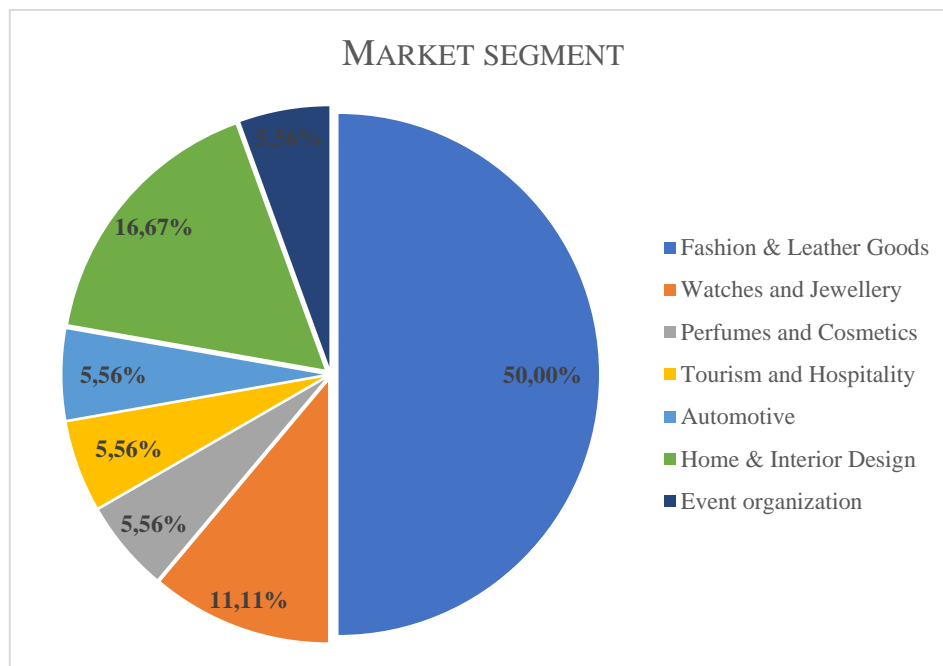
3.2 Results analysis and future research direction

3.2.1 Results' analysis

In this paragraph, there will be reported and deeply analysed the results of the questionnaire in order to answer the previously defined research questions.

3.2.1.1 Panel companies' characteristics

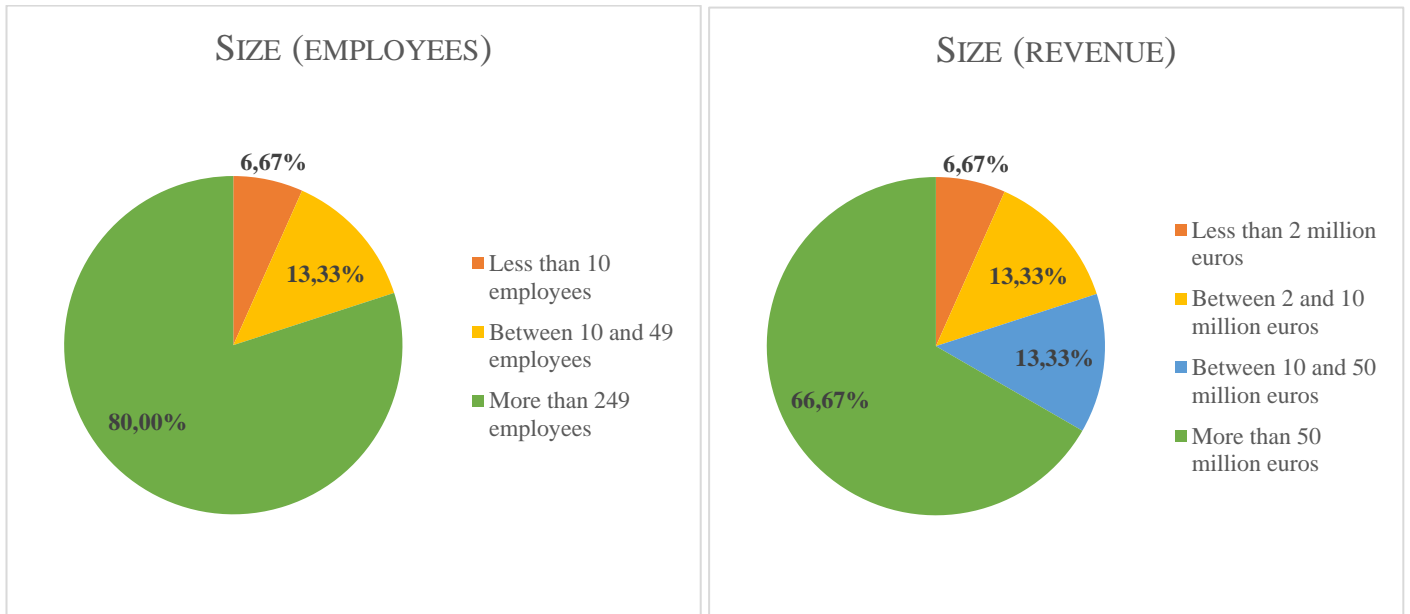
The outcome of the questionnaire shows that the companies under scrutiny are homogeneous in relation to their market segment, their size, and their geographic location.



Source: Personal Elaboration

Indeed, from the questionnaire's outcomes it is possible to appreciate that the half of the organizations interviewed (50%) operate in the Fashion and Leather Goods market segment, the second position is led by firms operating in the Home & Interior Design segment (16,67%), the third place is hold by Watches and Jewellery category (11,11%), while the rest of the panel is equally distributed (5,56% each) among the following market categories: Perfumes and Cosmetics, Tourism and Hospitality, Automotive, and Event Organization.

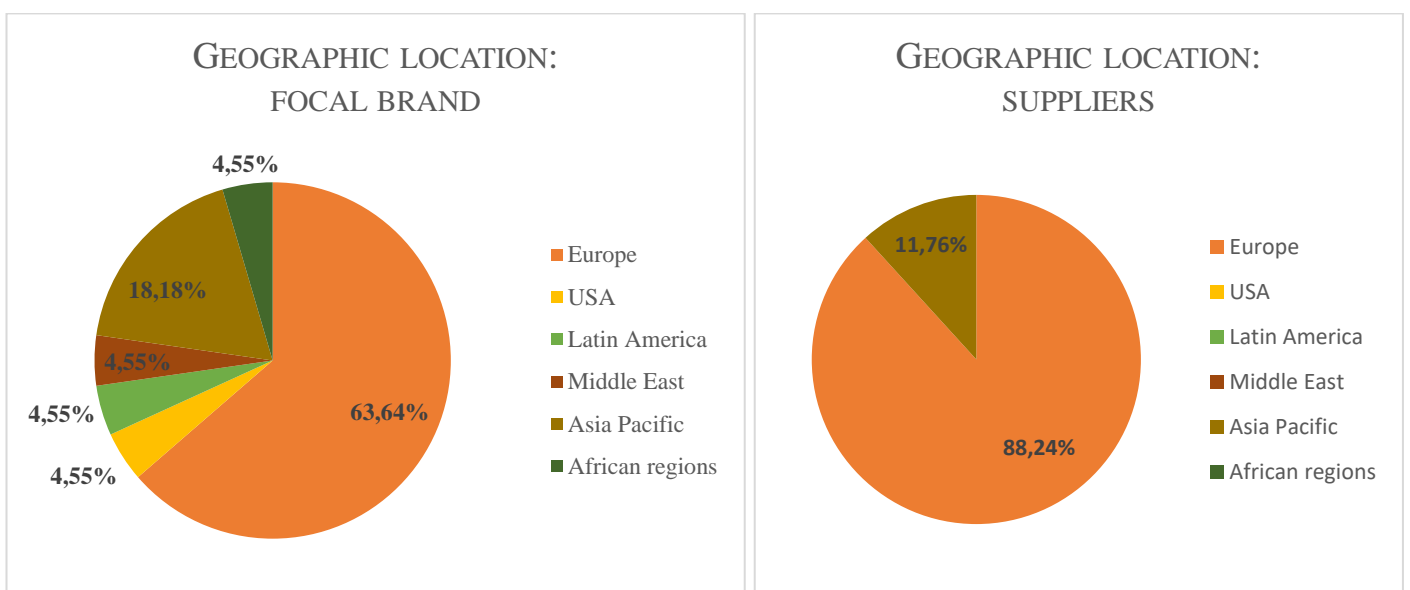
From this first result, it is possible to classify the most relevant cluster of the panel under study as belonging to the Personal Luxury Goods category, since it is comprehensive of Fashion and Leather Goods, Watches and Jewellery, and Perfumes and Cosmetics considering the definition of the different market segments given in the previous chapter. The result reveals that most companies operate in this segment, indeed this is aligned with what have been reported by Bain&Co (D'Arpizio C. et al., 2022): the Personal Luxury Goods is the most relevant segment in the luxury market, driving the market growth.



Source: Personal Elaboration

The second variable that has been taken into consideration regards the size of the panel companies, in terms of employees and revenues. It can be affirmed that the majority of the organizations within the sample are categorized as large enterprises: there have been found that the 80% of the total firms interviewed present more than 249 employees, while the 66,67% register an annual revenue stream, on average, of more than 50 million euro.

Therefore, it is possible to affirm that the companies under scrutiny are categorized as large enterprises. This is an important indicator of the strategic decisions taken by the companies: they have high reputation and image in the market; hence it can be stated that they are required to comply to sustainability standards by stakeholders, due to their high relevance, and to integrate sustainability within their value chains acting as drivers towards the adoption of more virtuous and ethical practices along the entire network in order to maintain and gain additional competitiveness and to enhance the overall performance.



Source: Personal Elaboration

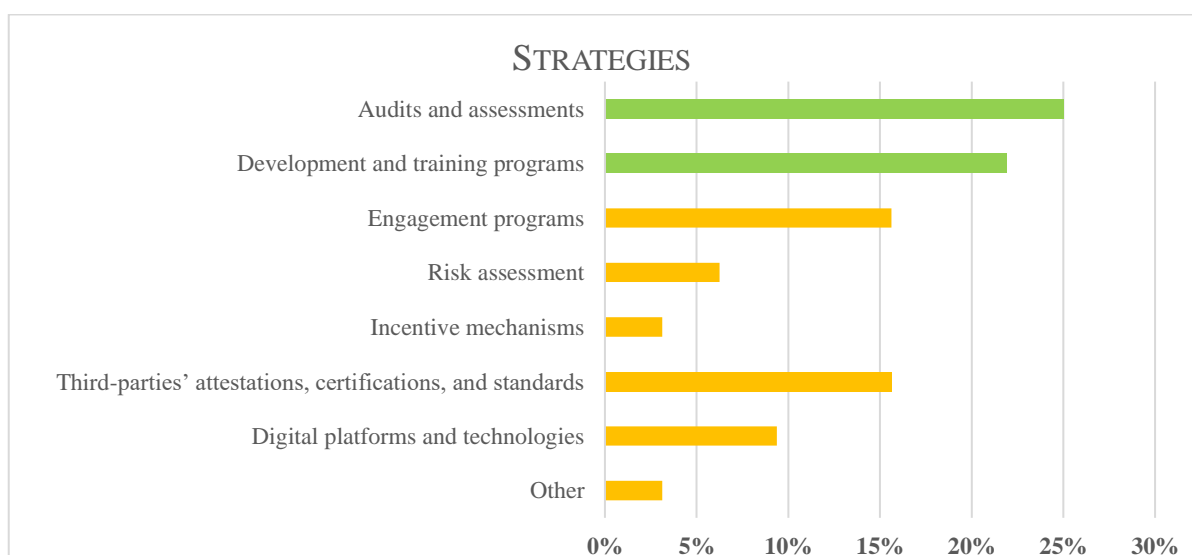
The last variable to be considered in order to obtain a wider understanding of the type of companies that have participated to the survey, regards the geographic location of the manufacturing facilities of both the firm itself and its suppliers.

From the conducted questionnaire, it has emerged that the focal brands under study present their main production sites in Europe (63,64%), the second majority is located in Asia (18,8%), and the remaining part is equally distributed among the other continents (4,55%).

Regarding suppliers' geographical distribution, they are mainly located in Europe (88,24%) as leading companies, and the residual portion is situated in Asia (11,76%). This allocation can be linked to the higher international relevance of luxury brands as compared to their suppliers; nevertheless, an important point of attention to be underlined regard the Asian market: as it has been inspected in the previous chapter, this is an emerging economy which is currently growing, and it is predicted to lead the future growth of the market. Hence, buyer enterprises operating in the luxury industry are increasingly placing their facilities and selecting suppliers in emerging markets to augment their local presence in these fast-growing territories and to exercise greater control and monitoring over these domains.

3.2.1.2 Analysis of the implemented strategies

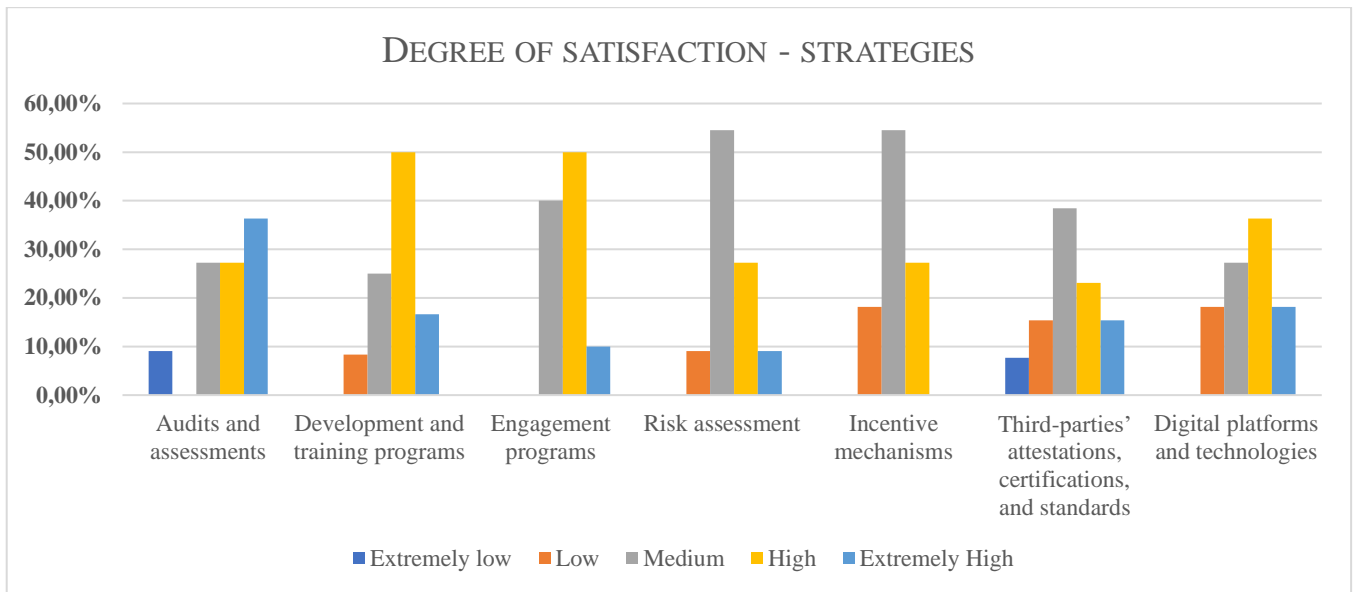
In order to address RQ1, it has been requested to the panel companies to indicate the currently implemented strategies aiming at enhancing suppliers' engagement towards the implementation of sustainable initiatives. The variables have already been reported in the previous section of the present chapter; hence it is now crucial to highlight what has emerged from the respondents.



Source: Personal Elaboration

From the graphic developed above, there can be highlighted two strategies as the most utilised ones by the survey participants: suppliers' audits and assessments and suppliers' development and training programs.

In order to understand the level of efficacy of the adopted strategies, it has been asked to the participants to express their degree of satisfaction related to them, since the aim of the present project seeks to investigate the strategies concretely adopted by luxury companies.



Source: Personal Elaboration

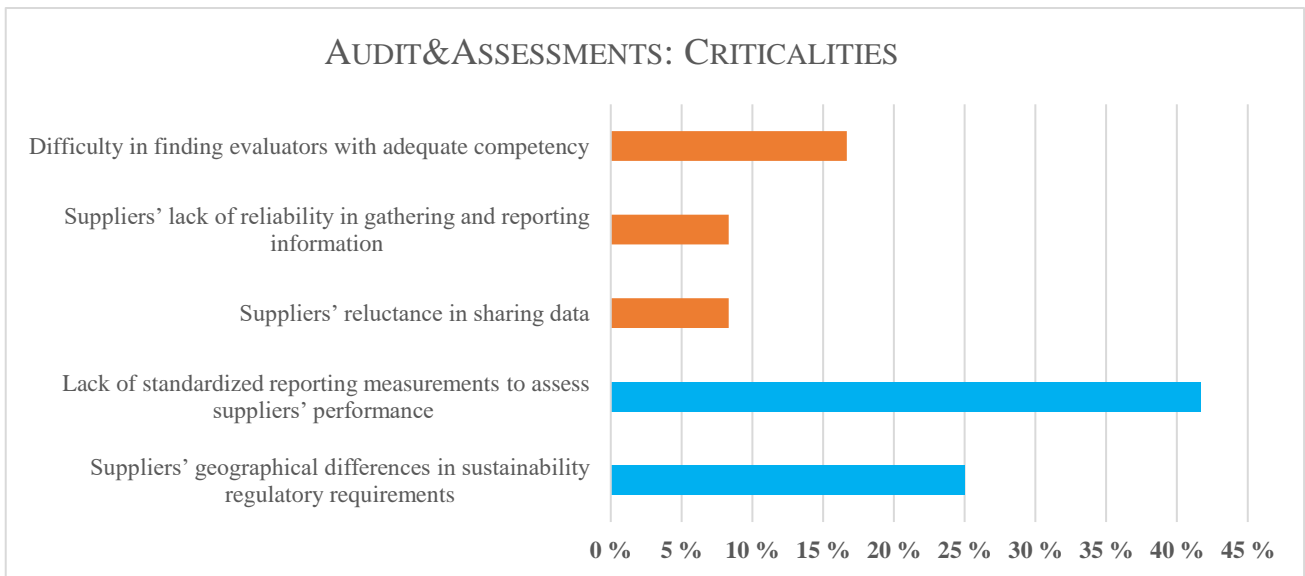
As it can be seen from the reported diagrams, there is a rather high level of satisfaction for the selected strategies. Indeed, it can be appreciated that the highest number of respondents have been registered to express a high or extremely high degree of satisfaction, indicating an elevated level of efficacy in the performance outcomes and achievements linked to the implementation of these strategies.

Conducting audits and assessments of suppliers enables the leading companies to assess suppliers' collaboration in order to enhance their adoption of sustainable practices within their operations. At the same time, implementing development programs has been shown to boost the adoption of sustainability firstly by companies' suppliers, and consequently along the entire SC. Hence, the overall efficiency of the selected strategies can be considered as high.

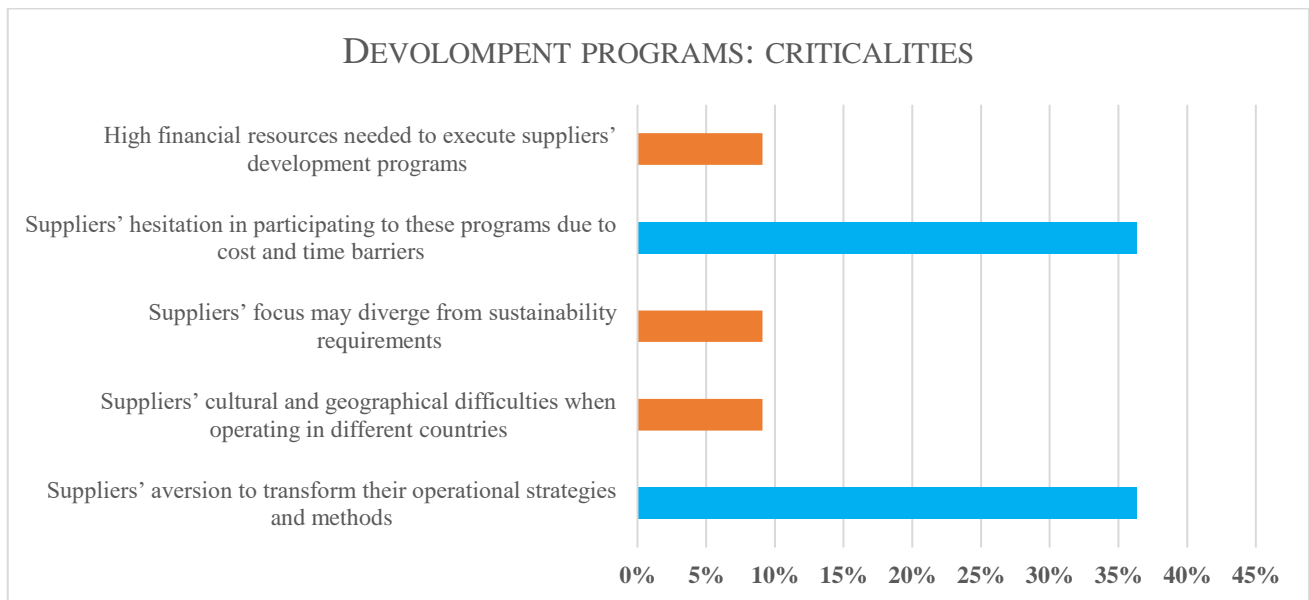
Nevertheless, some criticalities in the implementation of these strategies emerge, highlighting that further improvement is needed to achieve an uplifted level of efficiency: companies have been asked to select the main challenges hindering the implementation of each strategy, which will be following reported.

From the gathered data and information, it has been possible to conduct the sequent analysis at two different levels: firstly, identifying the most encountered challenges in implementing the most adopted strategies, secondly, indicating the most faced issues in implementing the other strategies. In this way, it will be possible to outline the areas of improvement for the most utilized strategies, on which leading brands should focus in order to ameliorate the sustainable performance within the entire value chain, while at the same time drafting the main problems that companies currently face, which tangibly obstruct the adoption of potential solutions to enhance the implementation of sustainable practices within the entire value chain. These insights can be regarded as extremely useful to be considered during the strategic decision-making process to build collaborative relationships among SC partners.

Starting from the most encountered challenges while adopting the two strategies named above, there have been pinpointed the following problems reported in the graphs below.



Source: Personal Elaboration



Source: Personal Elaboration

From what has been observed in the answers given by the respondents, there have been merged the results to derive the main problems while implementing the strategies analysed above.

Examining the reported variables, it is possible to understand that the main barriers hindering the application of the most applied strategies regard the difficulties in deriving the necessary data and information due to the lack of standardized measurements and instruments that enable to audit and assess suppliers' sustainable behaviour and commitment. Indeed, a uniform framework on sustainable metrics is currently missing, making it difficult to evaluate suppliers due to the different criteria utilized to derive the indicators.

Moreover, another element that must be carefully considered while implementing the aforementioned strategies pertains to the huge investment in terms of both time and resources, financial and non-financial, needed to implement sustainable initiatives for the suppliers and for the companies itself. For instance, audits and assessments as well as development programs require time and assets to be spent by the focal brand for

their implementation. Besides, suppliers may be adverse in transforming their operational methods towards the implementation of more sustainable ones, especially if the latest necessitate of substantial efforts in modifying traditional systems and approaches.

Furthermore, it must be considered that geographical differences in terms of regulatory requirements may be detrimental for companies operating in different countries to adequate to a unique sustainable standard. For example, the companies within the sample have their production sites primarily located in Europe, as their suppliers, however it has been reported that a part of them is located in Asia, which implies some differences in the legislation over sustainability-related topics that could damage the efficient and effective implementation of the conducted audits. Also, the cultural differentiation derived from the geographical heterogeneity may obstruct the efficient implementation of development programs and initiatives: it could represent significant barriers for suppliers may be unwilling to shift their processes and procedures towards sustainability.

Regarding the second level of analysis, it has been possible to delineate the problems that hinder the adoption of the less utilized strategies. It is extremely important to understand these criticalities, since from the study it has emerged that their presence do not allow focal brands to increase sustainability along the chain through partnering with suppliers.

Hence, the most encountered challenges that block the implementation of the less executed strategies have been derived considering the answers provided by respondents. There is the urgency to clarify and understand these elements, since they have been demonstrated to block the execution of these potentially beneficial strategies.

It is possible to declare that problems pertain to two different facets: criticalities emerging at focal brand level and issues arising at suppliers' level. As stated in the previous chapter, the commitment of both parties is essential to ensure the development of strong and durable collaborative partnerships aiming at implementing sustainability at all tiers of the SC.

Thus, the first element that can be considered is the divergence between suppliers' internal priorities, such as cost reduction and time constraints, and the demand for sustainability required by the buyer company: this discrepancy in sustainability commitment must be carefully addressed and managed while engaging and collaborating with suppliers. Indeed, buyer firms should be able to transfer the sustainable culture to their partners in order to direct their priorities towards sustainable objectives. As a matter of fact, this is extremely important because suppliers may not provide valid and reliable information and data on their operations damaging the trustworthiness of the relationship and making it difficult for the focal brand to evaluate and to monitor their conduct, increasing suppliers associated risks. Also, suppliers' may not be prone at being assessed for sustainability risks, harming the potential benefits that could be derived from the monitoring of their related risks.

Moreover, the implementation of incentive mechanisms or engagement programs has been reported to be highly challenged by the extreme heterogeneity existing among suppliers: brands struggle in designing and

developing the most suitable model to be applied to each suppliers' specificity, particularly when dealing with lower-tier suppliers.

Additionally, the implementation of digitalization and technological infrastructure within the SC to enhance transparency and traceability have been revealed to be incredibly arduous to reach due to the high complexity in integrating technologies within the already intricated SC's structure; for instance, suppliers may lack of the adequate resources and infrastructure to digitalize their operations and activities or the investments required may be too high, in terms of time and money needed, to be hold by leading organizations.

These outcomes are extremely useful for both managers and practitioners in order to be acknowledged on the areas where more and stronger efforts and commitments are needed to increase the possibility of applying different strategies that are more suitable to each supplier's specificity.

Therefore, it is possible to affirm that the most utilized strategies have been reported as being overall efficient and effective in enhancing the adoption of sustainable initiatives along the entire SC, however, there have been identified some potential difficulties that could harm their effective implementation. Also, there have been outlined the main challenges harming the adoption of potential strategies that need to be further studied to find the most suitable solutions to their effective application.

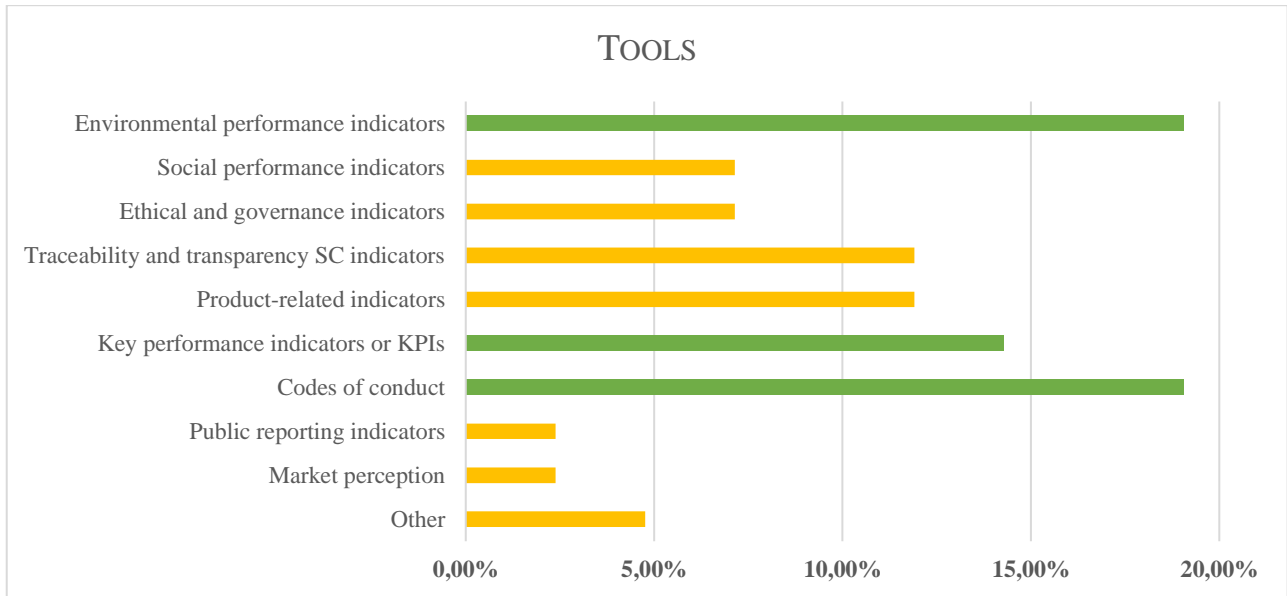
Thus, this analysis seeks to answer the first research question and it can be considered as extremely useful for both managers and practitioners to be evaluated during the strategic decision-making process in order to be prepared and to select efficient actions aimed at addressing and resolving these issues. As a matter of fact, there have been delineated the utilization of suppliers' audits and assessments as well as the implementation of suppliers' development programs as the most efficient and effective strategies to enhance collaboration and coordination among suppliers within the SC aiming at boosting quality, traceability, transparency, and consequently sustainability at all tiers of the value chain.

Regarding the first strategy, it is possible to declare that buyer companies have the possibility to conduct periodical suppliers' audits and assessments on social compliance, energy efficiency, waste generation, emissions reduction, ethical sourcing, or suppliers' self-assessments etc., in order to verify compliance with sustainability objectives. Indeed, this strategy may be convenient to incentivize the execution of sustainable initiatives by suppliers, since they would be examined and evaluated on their sustainability performance.

Concerning the application of suppliers' development programs, as it has been deeply explained in the previous chapter, they are provided by the leading firm as a means to share sustainable knowledge and competencies with partners. For instance, there can be executed training and educational activities as well as continuous improvement initiatives aiming at concretely engaging business partners enhancing trust and reliability among them. Indeed, by implementing these initiatives, coordination and collaboration with suppliers would be fulfilled: the buyer company act as a means for suppliers to gain more expertise and skills that would generate a beneficial impact on suppliers' performance.

3.2.1.3 Analysis of the adopted tools

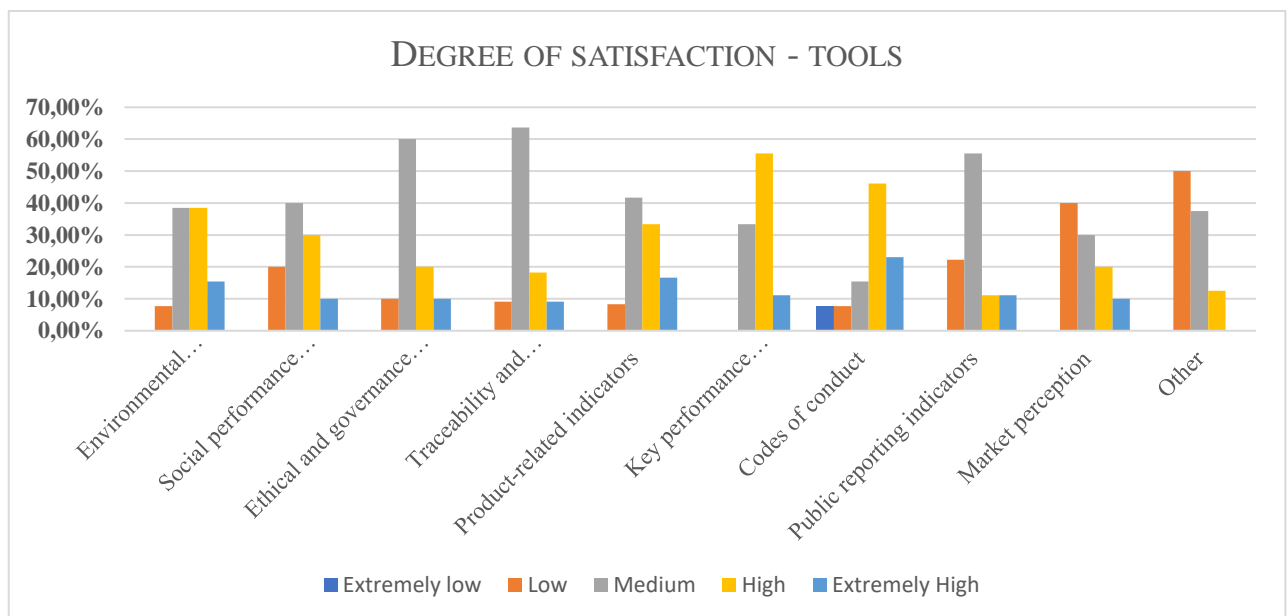
In order to address the previously formulated RQ2, in the third and last section of the questionnaire, there have been investigated the instruments currently utilised by the company under study to monitor the sustainable behaviour of their suppliers. There will be applied the same methodology previously adopted to report the results emerged from the conducted research.



Source: Personal Elaboration

From the graphical representation reported above, it is possible to appreciate that the most adopted tools are ranked as follow: codes of conduct to be shared with suppliers together with suppliers’ environmental performance indicators, such as carbon emissions, energy efficiency, and water usage, and suppliers’ KPIs, adopting metrics such as sustainability scorecards and return on sustainability investment.

In order to understand their degree of efficacy in their utilization, the panel firms have expressed their level of satisfaction related to each implemented instrument.

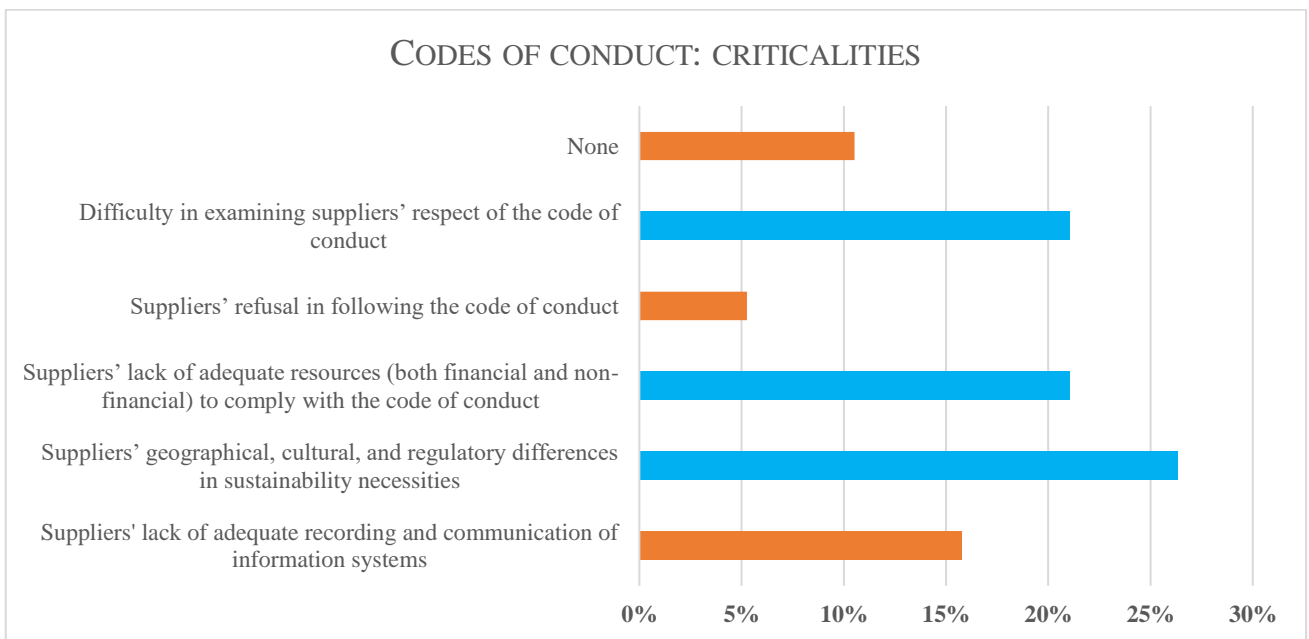


Source: Personal Elaboration

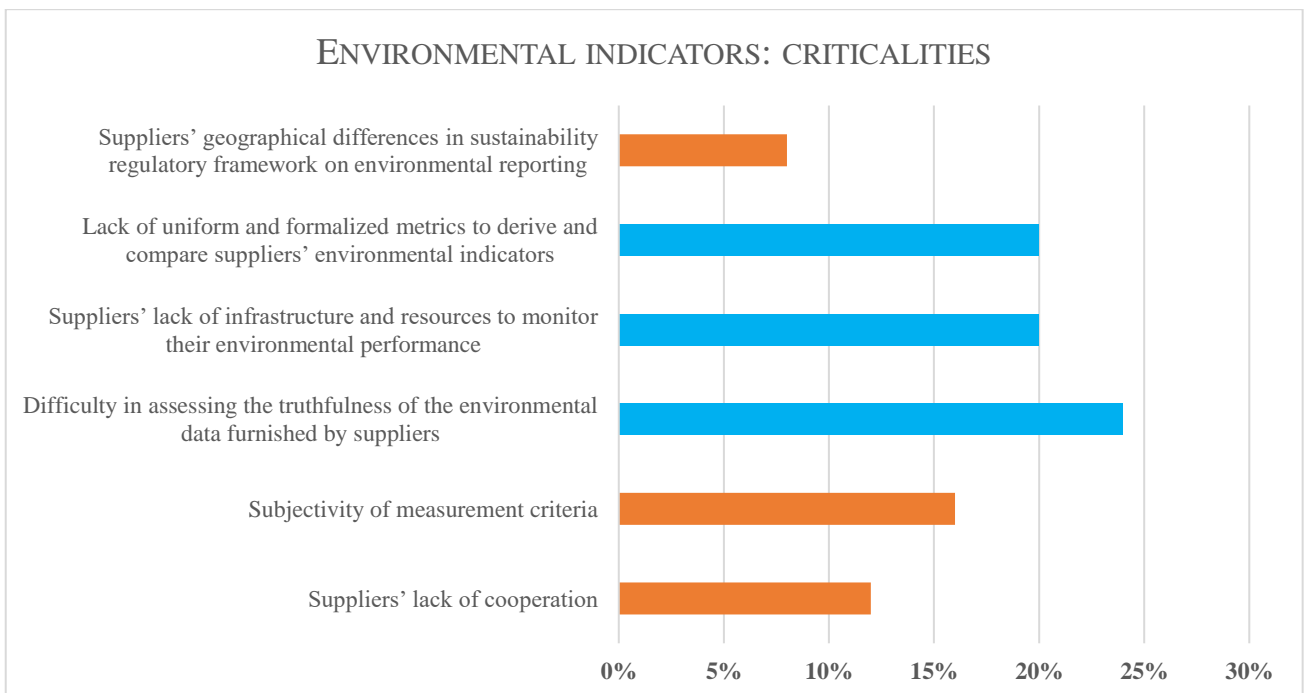
Hence, it has emerged that on average there have been attributed a quite elevated degree of contentment for each selected measurement, which highlights that these tools can be regarded as bringing a rather high efficiency in evaluating suppliers' sustainable performance and in engaging them to implement practices aimed at enhancing sustainability at all tiers of the value chain.

As a matter of fact, all three selected tools have proven to be efficient, effective, and reliable to some extent; however, for each adopted instrument there have emerged some criticalities that increase the difficulty of their implementation and that hinder their efficiency in reaching the desired outcomes.

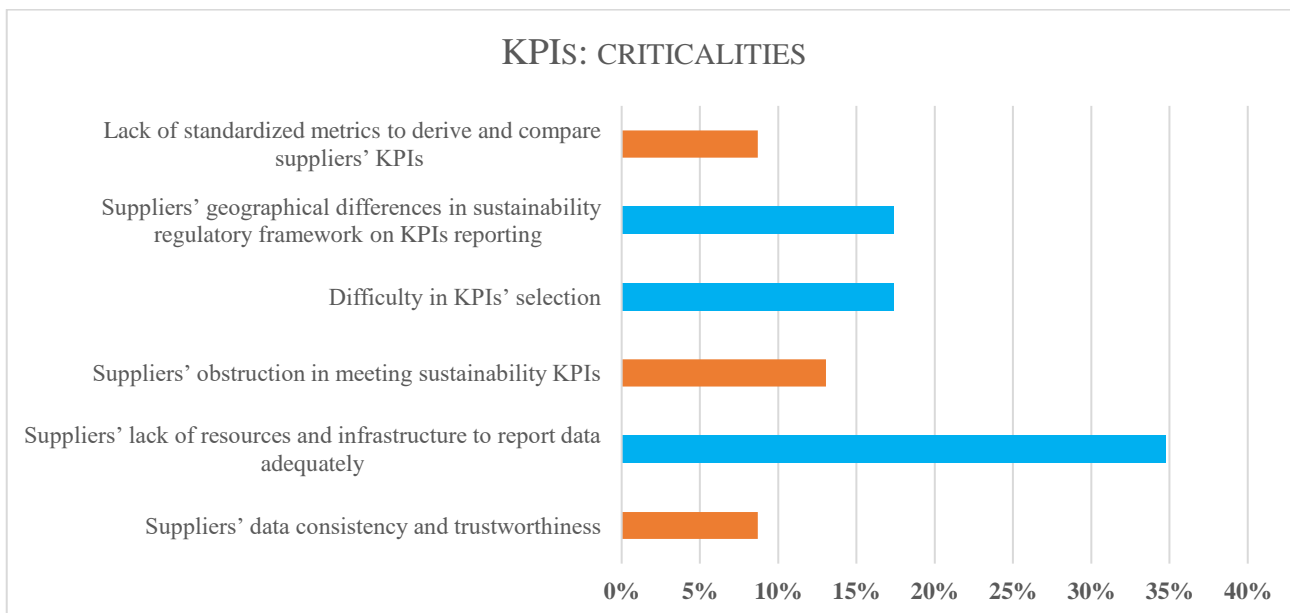
As it has been previously developed, there can be analysed the outcomes of the survey at two different levels: by specifying the main challenges in the utilization of the most selected instruments and the main criticalities harming the effectiveness of the less adopted tools.



Source: Personal Elaboration



Source: Personal Elaboration



Source: Personal Elaboration

From the reported graphs, it has been possible to gather the identified challenges in different categories depending on the attributed relevance by the respondents.

As a matter of fact, the main constraint obstructing the rightful utilization of the previously selected tools regard the lack of suppliers' resources and infrastructure to adequately report data and information: this could lead to problems related to the calculation of the aforementioned indicators as well as to challenges in assessing the respect of the guidelines given by the codes of conduct. This could generate a negative impact on the brand's competitiveness and performance as well as hindering the propriate implementation of sustainability along the entire value chain.

Moreover, due to this difficulty in acquiring valid data, focal brands have conveyed their challenge in assessing the truthfulness on the information disclosed by suppliers and to select the most appropriate indicators considering each supplier's specificity. Thus, there is the urgency for building strong trust and collaboration among partners. An additional element related with the development of the indicators to concretely monitor suppliers, regard the lack of standardized and formalized metrics on evaluating sustainability. This criticality has been previously highlighted as a potential barrier in properly assess and audit suppliers, and here it can be considered symmetrical: it is not possible to adopt the same metrics to derive the indicators and to compare suppliers' sustainability by utilizing these tools, since there is a high level of subjectivity in determining these criteria.

Finally, it has been presented as an extremely important hurdle to the efficient utilization of these instruments the geographical differences among brands and their suppliers: as it has been formerly discussed, they are located in various regions where metrics and criteria can be widely diverse in extracting the sustainable indicators, which could generate errors in monitoring suppliers' sustainable conduct.

Hence, although these tools are considered as useful means to be utilized in order to evaluate suppliers' sustainable conduct, from this analysis it is possible to deduce that there are still areas where further improvement is needed. In order to determine standardized metrics to evaluate suppliers' sustainable indicators

further efforts are needed not only from the buyer firm and its suppliers solely, but there is also the necessity for other stakeholders, such as institutions and government to further commit in order to determine a unique framework on sustainability measurements and criteria: in this way, potential discrepancies and errors in evaluating these indicators can be reduced.

Concerning the second level of analysis it has been possible to determine the following variables as deterrents to the adoption of the other tools that have not been considered in the previous part. As a matter of fact, there have been highlighted by the panel firms specific criticalities that are detrimental for the utilization of these instruments.

From the recorded results, it has emerged that there is a similarity in the criticalities highlighted in the precedent analysis, here there can be add just an additional element that deserves an important consideration: suppliers might be unwilling to release and provide information and data on their operations and activities, which could increase the difficulty for the focal brand to monitor them adequately and to efficiently derive the indicators and measurements for their evaluation. As a matter of fact, these indicators can be calculated starting from the data furnished by suppliers, hence, if this information are not communicated among partners, collaboration and cooperation would not be reached, inhibiting the implementation of sustainable practices within the entire network.

Therefore, it is possible to state that this analysis has tried to significantly address the second research question by indicating that the most efficient tools to be used in order to adequately monitor suppliers' sustainable performance are the development of codes of conduct as well as the application of environmental indicators and KPIs.

As a matter of fact, codes of conduct are shared by brands with their suppliers in order to clarify in detail their requirements on sustainability to acknowledge partners of the sustainable behaviour to follow during the business relationship. This is a precious tool to be applied specifically while selecting suppliers: they would be asked to declare their compliance in behaving as described in the codes by signing them before the partnership begins. Also, this can be useful for brands while the rapport concretely occurs and progresses as a leverage for directing and guiding suppliers in undertaking sustainable actions.

Concerning environmental performance indicators, they are calculated to assess and evaluate the impact and carbon footprint generated by suppliers: these metrics are extremely useful to obtain concrete indicators related to the already mentioned Scope 3 of the GHG protocol, and they could be calculated both during the selection and development processes of the collaborative relationship. Accordingly, suppliers' KPIs are related to the partners' performance: by acquiring these information and data, focal firms would be able to observe the areas where additional improvement towards sustainability is needed and the zones on which leverage to further ameliorate the overall sustainable performance.

This outcome can be useful for managers and practitioners in the decision-making process regarding the instruments to sustainably manage suppliers, however, these must be considered in conjunction with what has

emerged from the scrutiny of all the barriers that could potentially impede the efficient adoption of such metrics.

3.2.1.4 Comparisons' analysis: market segmentation

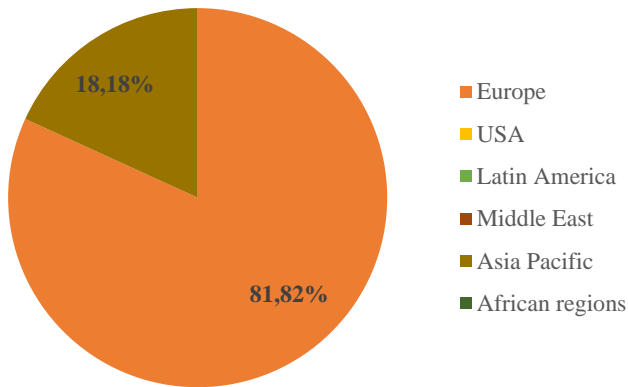
After having shaped the overall results of the questionnaire, it is possible to develop a comparisons' analysis dividing the panel companies among two different clusters depending on their market segment: brands operating in the Personal Luxury Goods segment (Fashion and Leather Goods, Watches and Jewellery, and Perfumes and Cosmetics) that account for the 66,67% of the total panel and organizations pertaining to Other segments (Tourism and Hospitality, Automotive, Home and Interior Design, and Event Organization) for the remaining 33,33%.

By dividing the sample between these two groups, it has been possible to deeper appreciate the differences among companies operating within heterogeneous market segments related to the variables reported in the investigation formerly executed.

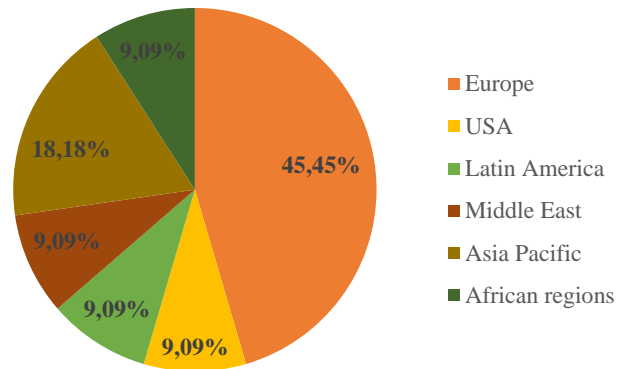
Brands operating in the Personal Luxury Goods market segment can be classified as large enterprises both in terms of number of employees and annual revenue stream. At the same time, the majority of the companies operating in the Other market segment present a large dimension, however, it must be noticed that this distribution is slightly different: there is a tendency for them to present a little percentage of small sized enterprises, which must be considered while deciding on the strategies to adopt to sustainably manage suppliers.

Furthermore, it can be stated that there is a significant dissimilarity among the two clusters in terms of the geographic location of the organizations' manufacturing sites and their suppliers.

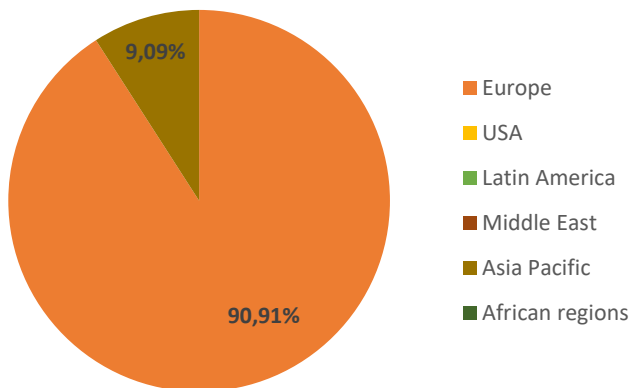
GEOGRAPHIC LOCATION: FOCAL BRAND - PERSONAL LUXURY GOODS



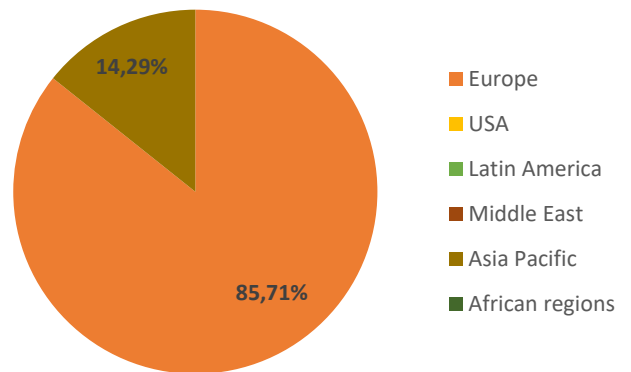
GEOGRAPHIC LOCATION: FOCAL BRAND - OTHER



GEOGRAPHIC LOCATION: SUPPLIERS - PERSONAL LUXURY GOODS



GEOGRAPHIC LOCATION: SUPPLIERS - OTHER

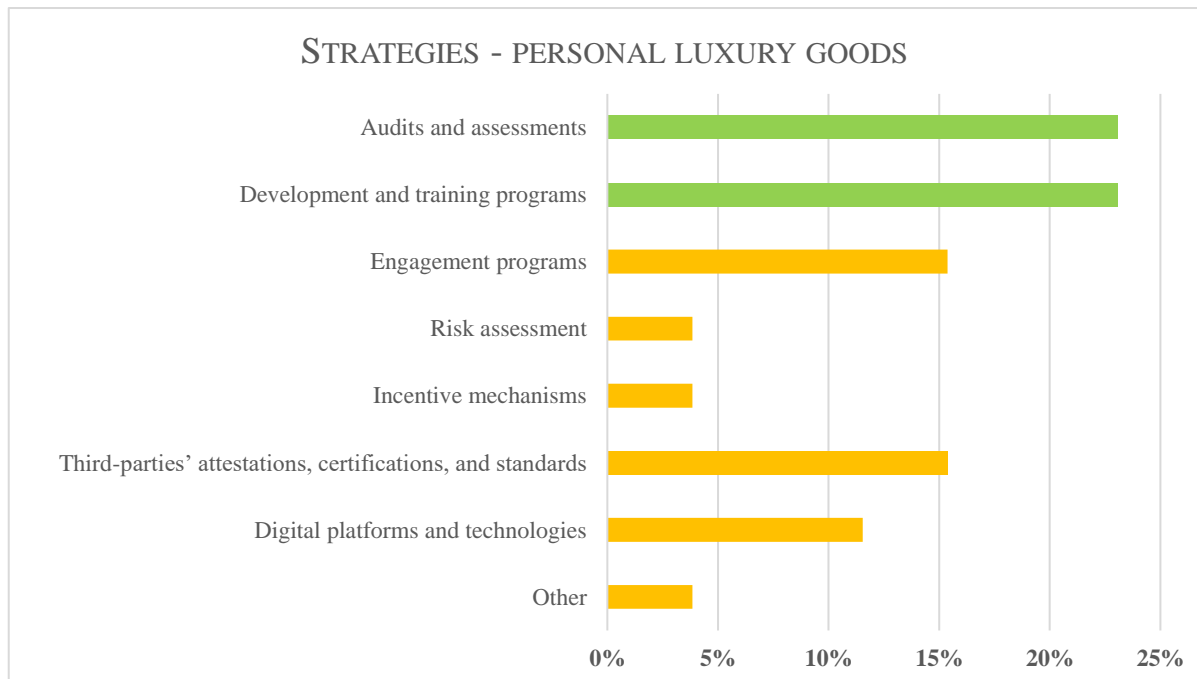


Source: Personal Elaboration

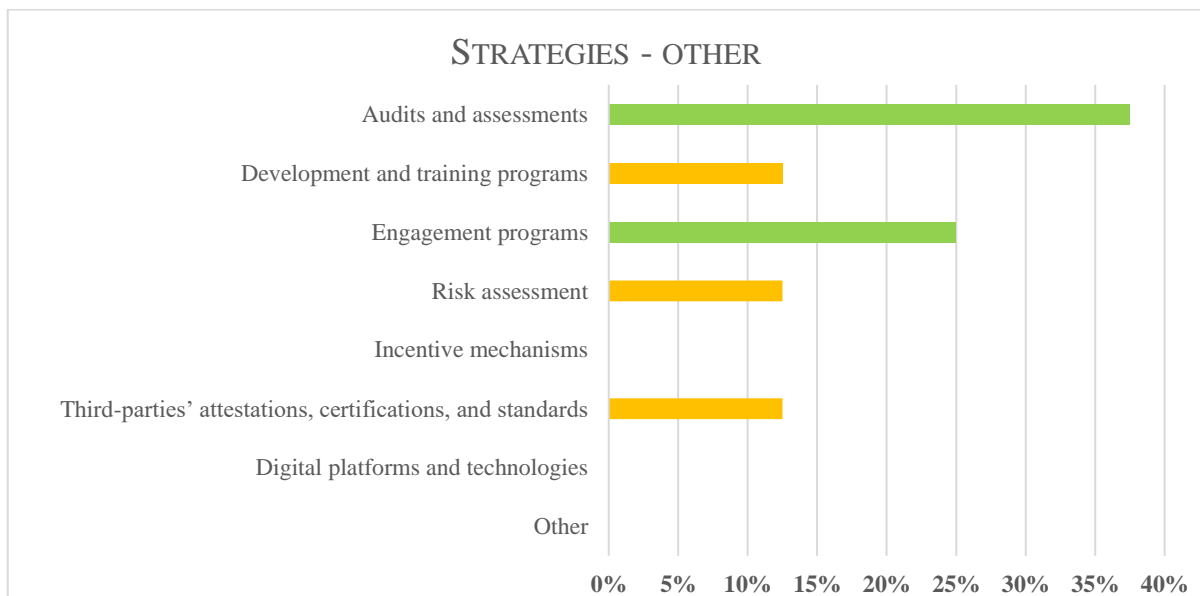
As a matter of fact, companies pertaining within the Personal Luxury Goods segment present their facilities mainly in Europe with a small percentage of sites located in Asia: this distribution is extremely similar to the one of suppliers. On the other side, it is interesting to notice that firms operating in the Other segment present their production areas mainly in Europe, however it can be appreciated a heterogeneity in the allocation in the other countries, with a maintained prevalence of the Asian region among the others.

In order to understand and investigate the potential differences in answering the two research questions considering this market segmentation, it is possible to conduct the following analysis inquiring the main

selected strategies and tools and the criticalities hindering their adoption comparing the differences or similarities among the decisions taken by companies pertaining to these two distinct segments.



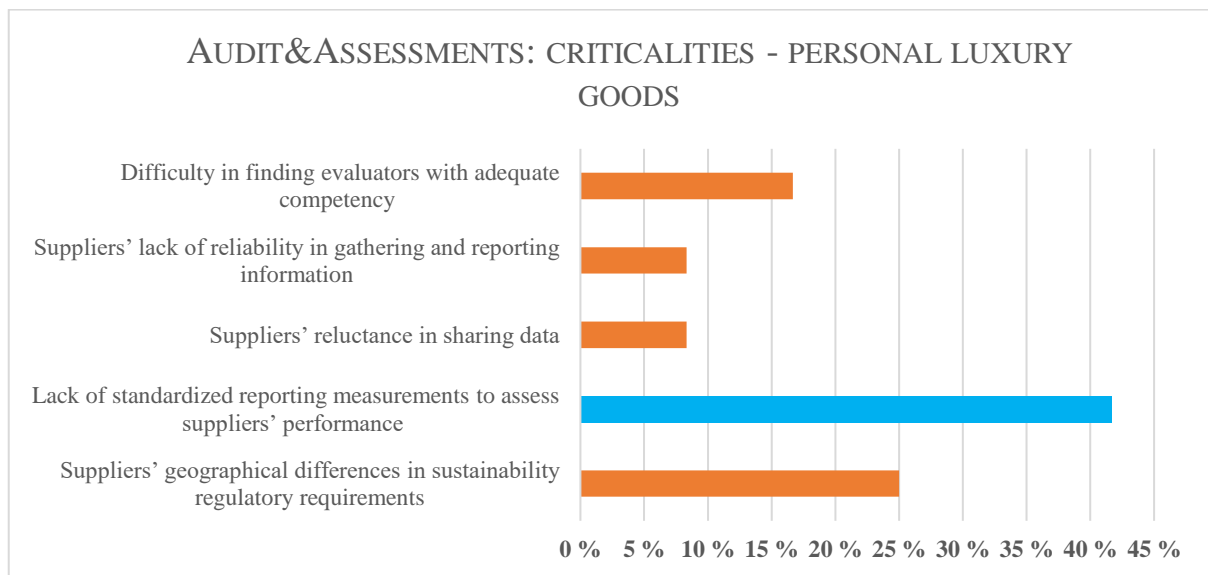
Source: Personal Elaboration



Source: Personal Elaboration

To address the first research question there have been developed the graphics above: it is possible to note that there exists a similarity in the most adopted strategy for both market categories in suppliers' audits and assessments, nevertheless some differences exist, which will be following described.

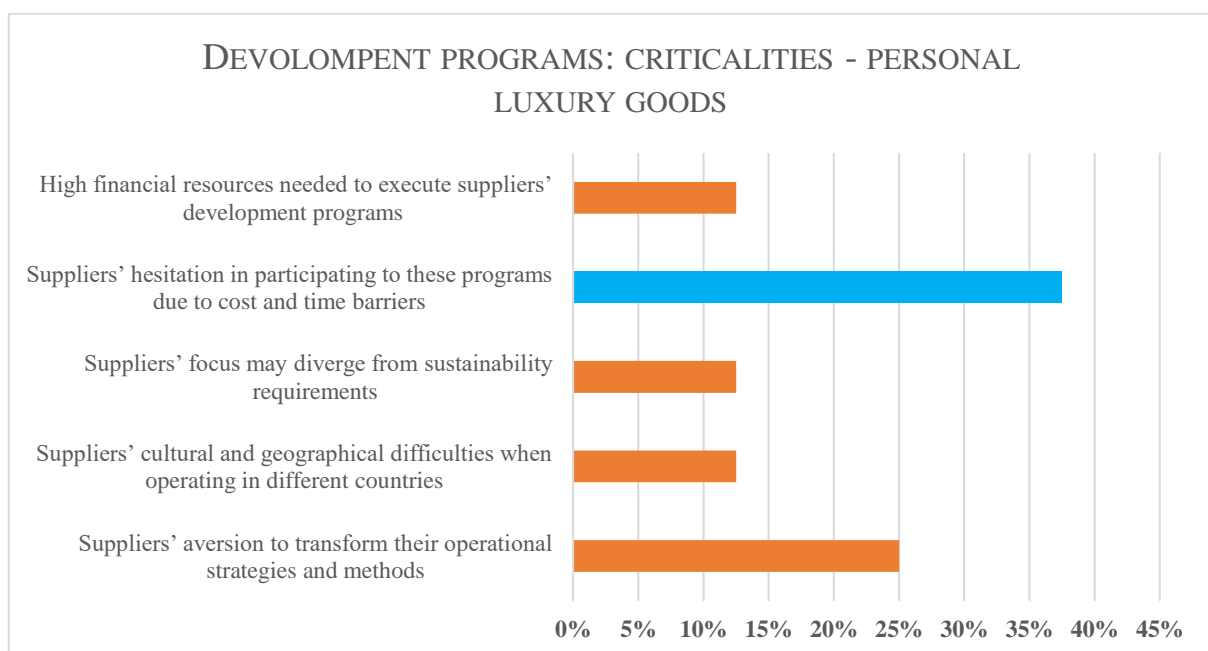
Concerning the Personal Luxury Goods group, it must be highlighted that the aforementioned strategy is the most implemented one by brands together with the execution of suppliers' development programs: the efficacy of both these strategies has been considered high by the respondents.



Source: Personal Elaboration

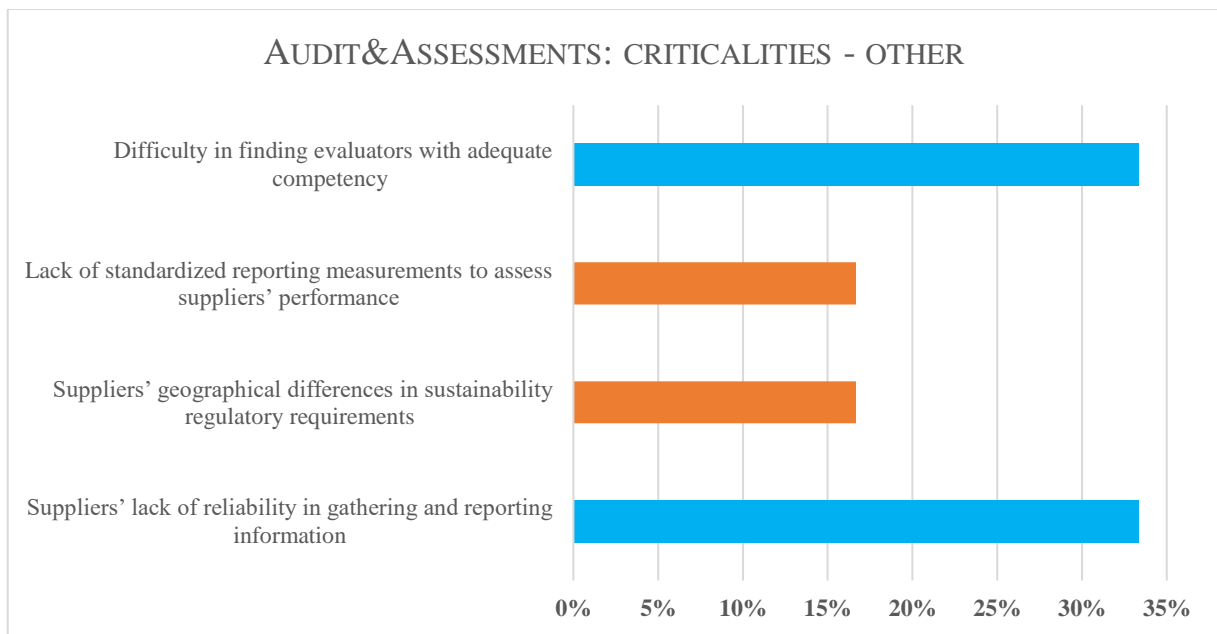
However, it has been expressed that the lack of standardized reporting measurements to assess suppliers' performance is the main problem harming the successful implementation of this strategy. As a matter of fact, this is aligned with what has previously emerged in the analysis conducted in the above section: companies operating in the luxury industry extremely need to find uniform and standardized measurements to assess and evaluate suppliers.

This becomes severely critical for brands within this cluster since the raw materials utilized to manufacture luxury goods are extremely scarce and rare, which enhances the need to build strong and durable relationships with suppliers in order to avoid the risk of being associated with partners' unsustainable and unethical behaviour highly damaging the brand's reputation and image, negatively impacting their competitiveness and performance. Thus, suppliers' audits and assessments are an extremely valid strategy to be applied in order to acquire a higher control on suppliers' behaviour, nevertheless further improvement is needed in terms of the adopted metrics to conduct audits and assessments.



Source: Personal Elaboration

Regarding suppliers' development programs, it has been outlined the high investment in both time and money as the most critical aspect to the rightful implementation of these programs. As a matter of fact, in order to contribute to suppliers' development and to enhance the adoption of sustainable practices within the suppliers' operations and activities, luxury brands are required to invest a huge amount of capital and substantial time to implement training programs or continuous improvement initiatives: this is in accordance with the nature of suppliers serving this market segment. Indeed, focal companies could become the drivers of change towards more sustainable practices improving quality, transparency, and traceability along the entire network. Concerning the Other group, there have been highlighted suppliers' audits and assessments and engagement programs as the most utilized strategies. The companies pertaining to this market segment have attributed a medium-high level of satisfaction to both strategies, indicating that their efficiency and effectiveness is hindered by different causes.

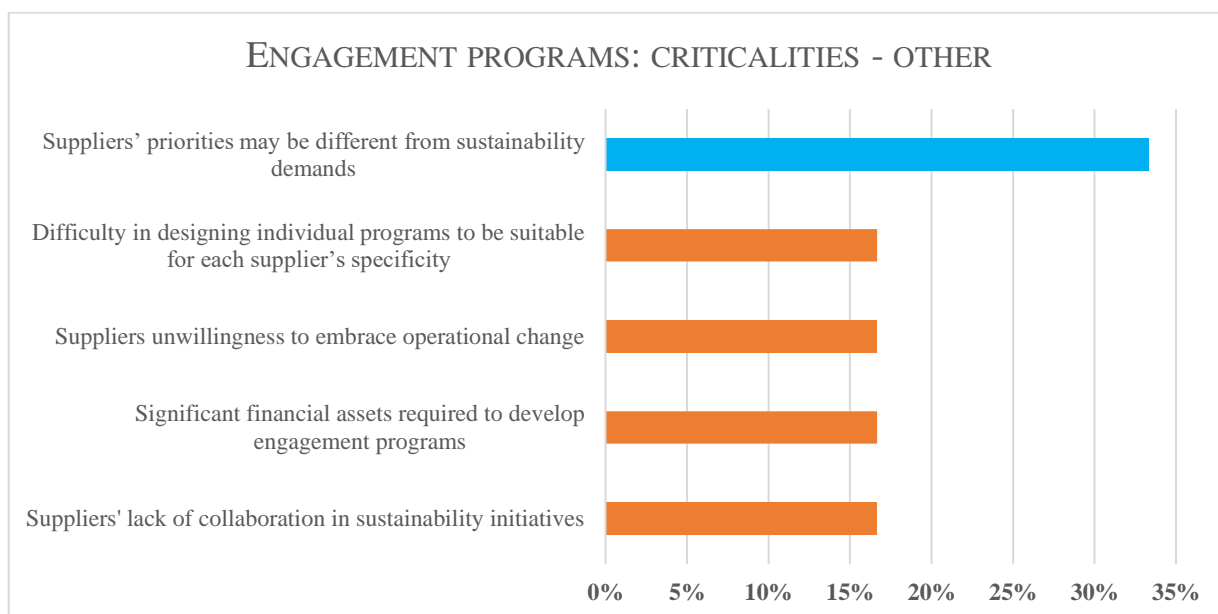


Source: Personal Elaboration

Considering suppliers' audits and assessments, there could arise difficulties in finding evaluators with adequate competencies and expertise that are able to properly scrutinize suppliers. Also, suppliers could wrongly disclose information and data, since they could fear of losing performance improvements.

This is extremely critical for this group since it is composed by companies operating in industries where the raw materials needed are highly technical and suppliers are strongly specialized. Besides, this cluster contains lots of service providers: assessing their sustainability enhances the complexity of the evaluation.

Hence, the correct examination on the behaviour implemented by partners is key in order to address potential criticalities harming quality, traceability, transparency, and consequently sustainability, of the materials within the entire value chain.



Source: Personal Elaboration

Regarding engagement programs, this strategy aims at engaging suppliers by improving communication among partners through the development of specific initiatives. For instance, leading companies could establish periodical meetings with their suppliers to attentively monitor the implementation of sustainable practices or they could engage suppliers in participating to workshops aimed at enhancing the awareness of suppliers related to sustainability topics.

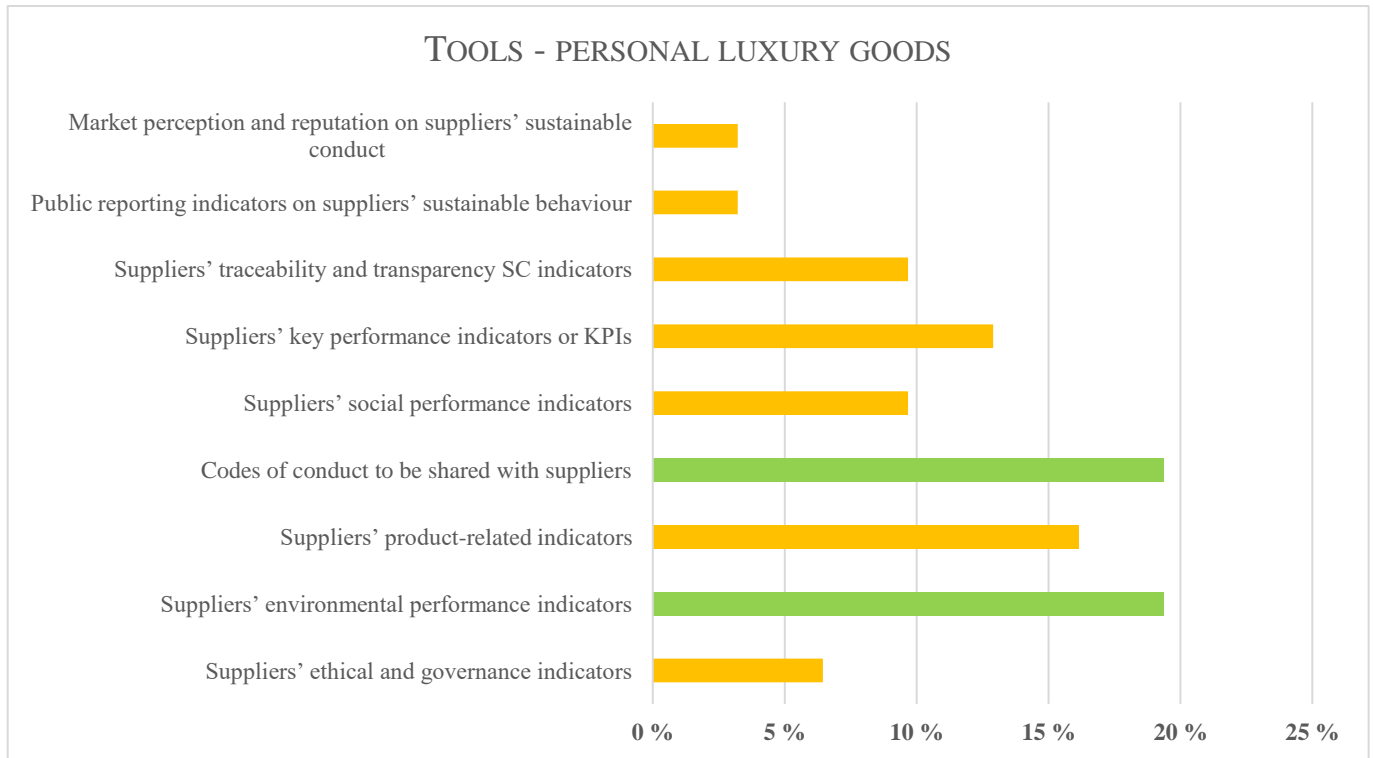
This strategy can be extremely useful for companies operating in the Other group due to the need for suppliers to be continuously monitored in the rightful application of sustainable practices due to their pivotal role in providing key raw materials and services. However, the interviewed organizations have highlighted as the most prominent barrier in the efficient execution of these programs the divergences of priorities among suppliers and the sustainability requirements given by focal brands. Indeed, the lack of coincidence among partners' interests may hinder the beneficial effects of these programs.

Therefore, to answer RQ1 by considering the market segmentation of the luxury industry, it is possible to summarize the above analysis by declaring that, within the responses obtained from the panel companies under scrutiny, there have not been highlighted any substantial differences regarding the most adopted strategies. Indeed, the two clusters have expressed the same preference for conducting suppliers' audits and assessments to enhance suppliers' collaboration and cooperation towards sustainable development.

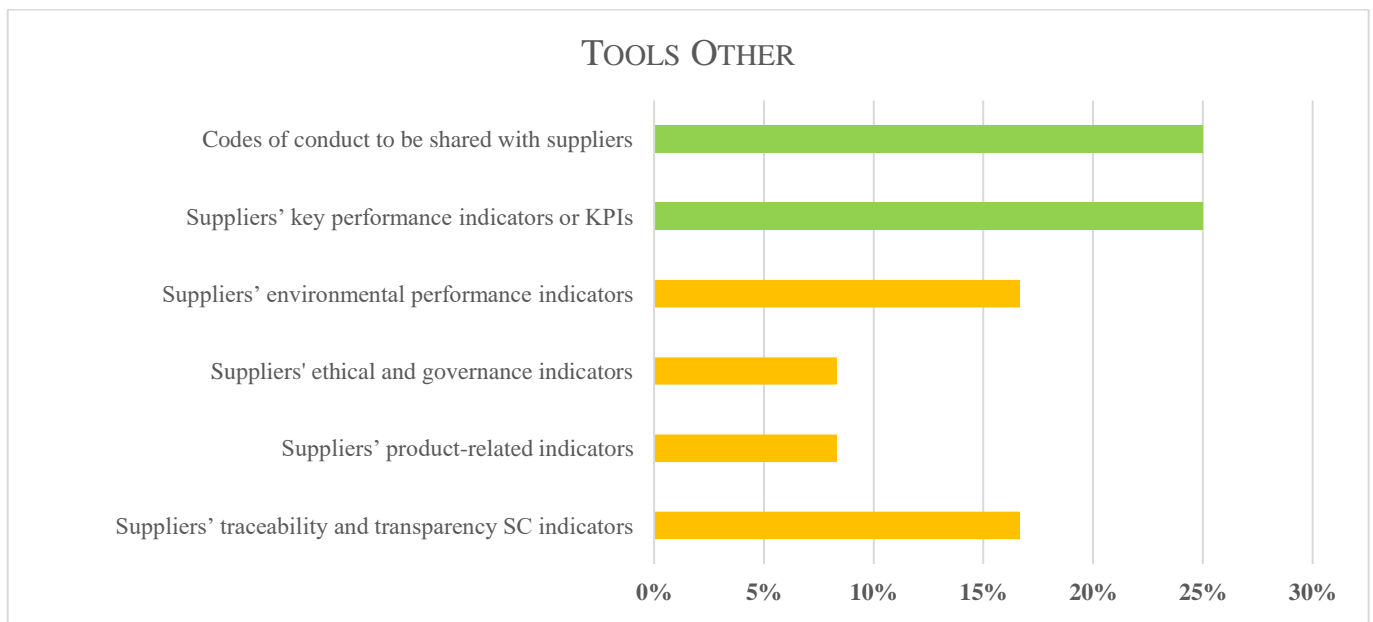
Nevertheless, it can be appreciated that the main difference pertains to the types of programs implemented by companies operating in the two distinct groups. In fact, companies within the Personal Luxury Goods segment tend to favour the implementation of development programs while organizations of the Other cluster generally exhibit a preference for applying engagement programs.

This can be linked to the different nature of suppliers in the two segments: while the ones pertained to the first group require more aids from the buyer enterprise in developing sustainability initiatives related to the manufacturing process to make goods, partners serving the Other segment claims for more engagement and continuous communication to provide an adequate luxury offering, particularly concerning services.

Considering the most utilized tools, it is possible to highlight that there are some divergent and convergent aspects among the two clusters.

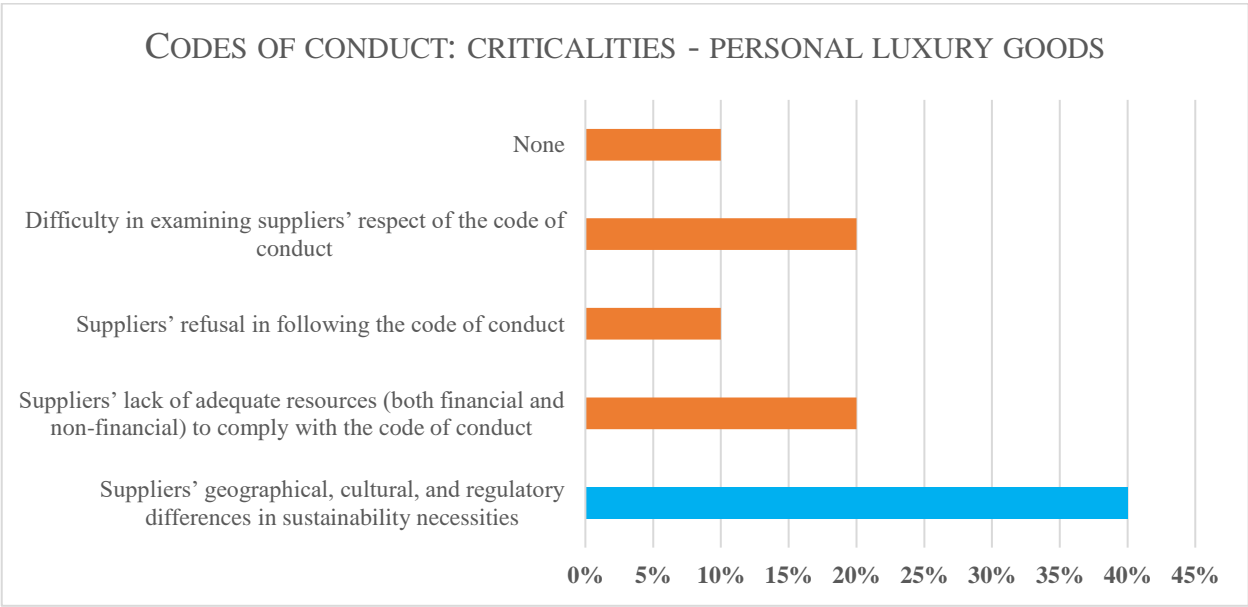


Source: Personal Elaboration



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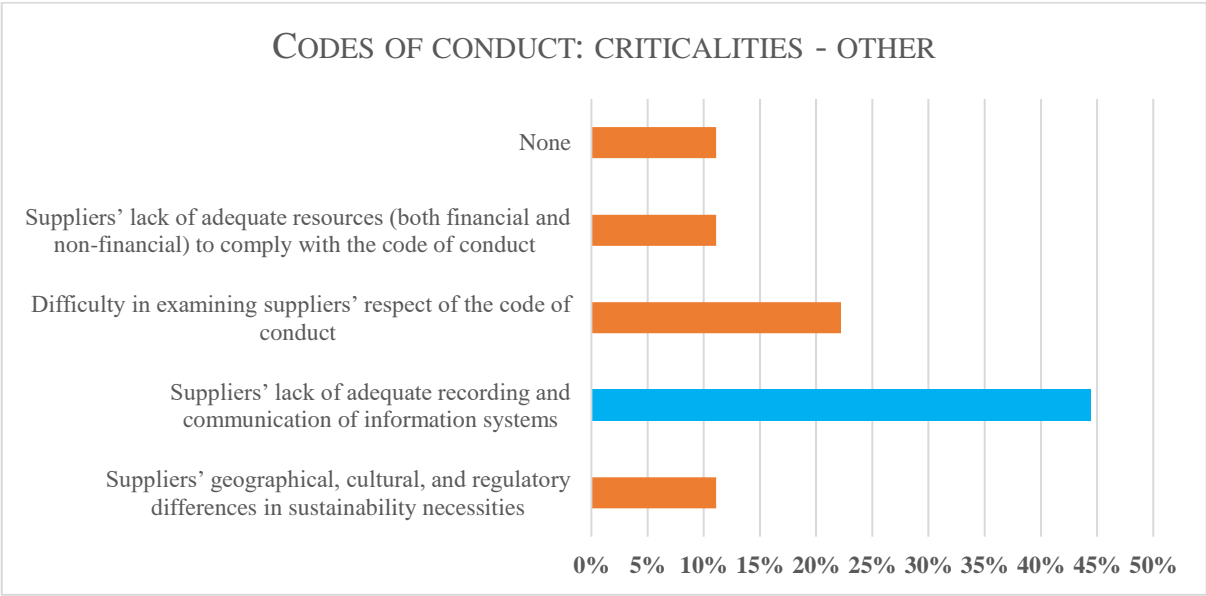
Regarding the similarities between the two groups, it is possible to outline that organizations in both of them share codes of conduct with their suppliers in order to define their requirements concerning sustainability and ethical conduct, which suppliers are expected to follow, to monitor their sustainable behaviour. By merging among the two segments the degree of satisfaction towards the adoption of this tool, it can be appreciated their application as associated with a high degree of efficiency and efficacy in achieving the objectives required. Although it has been evaluated as an efficient tool to be utilized overall, there must be highlighted the main criticalities hindering the effective implementation of this instrument.



Source: Personal Elaboration

Regarding this aspect, it must be differentiated among the two clusters: indeed, brands pertaining to the Personal Luxury Goods market encounter the suppliers' geographical, cultural, and regulatory differences in sustainability requirements as the main barrier harming the codes' efficiency. This can be linked to the previously mentioned geographical differences among the manufacturing facilities' location for producing personal luxury items: indeed, there have been outlined that both brands and their suppliers have their production sites in Europe and Asia, however, their distribution may be different, for instance one brand could have its production in Europe and sourcing from Asian suppliers and vice versa. Thus, legislation as well as cultural related issues may hinder the effectiveness of such tool, since it implies suppliers' execution of guidelines given by the focal firm, which could be located in another country.

Concerning the firms operating in the Other segment, they have expressed suppliers' lack of adequate recording and communication of information systems as the variable that negatively affects the most the correct implementation of this tool.

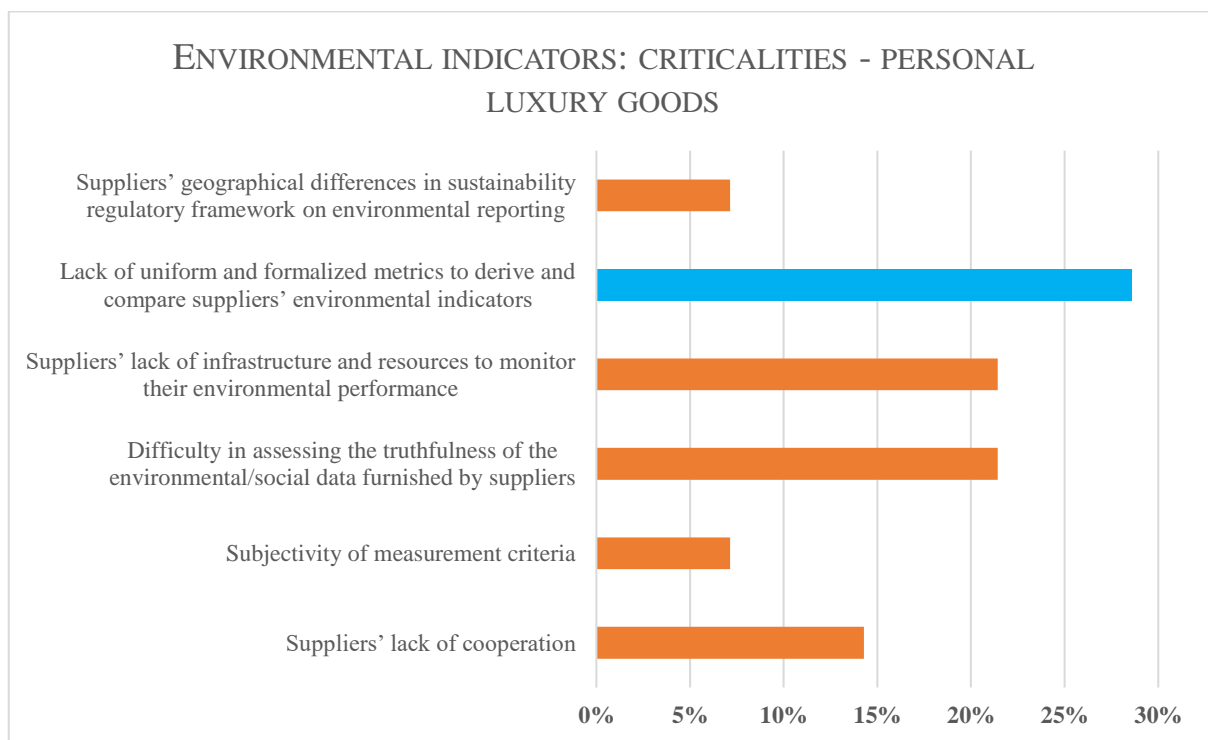


Source: Personal Elaboration

As a matter of fact, if suppliers concretely adopt a sustainable behaviour but they are not able to trace and efficiently convey their operational data, all the efforts could be vanished. Indeed, leading brands would not observe their partners' improvements, which could lead to an increasing reluctance for the buyer enterprise to build collaborative partnerships, adversely affecting the positive outcomes generated by the application of this tool. This is strongly correlated with the industries where companies within this cluster operates: without proper communication buyer companies could experience SC disruptions, related to quality issues for example, harming transparency, traceability, and lastly sustainability within the entire network.

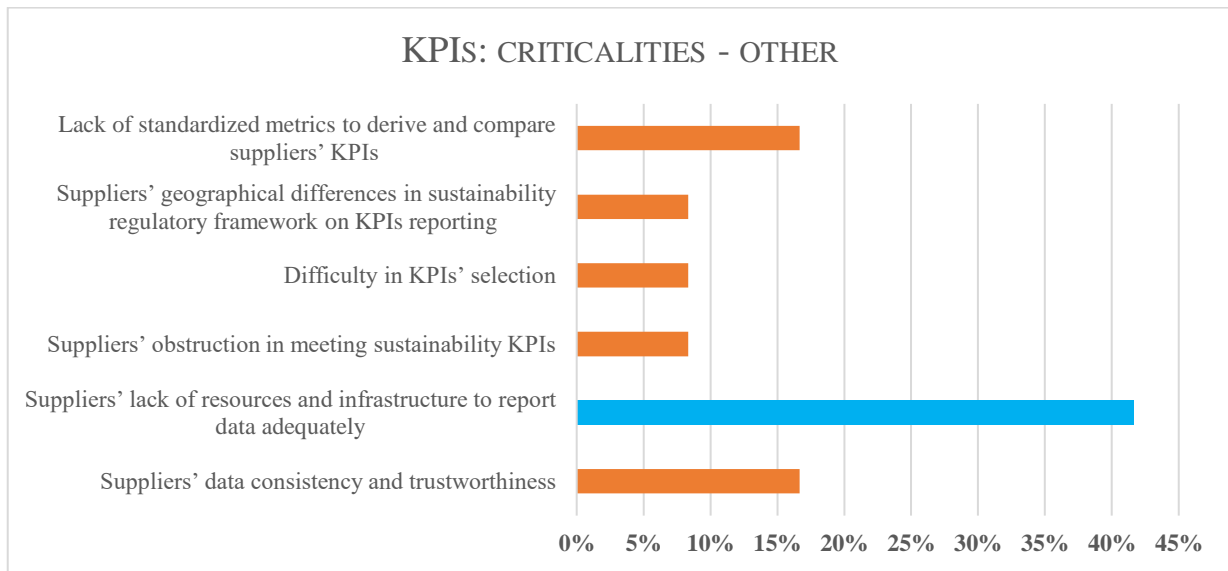
It has been previously expressed that there are also some divergencies in the outcomes of the most utilized tools between the two groups.

As a matter of fact, apart from the codes of conduct, companies operating within the Personal Luxury Goods market have expressed to employ most the indicators related to the environmental performance, such as carbon emissions, energy efficiency, or water usage. These metrics have been ranked with a medium-high level of efficiency pertaining to the beneficial effects on performance generate by their implementation.



Source: Personal Elaboration

This can be explained by the fact that companies have associated the adoption of these tools as subjective to an important barrier: as it has been previously stated, there do not exist a standardized framework on the metrics and indicators to be used to measure suppliers' sustainable performance. Hence, the difficulty in deriving and comparing the aforementioned indicators could damage the positive achievements of their utilization: these indicators can be different among various years or between firms, making it extremely challenging to calculate them properly and to make comparisons. Assessing the environmental performance of suppliers serving the markets belonging to this cluster is essential, since they are the most energy and water intensive ones in the luxury industry.



Source: Personal Elaboration

On the other hand, organizations within the Other cluster showed suppliers' KPIs (Key Performance Indicators) as the most adopted tool; for instance, leading enterprises can utilize these instruments to monitor their partners' sustainable behaviour. The respondents have expressed a medium-high degree of satisfaction in the adoption of this metrics, mainly due to suppliers' lack of adequate infrastructure to report the necessary data to calculate these indicators: indeed, suppliers may not have the needed systems to record the required information leading to potential errors in the estimation of these tools, consequently generating problems in their efficiency and effectiveness.

Taking into account the comparison between the two overcited clusters relative to the adopted tools, it is possible to address RQ2 by determining that there is a similarity among different market segments in selecting the sharing of codes of conduct with suppliers as the most adequate tool to select suppliers. Although, a different perspective can be highlighted regarding the choice of companies operating in the Personal Luxury Goods cluster to use more environmental performance indicators, which are more suitable for the type of sectors performing in this category, while organizations in the Other group demonstrated to elect KPIs as the most suitable instrument to evaluate and assess suppliers' sustainable behaviour.

3.2.2 Current limitations and future research directions

Through the development of the performed examination, it has been possible to answer to RQ1 appreciating the most adopted strategies that enhance the collaboration and coordination among the focal brand and its suppliers. Then it has been addressed the RQ2 by defining the main tools currently implemented by luxury companies in order to select, evaluate, and assess the sustainable behaviour of their suppliers.

The research questions have been answered considering both the overall industry and the related market segments. As a matter of fact, the most efficient strategies have been determined to be suppliers' audits and assessments and development programs, while the most effective tools have been delineated as the following:

codes of conduct to be shared with suppliers, suppliers' environmental performance indicators, and suppliers' KPIs.

Regarding the comparisons observed among the different market segments, it must be noted that the results do not extremely diverge from the ones achieved in the first analysis. The reason why the outcome has not showed significant differences can be related to the small number of companies considered in the panel and their slightly different characteristics in terms of market segmentation, size, and geographic location of their manufacturing facilities.

Hence it is suggested for future research to broaden the sample size in order to deepen the investigation and to be able to appreciate more the potential variations that could arise from the derived outcomes. Indeed, the same questionnaire could be submitted to a broader and more heterogeneous panel of organizations operating in different segments of the luxury market, presenting more assorted dimensions in terms of employees and annual revenue stream, and exhibiting a greater range of variations in the geographic locations of both companies and their suppliers. Also, the investigation could be broadened by requesting to the companies under scrutiny to furnish data on the size of their suppliers, in order to enable the research to derive more consistent results with supplementary and distinct possible comparisons to be derived among the variables considered.

Nevertheless, it is important to emphasize that this study serves as a valuable initial reference for managers and practitioners when engaging in the strategic decision-making process and in delineating the strategic guidance towards the implementation of sustainable initiatives along the entire value chain during their suppliers' selection, development and evaluation with the aforementioned instruments, bearing in mind the potential challenges and barriers that could arise in order to be able to address them efficiently and effectively to ensure traceability, transparency, quality, and sustainability within the entire supply chain.

Conclusions

Having deeply analysed and interpreted the collected and reported data and information it is possible to derive final considerations and conclusions on the examination formerly executed.

Regarding the characteristics of the companies within the sample, it has been observed that, overall, they are homogeneous in terms of market segmentation, size, and geographic location of manufacturing sites of both brands and their suppliers. Nevertheless, thanks to the comparisons' analysis, it has been appreciated the differences related to the size and facilities' location of companies pertaining to the two derived clusters: indeed, the Personal Luxury Goods segment was detected to present large sized enterprises located primarily in Europe with a smaller percentage of organizations placed in Asia, while the Other market segment presents a more heterogeneous distribution of firms' dimension and production establishments around the globe, although it was witnessed a prevalence of Europe and Asia for locating these sites.

These inequalities in the companies' characteristics can be merged with the answers provided by the interviewees in order to appreciate the potential similarities and differences perceived.

To address the first research question, it has been recorded a strong uniformity in the selected responses among the overall population and the two different clusters. As a matter of fact, it has been documented that the outcome of the first level of analysis determined suppliers' audits and assessments as well as development programs as the most appropriate strategies to enhance suppliers' collaboration and coordination, which has been confirmed in the second level of analysis as well: both clusters have selected suppliers' audits and assessments as the most effective strategy.

However, it was remarked a differentiation among the two groups pertaining to the choice of implementing development programs: organizations belonging to the Personal Luxury Goods cluster have expressed their preferences towards the application of these programs, while firms operating in the Other segment have declared to favour engagement programs. As it has been earlier investigated, this difference can be linked to the choice of selecting the most suitable strategy depending on the diverse suppliers' base: indeed, various market segments present unique suppliers that must be managed separately with tailored strategies that consider their heterogeneous traits and attributes.

Therefore, to answer the RQ1 it is possible to affirm that the most efficient and effective strategies to be adopted by companies operating in the luxury industry overall is to conduct audits and assessments of suppliers, however the lack of standardized reporting measurements as well as the geographical differences among partners must be carefully considered and properly addressed in order to achieve the most sustainable outcomes. Furthermore, it can be stated that the implementation of suppliers' development programs is more suitable to be applied by brands in the Personal Luxury Goods segment, while organizations operating in Other markets should execute engagement programs as the most appropriate strategy to align suppliers' priorities with their sustainability requirements.

Considering the conducted empirical exploration, it is possible to furnish a comprehensive response to the RQ2. By combining the outcomes emerging from the two levels of analysis on the gathered data, it has been detected that the most adopted instruments to select, evaluate, and assess suppliers' sustainable behaviour overall are codes of conduct, environmental performance indicators, and KPIs.

Regarding the sharing of the codes of conduct with suppliers, it has been demonstrated to be an efficient instrument to select and evaluate suppliers, however, while drafting and sharing the codes, it must be carefully taken into account the potential risks associated with the different geographic locations between the focal brand and its suppliers, which could obstruct the adoption of the codes, as well as the suppliers' potential lack of adequate resources to comply with the codes' sustainable requirements.

Moreover, it has been suggested that applying environmental performance indicators is more adequate to evaluate suppliers serving the Personal Luxury Goods cluster, mainly due to the high environmental impact generated by the brands' operations in this market segment: indeed, it is the most water and energy intensive one in the luxury industry. On the other hand, it can be appreciated that the utilization of KPIs is more compatible to assess suppliers' sustainability for organizations included in the Other segment. Thus, while calculating these measurements, thorough inspections on the metrics and criteria employed are required, since they could profoundly differ from one another harming the rightful interpretation of the utilized indicators.

Therefore, it is possible to conclude that the most efficient way to enhance collaboration and cooperation with suppliers in order to be able to properly select and evaluate them, consists of combining the strategies and tools described in the inquiry aiming at reaching sustainability while ensuring quality, transparency, and traceability within the global luxury supply chain.

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