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"Sustainability Strategy Implementation Across Luxury Automobiles and Formula 1: The Case of Ferrari and Its Impact on Brand Perception"

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Chapter 1 – Introduction and Objectives

The aim of this thesis is to investigates how Ferrari integrates sustainability into its corporate and Formula 1 activities and analyses the brand's overall luxury brand positioning. In a business environment where environmental and social matters are becoming increasingly more important, companies are required to align sustainability objectives with their competitive strategy and brand identity. This chapter begins with the introduction of the background and context of the study, proceeds to define the research problem and main question, outlines the research objectives and finally presents the structure of the thesis.

1.1 Background and Context

In recent years, sustainability has progressively become a central theme in strategic decision-making across different industries. Companies are increasingly expected to address environmental, social and governance (ESG) issues while simultaneously ensuring that competitiveness and long-term profitability is not undermined. This evolution is driven by growing regulatory pressures, stakeholder expectations and increased public awareness and concern about environmental issues.

In this perspective, the luxury sector presents a particularly interesting context in which further investigate how sustainability is integrated into corporate strategy. It is well-known that luxury brands are traditionally associated with exclusivity, performance, heritage and symbolic value nonetheless nowadays, these firms are increasingly required to address sustainability concerns while preserving their brand identity. This dynamic can generate a potential tension between environmental responsibility and the preservation of essential luxury attributes such as prestige and exclusivity.

Ferrari represents an interesting case in this regard. Being a globally acknowledged luxury performance brand with strong symbolic positioning and a strong presence in Formula 1, Ferrari has been gradually incorporating sustainability initiatives into its business and motorsport operations. Electrification strategies, circular economy initiatives and ESG efforts demonstrate a well-defined approach to environmental sustainability commitment.

Nonetheless, although sustainability may be strategically integrated at the corporate level, as it is for the Ferrari's case, its effect on consumer perception in the luxury context is still unclear. For this reason, it is of both theoretical and managerial interest to understand how sustainability communication enhances, weakens or leaves unchanged the main luxury attributes such as innovation and exclusivity.

1.2 Research Problem and Main Question

Despite sustainability is increasingly integrated into corporate strategies, its impact on how consumers perceive luxury brands is still uncertain, particularly regarding innovation and exclusivity. Even though sustainability initiatives are frequently introduced as a source of innovation and long-term value, luxury brands are largely shaped symbolic attributes including exclusivity, prestige and performance, all of which play a central role. For this reason, the effect of sustainability-related communication on core luxury brand dimensions may be complex and not immediately predictable.

Existing texts and research have deeply investigated sustainability from a corporate perspective and from a luxury branding perspective separately as different areas of research. Nevertheless, a relatively low number of research have empirically analysed the way in which sustainability communication influences specific perceptions, more specifically innovation and exclusivity, within a luxury performance setting. Moreover, only few studies have simultaneously analysed a firm's sustainability strategy and an experimental study on consumer perception.

Taking these considerations into account, this thesis addresses the following research question:

"How does Ferrari integrate sustainability into its corporate and Formula 1 strategy and how does sustainability-related communication influence consumer perceptions of innovation and exclusivity within a luxury setting?"

By extensively studying both the integration of sustainability into Ferrari's strategy and its consequences on consumer perception, the study is intended to narrow the gap between corporate sustainability strategy and brand perception within the luxury sector.

1.3 Research Objectives

In order to address the research question previously outlined in 1.2, this thesis aims to pursue and analyse several interconnected objectives.

First, it analyses how sustainability is embedded into both Ferrari's corporate and motorsport strategy by placing particular emphasis on environmental initiatives, electrification processes and ESG integration.

Furthermore, it constructs a theoretical framework that links competitive strategy theories, sustainability integration models and consumer perception within the luxury sector hence developing conceptual model which allows for an analysis of the relationship between corporate sustainability initiatives and consumer perception.

In addition, the study empirically examines the impact that sustainability-related communication has on key perceptual dimensions, particularly on innovation and exclusivity, by implementing an experimental method that allows for comparison of different types of communication.

Lastly, the thesis interprets the empirical results in light of the strategic analysis and theoretical framework in order to better comprehend the relationship between corporate sustainability initiatives and consumer perception in the luxury sector.

1.4 Structure of the Thesis

This thesis is divided into seven chapters and each one addresses a particular aspect of the research starting from theoretical frameworks to empirical results and final conclusions.

Chapter 1 provides the foundations of the study by introducing the research topic, outlining the background and context, defining the research problem and the main question, which will guide the analysis, and lastly presenting the objectives of the research and how the thesis is structured.

Chapter 2 outlines all the theoretical framework of the study by analysing the main concepts and morels related to competitive advantage, sustainability and brand perception. In particular, this chapter describes the analytical models that will be used in the study, including Porter's industry-based approach and the Five Forces, the Resource-Based View and VRIO framework, the Triple Bottom Line and the ESG frameworks. Furthermore, it also addresses the topic of green marketing, sustainable luxury and outlines the two research hypotheses that are later tested.

Chapter 3 offers an in-depth analysis of Ferrari's sustainability strategy by examining the firm's initiatives and actions in both its road-car production and Formula 1 operations and situates Ferrari within the wider luxury automotive industry context by comparing the firm with other brands such as Porsche and Lamborghini.

Chapter 4, instead, outlines the research design and methodology. This part of the thesis explains the approach used to examine Ferrari's sustainability strategy making use of document analysis and it describes the perception experiment to test the two research hypotheses of Chapter 2. In addition, it also explains the process through which the data is collected and the statistical methods adopted for testing the hypotheses.

Chapter 5 highlights the empirical findings of the perception experiment explained in the previous chapter, illustrating the statistics and the results of the hypotheses testing.

Chapter 6 interprets the empirical results by considering the theoretical frameworks of Chapter 2 and Ferrari's sustainability strategy of Chapter 3. Furthermore, the results are thoroughly examined and their theoretical and managerial outcomes discussed in the luxury brand context.

Lastly, the thesis closes with Chapter 7 which summarizes the main conclusions of the study, discusses its limitations and identifies possible directions for future research.

Chapter 2 – Theoretical and Analytical Framework

This chapter presents the theoretical and analytical instruments that will guide the analysis of Ferrari's sustainability strategy and how its actions may influence the company's competitive position and brand perception. The aim of Chapter 2 is to outline the most relevant theoretical frameworks through which sustainability can be assessed both in terms of a strategic element and of a form of communication. In detail, this part of the thesis discusses key notions regarding competitive advantage and particularly sustainable competitive advantage, showing how sustainability and environmental initiatives can be incorporated into firms' long-term strategy without undermining performance and competitiveness.

This chapter also presents well-established strategic and sustainability frameworks commonly studied and applied in management and marketing literature such as models that assess firms' internal resources, their competitive industry positioning and broader methods that evaluate sustainability across multiple dimensions including economic, environmental and social. In addition, attention is directed toward the role of communication and perception highlighting how sustainability initiatives play a central role in influencing the interpretation by externals.

By integrating strategic theory and notions with sustainability and perception-based perspectives, the following subchapters offer a coherent theoretical foundation for subsequently analysing both Ferrari's sustainability initiatives and the experimental study presented in the following chapters.

2.1 Competitive advantage and sustainability

First, it's important to state that competition plays a central role in determining firms' success or failure. Firms perform in competitive environments where success depends on the company's ability to outperform or compete effectively against rivals. To achieve this, a competitive strategy needs to be implemented; this will determine firms' performance and will establish whether the industry position is profitable and sustainable. According to Porter (1985) and his view on relative competitive position within an industry, companies compete within industries and their success relies heavily on how they position themselves relative to other firms operating in that same industry. The fulfilment of a positive position will eventually give rise to competitive advantage which enables firms to outperform competitors over the long term.

According to Porter (1985), competitive advantage comes from the ability of firms to create value that exceeds the cost of producing it. From Porter's perspective, value reflects what buyers are willing to pay and superior value can be derived from offering lower prices in respect to competitors for the same benefit or from offering distinctive and better benefits that are worth paying more for. He identifies two basic kinds of competitive advantage, cost leadership and differentiation, that together with the range of activities performed gives rise to three generic strategies through which a firm can achieve above-average performance within an industry: cost leadership, differentiation and focus. The latter itself has two models addressed as cost focus and differentiation focus. More specifically, in a cost leadership strategy a firm is oriented toward becoming the low-cost producer hence charging lower costs while offering comparable benefits to consumers. Companies that pursue this strategy usually operate in many industries segment covering a wide range and they may try to achieve various benefits such as economies of scale, preferential access to raw materials etc. On the other hand, in a differentiation strategy the firms choose characteristics perceived as important by buyers and pursues them to meet their needs. The companies rely on offering unique attributes allowing them to charge premium prices but it is important to notice that to be able to follow that strategy a firm must really be one-of-a-kind or be perceived as such. The focus strategy, by contrast, differs from the other two described above since it is built on selecting a segment and customizing the strategy by focusing exclusively on them rather than the whole market.

Micheal E. Porter wrote that sustained competitive advantage is the fundamental driver of above-average performance in the long-run highlighting the importance of preserving a favourable position over time. While his frameworks and studies focus on how firms can achieve competitive advantage by focusing on strategic positioning and creating value, subsequent research and contributions have further examined competitive advantage and the determinants that lead to it. Barney suggests that firms by implementing certain strategies that leverage their internal strengths while annulling external threats and minimizing internal weaknesses achieve sustained competitive advantage. According to him a sustained competitive advantage exists when a firm implements a value creating strategy that current and potential competitors are not simultaneously implementing, and they are incapable of replicating. He suggested that a theoretical framework needed to be built around the assumption that, for sustained competitive advantage to arise, resources need to be heterogeneous and immobile and that not all companies' resources have the potential to obtain it. To hold this capability, firms' resources need to possess four characteristics: they must be valuable hence enabling firms to exploit opportunities or neutralize threats in the industry while remaining rare and imperfectly imitable in the eyes of current and potential competitors and there should not exist a substitute readily available that can be implemented to achieve identical strategic outcomes. This resource-based view highlights that sustained competitive advantage is rooted in firms' internal resources that help create long-term value while being difficult for competitors to imitate or to replace.

Expanding on Barney's resource-view perspective, it may be further noted that sustainability has increasingly become a factor that influences firms' ability to obtain and preserve long-term competitive advantage. Nowadays, firms operate in environments where environmental and social challenges are becoming increasingly dominant. For this reason, companies can no longer rely solely on economic and technological resources to sustain competitive advantage but they should address also environmental and social issues. According to Elkington (1997), sustainability cannot be ignored anymore. Since companies operate in contexts driven by environmental and social challenges, matters concerning economic performance, social responsibility and environmental impact need to be treated as primary concern, not second. As a result, the way firms handle sustainability strategies affects their ability to create value over time and compete, their long-term success and more importantly the capacity to sustain competitive advantage relative to other firms within the industry.

Proposed by Elkington (1997), the Triple Bottom Line framework defines sustainability as the combination of three interconnected elements: economic prosperity, social responsibility and environmental protection and to reject the objectives implied in this framework means to risk failure. According to this view, long-term success relies on the ability to address financial objectives in conjunction with social and environmental issues instead of prioritizing solely economic achievements. The Triple Bottom Line model challenges firms to address both the environmental impact, including resource use and pollution, and the handling of products' lifecycle from production to end-of-life operations such as disposal and recycling to ensure lower environmental impact in the long-term. Consequently, sustainability plays a crucial role in influencing a firm's long-term success as well as establishing whether a company can sustain a competitive advantage with respect to competitors within the industry.

2.2 Analytical models: Porter, VRIO and RBV

Expanding on the previous subchapter which discussed competitive advantage, sustained competitive advantage and sustainability, this section outlines the principal analytical models implemented to analyse how firms achieve and maintain competitive advantage. While the Section 2.1 introduced the main concepts and theoretical foundations, this part describes some models which offer practical tools for evaluating how companies compete and where their advantages stem from. More specifically, this subchapter introduces Porter’s industry-based approach together with Porter Five Forces, the Resource-Based View (RBV) and the VRIO framework. Taken together, these models provide various perspectives by assessing competitive advantage from different angles such as respectively industry structure, firms’ internal resources and the characteristics that enable them to sustain long-term competitive advantage.

According to Porter (1985), firm performance is shaped by the competitive structure in which the firm operates. Porter’s approach examines competitive advantage by prioritising the role played by the external competitive environment and the industry structure in determining firms’ performance and profitability. Not all industries possess the same ability to create sustained profitability hence these differences contribute substantially to shaping firms’ above-average performance. This perspective is generally implemented through the Five Forces framework which explores the competitive forces that influence industry competition. In this model, competition is described in a broad sense that is not limited to close competitors but it encompasses multiple other forces including the bargaining power of buyers and suppliers, the threat of new entrants and the threat of substitute products. All the mentioned forces influence how much economic value created in an industry is captured by a firm. Therefore, firms, when formulating strategies to achieve superior performances, need to be mindful not only to direct competition with rivals but also to the impact and strength of all the other competitive forces. The aggregate strength shapes how competitive an industry is and how effortless it is to earn profits and sustain them over time, clarifying why some industries are more favourable than others. When competitive forces are strong, firms deal with higher pressure and lower potential profits while when they are weak, they compete in more positive conditions with less pressure and higher profit potential.

While Porter's view outlines how industry structure affects performance it does not fully explain why firms achieve different levels of performance within the same industry. To address these differences, the Resource-Based View (RBV) shifts the attention from the external to firms' internal resources and capabilities to address differences in performance. The Resource-Based View is based on two critical assumptions concerning resources and capabilities. The first one refers to resource heterogeneity which implies that firms may own different resources and capabilities even though they are competing in the same industry. The second one, instead, concerns the assumption of resource immobility pointing out that some of these differences in resources and capabilities can be durable and long-term given that it can be costly for other firms to develop or acquire them. These two assumptions provide an explanation for the differences in performance level within the same industry.

Starting from the Resource-Based View, the VRIO framework is a tool used to assess which firm resources and capabilities have the potential to generate competitive advantage. To apply this model four questions need to be posed regarding value, rarity, imitability and organization. In the first question, it is examined whether resources and capabilities are valuable, in such case they are considered strengths and they enable a firm to better its competitive position. The evaluation goes on asking about rarity, if a resource or capability is widely spread and owned by many firms then it is unlikely to be considered a driver of competitive advantage. Thirdly, a resource or capability is a source of competitive advantage if it is imperfectly inimitable meaning that the competitors who do not possess them deal with high costs when obtaining or developing them. A firm that possesses a valuable, rare and hard to imitate resource can enjoy a time span of sustained competitive advantage if competing firms face a crucial cost disadvantage in imitating it. Generally, imitation takes place through two main methods, direct duplication or substitution, hence competitors may seek to imitate a firm with competitive advantage either by directly copying it or by substituting it with alternatives considered substitutes to achieve similar outcomes. Finally, the framework highlights the importance of a good organization. It refers to suitable structures, processes and management systems that enables firms to fully exploit resources and capabilities and without whom it may fail to generate sustained competitive advantage. Overall, the VRIO framework offers a structured assessment of firms' resources and capabilities by evaluating which can generate sustained competitive advantage and which purely contribute to competitive parity.

Together, all the analytical models examined provide an integrated framework for analysing competitive advantage by considering both external industry conditions and internal firm-specific factors and offer a solid basis for later discussion in the following chapters.

2.3 The Triple Bottom Line and ESG frameworks

While Section 2.2 focused on analytical models used to examine competitive advantage, sustainability, to be properly assessed, needs specific models that outline its scope and areas of focus. The most implemented frameworks in the business sector are the Triple Bottom Line (TBL) and the ESG framework which offer the tools to understand and evaluate sustainability in the context of business organizations.

Initially sustainability was often understood as an attempt to align the traditional financial bottom line with new environmental concerns. However, over time it became evident that the sustainability agenda was more complicated than imagined. Elkington (1997) argued the traditional focus on a single financial bottom line and claimed that sustainability needed to be developed through a more comprehensive "triple bottom line" model which focuses on economic prosperity, environmental quality and social justice. Rather than assessing firms based exclusively on financial performance, the Triple Bottom Line states that success depends on coordinating all three dimensions (economic, social and environmental). Traditionally, with the terminology "bottom line" it refers to a company's profit figure which indicates the financial performance and the Economic Bottom Line. Nevertheless, while economic profitability can be evaluated using established accounting practices broadening this approach also to environmental and social contexts can be a real challenge. For this reason, the TBL extends the traditional view by going beyond solely financial outcomes. The Environmental Bottom Line does not focus solely on profits but it extends its scope to firms' impact on natural systems such as resource use, emissions, product lifecycle management and ecological preservation. Firms are expected to implement environmental actions into core business strategy instead of treating them as secondary matters or external considerations. This component highlights that firms' activity is constrained by ecological boundaries and that failing to implement environmental strategies may weaken long-term performance. As a result, environmental liability becomes a strategic priority given that firms who can properly manage their ecological impact can impact their long-term competitive position and success. Moving on, the Social Bottom Line is the third and last dimension of the Triple Bottom Line model. According to Elkington (1997), sustainability cannot be extended solely to economic and environmental topics since social equity, trust and ethical conduct are equally as important in shaping long-term development. The Social Bottom Line incorporates aspects such as human capital, public health, education as well as the social relationships that encourage cooperation and collective advancement. In this case it is important to highlight the concept of social capital which refers to the level of trust and shared norms within a society that make cooperation easier and reduce conflict during economic activities. Strategically, all firms that disregard social responsibilities risk reducing stakeholder support and legitimacy hence jeopardizing their long-term competitiveness. Altogether, the three dimensions of the Triple Bottom Line show that sustainability cannot be constrained to the single economic determinant, instead it is necessary that firms balance economic, environmental and social elements in an embedded approach. Finally, this framework provides the theoretical basis for studying how sustainability is evaluated and disclosed in current business practice.

Whereas the Triple Bottom Line offers a wide conceptual framework of sustainability, the ESG framework translates sustainability into a more structured and measurable model used for assessing corporate performance. The Environmental, Social and Governance (ESG) framework has gained more acknowledgement in recent years becoming a valid corporate assessment indicator that evaluates a company's environmental practices, social responsibilities and governance performance. The notion of ESG was introduced in 2004 and since that year has been supported by international organizations including the Global Reporting Initiative (GRI), the Sustainability Accounting Standard Board (SASB) and the Task Force on Climate-related Financial Disclosures (TCFD) all of whom formulated different models and guidelines to enhance transparency and disclosure obligations regarding ESG-related challenges. Over the years, the ESG framework have become more mature and structured across industries. Nevertheless, this new model has initiated a debate concerning its effects on corporate governance dividing scholars into two opposing views: the ones that focused on short-term costs associated with ESG implementation and the others who prioritized long-term benefits since ESG practices may strengthen firms' value and their competitive position. However, to better understand the objective of the ESG framework it is helpful to distinguish it from the concept of Corporate Social Responsibility (CSR). The ESG is constitutes a broader and more strategic framework with respect to CRS as it takes into consideration environmental, social and governance factors into its overall corporate performance, risk management and stakeholders' interaction. Contrary to CRS which is considered as self-regulated commitment, the ESG framework involves also external evaluation and supervisions in order force firms to apply it. As a result, ESG attributes greater priority to transparency, uniform reporting standards and allocates more accountability for how companies handle and report their sustainability performance.

Collectively, the Triple Bottom Line and the ESG frameworks present mutually reinforcing interpretations used for understanding corporate sustainability: the TBL provides us with a broad conceptual framework while the ESG offers a more structured and measurable model. Together these frameworks establish a basis for evaluating how sustainability is integrated into corporate strategy and how it influences competitive positioning.

2.4 Green marketing and sustainable luxury

In the last years sustainability concerns started to expand also within business contexts and firms progressively made use of marketing strategies to communicate their environmental commitments to consumers. The "green marketing" expression arose in response to greater concern regarding environmental matters after multiple market researchers suggested that consumers were willing to purchase greener products and pay a premium price for them. The emerging of the "win-win" philosophy formulated by Porter and Van der Linde (1995) suggested that environmental innovation can increase efficiency and enhance competitiveness rather than harm it. (Porter and Van der Linde, 1995)

Nevertheless, progress and development of green marketing in the past have been limited by several structural weaknesses that are described as "routes to failure". According to Peattie and Crane (2005) five distinct "routes to failure" can be pinpointed which highlighted how firms were motivated by short-term sales goals, compliance pressures or isolated promotional efforts rather than reflecting authentic changes to the firms' strategy and operations. Most of the times these methods did not manage to encompass sustainability across the business organization and implement a future-oriented perspective which led to environmental propositions that were not backed by genuine changes in products characteristics, processes or business structures. For this reason, these approaches intensified consumers skepticism and distrust hence reinforcing the likelihood of greenwashing allegations.

Green marketing should act as a link between existing production and consumption patterns and a better future oriented towards more sustainable production and consumption processes and, to achieve this valuable progress, it is requested a substantial reshape of marketing theory and practice. To this end, it is necessary to redefine the term “product”, to have the willingness to change markets instead of only adjusting existing products and encouraging more sustainable production and consumption structures, to look beyond current consumer needs by considering also current and future stakeholders. This transition also requires a willingness to manage demand and expectations which is achieved by shifting attention to cost instead of price and in addition, it calls firms for further responsibility in considering consumer and societal welfare and in directing consumers toward a more sustainable approach. This sustainability agenda for reform constitutes a challenge for the marketing which is required to apport changes to both theory and practice. Without addressing these problems, marketing risks becoming an obstacle rather than a driver towards sustainability all of which depends on coordinated initiatives among firms, scholars and policymakers as well as persuading consumers that these alterations are essential and worth pursuing.

In particular, these challenges become even more difficult within the luxury sector where brand identity and exclusivity constitute a fundamental element in shaping consumer expectations. Traditionally, luxury was aligned with sustainability ideals particularly through the production of rare and high-quality products distinguished by craftsmanship, longevity and a strong control over the value-chain. Within this historical context, the luxury world was characterized by infrequent and exceptional purchases with a production restrained at a controlled and limited volumes.

Nonetheless, the rise of mass luxury consumption has altered this traditional compatibility because luxury brands have expanded all over the world increasing production and gaining greater visibility. For this reason, firms have attracted greater visibility and scrutiny concerning the less transparent aspects of the supply chain especially regarding how raw materials are obtained and the working conditions. In addition, firms relocated production abroad and focused on growth through higher volumes resembling fashion and consumer industries which are characterized by frequent product renewal and shorter product lifespan. As a result, this transformation raises doubts about whether the current luxury business align with the principles of sustainable development. This contrast sheds light on the difficulties of aligning luxury and sustainability in today's markets. While traditional luxury can actually be sustainable since it promotes values including quality, longevity and craftsmanship prioritizing growth and higher production quantities may negatively affect environmental and social standards. Hence, the compatibility between luxury and sustainability does not only count on practical sustainability initiatives but also on the way sustainability is communicated and embedded within a firm's brand identity. For this reason, it becomes crucial understanding how sustainability actions are perceived in the luxury sector given that such interpretations may influence how consumers judge innovation, exclusivity and brand value.

2.5 Perception and hypotheses development

As briefly announced in Section 2.4, perception is crucial in shaping how consumers evaluate the brand and respond to marketing communications. From the perspective of Keller (1993), customer-based brand equity stems from the distinct effects of brand knowledge on consumer response to marketing activities. In simple terms, a brand's value is shaped by what consumers have learned, stored and associated with it their memory. Therefore, marketers should be aware that the long-term success of a brand's marketing projects is strongly conditioned by the brand knowledge that was already formulated into customers' memory through previous marketing initiatives since short-term communications contribute to shaping and strengthening the associations that define the brand over time. For this reason, any new message or action, including sustainability-related ones, can potentially modify pre-existing brand associations and affect future consumer judgements. Brand knowledge is divided into two main components: brand awareness and brand image. Brand awareness refers to the degree to which consumers recognize and remember the brand while brand image reflects the set of associations connected to the brand that customers store in memory. These associations represent the meanings, attributes and values that consumers link to the brand and they are essential in determining how the brand is evaluated. Brand associations can vary in favourability, strength and uniqueness and those attributes are what drives consumer perceptions and future behaviour.

Referring to the luxury sector, brand image plays a crucial role since, according to Kapferer (2014), luxury brands are typically associated symbolic benefits including prestige, social status and identity expression. As stated by Keller (1993), symbolic benefits serve as a major driver of brand evaluations since in luxury consumption customers do not assess brands based solely on practical features and use but also based on what the brand symbolizes both socially and personally. Therefore, when luxury brand conveys a message, including sustainability-related statements, it may alter customer perception and evaluation of the brand. It is important because sustainability communications may be viewed as evidence of innovation and progress but it may simultaneously interact with customers' perceptions of exclusivity that represent and define luxury brand identity. For this reason, it is crucial to analyse and understand how sustainability-related communications influence perceptions of innovation and exclusivity.

Based on the theoretical models described in the previous sections, sustainability communications may strongly influence how customers perceive luxury brands. Sustainability initiatives may be interpreted as signals of innovation and progress which could to some extent reinforce the brand's perception as innovative. Simultaneously, although sustainability may present new additional brand associations it does not necessarily undermine the core symbolic grounds of luxury brands' identity. Given the theoretical considerations listed above, the following hypotheses are formulated:

H1 – Exposure to sustainability-related messages enhances perception of innovation in a luxury brand.

H2 – Exposure to sustainability-related communications influences perceived exclusivity of a luxury brand.

In the following chapters, these hypotheses will be empirically tested making use of the experimental design developed in the subsequent chapters.

Chapter 3 – Ferrari and Formula 1 Sustainability

Chapter 3 provides an overview of Ferrari's sustainability strategy by focusing on both road-cars and its involvement in Formula 1. The scope of this chapter is to describe the dominant environmental initiatives undertaken by Ferrari regarding manufacturing processes, product development and motorsport activities grounded on official annual reports and sustainability statements. The purpose is to present the empirical context serving for subsequent analysis on how sustainability is perfectly integrated into Ferrari's strategy.

3.1 Ferrari's sustainability strategy in road cars

This section focuses on Ferrari's sustainability strategy in relation to its road-cars operations paying attention to the manufacturing processes, the product development and their environmental footprint with a particular focus on energy usage, emission reduction and product innovation.

Ferrari's aim is to minimize the negative impact on the environment by continuously bettering its approach business operations and continuously improving their environmental performance. To achieve those goals, they comply with the provisions contained in laws and regulations. Since 2001, the firm invested on their environmental footprint and received numerous certifications reflecting their sustainability commitment, one of the most important being the FIA Environmental Accreditation Program obtained in 2024.

In 2022, Ferrari has developed the so called decarbonization strategy that is aligned with the Environmental Practices (which promote energy efficiency and renewable energies) and the Paris Agreement. The best effort is put into the reduction of pollution and GHG emissions making evident Ferrari's commitment to reaching Carbon Neutrality by 2030 on the entire value chain and by 2021 on their own operations. To minimize its environmental footprint solar panels were installed in 2008 increasing capacity and self-produced renewable energy doubled from 2023 to 2024 replacing a large portion of methane gas. With those actions, compared to 2021, Ferrari is estimated to reduce by an estimated 60 percent Scope 1 and Scope 2 CO_2 emissions and 70 percent in methane gas. As stated in the 2022 sustainability report, Ferrari's greenhouse emissions targets to be reached by 2030, compared to 2021, are to reduce scope 1 and 2 by an absolute 90%, scope 3 in the upstream market by 30% per car and in the downstream market by 50% per car.

Ferrari's sustainability strategy also focuses on the reduction of Scope 3 emissions which accounts for the vast majority of the company's greenhouse gas emissions. Ferrari's intention is to use raw materials rationally, implement waste management hence reducing the environmental footprint of the production process. Therefore, the company has stated a gradual electrification strategy to reduce emissions during the vehicle use stage, started in 2009 when the Kinetic Energy Recovery System (HY-KERS) technology was invented for Formula 1 cars which was then applied in 2013 also to the road-car LaFerrari becoming the first street vehicle to use hybrid technology. As written in Ferrari's strategic plan, the first full electric car was launched in the first quarter of 2025 and by 2026 its portfolio is expected to be diversified by including full electric, hybrid and internal combustion engines (ICE). This strategy reflects Ferrari's intention to reduce downstream emission simultaneously delivering the adrenaline while driving.

Nevertheless, the electrification journey leads to higher upstream emissions as a result of the battery usage, critical raw materials and carbon-intensive production. For this reason, Ferrari thinks it's fundamental in the decarbonization strategy to also engage suppliers so that also Scope 3 upstream target is reached. For this reason, the company's suppliers need to comply with specific directives and to show all the data related to the composition of material used in the manufacturing process. All suppliers that make use of prohibited or non-compliant components is automatically excluded by an internal automatic system. In addition, the firm is focusing on recycled materials, especially aluminium and the development of innovative technologies to reduce upstream emissions stemming from purchased goods along the supply chain.

In conjunction with the climate change initiatives, Ferrari also targets resource use and circular economy. The firm considers decisive, in the manufacturing process of road cars, the reduction in consumption of natural resources and waste of materials. Particularly, Ferrari pays plenty of attention to waste reduction implementing innovative solutions and advanced technical processes which reduces negative environmental impact. For instance, the firm recycles aluminium scraps ensuring that they re-enter the manufacturing process or that they are resold to companies specialized in recycling which is especially important since aluminium is the most used raw material, by weight, during the manufacturing process.

In addition to recyclability, the company also embraces durability and repairability by producing road cars with a substantial life span considering that they are widely perceived as collectible items lasting forever and to preserve Ferrari's heritage and brand. Ferrari's cars are produced in very limited numbers and, since they are treated as collectibles, very few cars are scrapped every year. Hence, instead of focusing on disposal, the firm prioritizes maintenance, restoration and repair through the Ferrari Classiche department to keep cars on the road as long as possible. Through the implementation of these strategic actions, Ferrari seeks to reduce consumption and concurrently promote a circular use of materials across its road-car activities.

3.2 Sustainability in Formula 1 operations

In addition to its road-car strategy goals, Ferrari is also implementing a sustainability strategy in the Formula 1 context. This world is characterized by high technological innovation, global visibility and a greater emphasis on environmental sustainability. Formula 1 itself is a highly regulated setting where sustainability goals play a crucial role. On this basis, Ferrari's sustainability strategy in motorsport is influenced not only by its own internal decisions but also by the agenda and the regulations imposed on them by this sport. This section analyses Ferrari's sustainability measures in Formula 1 by outlining the primary technological and operational initiatives in line with the requirements set by the sport. It therefore provides an overview of Ferrari's approach to sustainability in the motorsport environment, providing the foundation for a subsequent analysis in the following chapters.

Sustainability in Formula 1 is shaped by regulations that involve and apply to all the teams participating in the championship, including Ferrari. From 2018 onwards Formula 1 has gradually shifted its long-term perspective on reducing its environmental footprint and implementing an integrated sustainability strategy by collaborating with teams, partners, promoters and the Fédération Internationale de l'Automobile (FIA) which contribution is fundamental to the achievement of these goals. The main objectives are to reduce emissions generated by cars, events, infrastructures and logistics and reach the Net Zero by 2030 goal, delivering a 26% reduction in carbon emissions by the end of 2024 compared to its baseline year 2018. Together, the FIA and Formula 1 provide regulatory guidance and technical directives with the aim to establish common requirements for all teams. For this reason, Ferrari's sustainability strategy is designed around the broader regulatory system of Formula 1.

As already briefly mentioned in the paragraph 3.1, to embed sustainability into technological development, the development of highly efficient powertrain solution is fundamental. Formula 1 is currently working to deliver the world's first net-zero power unit which would drive carbon emissions across the globe down while the current power unit, the hybrid power unit, is the most efficient in the world than any other car since it generates more power using less fuel hence CO2 and greenhouse gas emissions are reduced. In addition to engines, Formula 1 is also focused on alternative fuels to further move towards the Net Zero by 2030 achievement, already implemented, in 2025, in Formula 2 and 3 where cars ran on 100% advanced sustainable fuel.

In 2026, Formula 1 will make use only of advanced sustainable fuel alongside new hybrid engines with the objective of further lowering the carbon footprint of racing while maintaining performance. Over the course of the 2024 season, all Formula 1 cars, Ferrari among them, made use of FSC approved Pirelli tyres which are manufactured using electrical energy coming from 100% renewable certified sources. To further reduce waste Pirelli introduced several initiatives, one of which is the recycling of used tyres into secondary raw materials at the end of the Grand Prix weekend.

Alongside technological advancements, Formula 1 also extends its scope to operational and logistical aspects of the motorsport. Since the nature of the sport is international, the racing calendar implies a significant impact on environment and emissions. In 2024, the geographical flow of races around the world was improved by consolidating the European part of the Formula 1 season into a single interval thereby eliminating useless transatlantic crossing for equipment and racers hence minimizing the associated carbon emissions.

The sport's global fame and reputation involve substantial environmental impacts associated with transport. In response, Formula 1 employed Sustainable Aviation Fuel for air freights mitigating total related emissions by an approximate of 19%. Moreover, all the

Formula 1 equipment, including Ferrari's, is shipped using biofueled tracks further lowering carbon emissions by an average of 83%. Significant investments have also been made into remote broadcast operations, giving access to Formula 1 races reducing the need for equipment and people to travel to Grand Prix which helps reduce the sport's environmental footprint.

3.3 Comparison with competitors

To better contextualize Ferrari's sustainability strategy and its actions toward a more environmentally friendly model, it can be useful to compare its approach to other firms operating as luxury car manufacturers such as Lamborghini and Porsche. Like Ferrari, those companies face similar obligations, regulations and technological challenges related to electrification, decarbonization, reduction of emissions, waste management and circular economy while at the same time needing to preserve their brand identities based on performance and exclusivity. This section presents a comparison of the sustainability goals and approaches adopted by Ferrari, Porsche and Lamborghini placing emphasis on the actions taken to reduce their environmental footprint without assessing performance or evaluating which company implements sustainability more efficiently. Rather, the aim of this subsection is to draw attention to common courses of action, goals, trends and key differences on how the sustainability strategy is integrated into the company, thereby contextualizing Ferrari into a broader industry framework.

Nowadays, sustainability is a widespread trend that is no longer optional reaching also the luxury performance manufacturers, including Ferrari, Porsche and Lamborghini, who are gradually shifting towards a more eco-friendly and sustainable strategy to comply with regulatory pressures arising particularly from EU regulations on the environment and the emissions. In order to address them, electrification plays a crucial role as manufacturers are adapting their product portfolio, with hybrid or full electric powertrains, to reduce CO2 and GHG emissions. Looking at the sustainability statements of Ferrari, Porsche and Lamborghini, a common pattern emerges: emissions reduction, climate change mitigation and decarbonization have become the priorities across the sector, not only in the production process but also during the vehicle use phase. For this reason, both Porsche and Lamborghini, along with Ferrari, consider sustainability as necessary in the long-term competitiveness becoming the central element of their competitive strategy. In addition to regulatory frameworks, market expectations and stakeholder pressure play a role in strengthening and giving greater visibility to sustainability initiatives.

While all three companies share similar environmental objectives and place great importance on sustainability matters, their methodology of implementing sustainability into their strategy vary slightly due to different approaches to electrification and technological development and distinct strategic mindset.

Starting with Ferrari, its sustainability strategy is characterized by a gradual electrification approach with the goal of reducing emissions and reach Net Zero by 2030 while maintaining performance and exclusivity. Ferrari's principle is flexibility: the company maintains a mixed portfolio composed of ICE, hybrid models and full electric motors. In addition to gradual electrification, Ferrari also incorporates in its strategy circular economy principles with particular emphasis on product durability and technical processes such as the reuse of aluminium scraps, to guarantee a reduction in waste and a minimization in environmental footprint.

By contrast, Porsche adopts an electrification-oriented approach since the company is expanding its portfolio by gradually increasing the percentual of battery-powered electric vehicles (BEVs) and plug-in hybrid electric vehicles (PHEVs) to limit GHG emissions and to have a positive impact on the mitigation of climate change in the medium-term. Furthermore, the firm explicitly positions sustainability as a lifecycle decarbonization strategy making addressing emissions, not only during the vehicle use phase but also during the production process and along the supply chain, a central objective. In its sustainability statement, Porsche strongly emphasises the integration of electrification and emission reduction throughout production processes and materials with particular regard to battery manufacturing. Lastly, the company believes that, given the growing importance of sustainability matters, a wider adoption of eco- and climate-friendly actions could strengthen Porsche's reputation in the eyes of customers.

Lamborghini, on the other hand, with one of the largest investments the company has ever made, implemented a decarbonization programme, the Direzione Cor Tauri, with consequent research on the opportunities and difficulties of electrification and decarbonisation. The company's sustainability strategy, different from Ferrari's and Porsche's approach and embedded in this programme, is built around a hybridisation phase that was completed in 2024 with the electrification of its full portfolio. This last step, presented as a subsequent step, was not pursued as an immediate objective but rather integrated gradually into the company's sustainability goals. In addition to electrification, Lamborghini has been strongly focused on transitioning from a linear to a circular economy to protect the environment and implement more sustainable initiatives. The firm is committed to waste reduction and, for this matter, it has collaborated with several cooperatives for the reutilisation of leather.

3.4 Summary of Ferrari's sustainability pillars

Sustainability has become the main focus for Ferrari's strategic decisions due to regulations to protect and preserve the environment and due to market developments and expectations which affected the luxury automotive sector. As outlined throughout the whole Chapter 3, Ferrari's concern for sustainability matters is not confined to a single area of operation but it is applied to multiple dimensions including road-cars production, Formula 1 activities while adapting its strategy to an industry that is experiencing exponential growth in sustainability considerations. The analysis shows how environmental aspects are increasingly being considered and integrated into Ferrari's long-term sustainability strategy influencing both technological development and strategic decisions within the company.

Rather than implementing a separate set of actions, Ferrari treats sustainability as a structured and coordinated strategy integrated into its long-term business actions. More specifically, this chapter has demonstrated how sustainability in the company has been adopted employing a joint implementation of gradual electrification, technological developments, attention to resource use, waste management and product lifecycle care. Ferrari implements these actions across different dimensions of the business driven by the goal to embrace sustainability while ensuring that performance, exclusivity and brand identity are safeguarded. To summarize the primary factors discussed through Sections 3.1 to 3.3 and to offer a clear overview of Ferrari's sustainability actions, the company's approach can be synthetised into a few key pillars which show the priority sectors of focus and action.

Table 1 offers a structured synthesis on Ferrari's sustainability strategy, illustrating the pillars that denote the company's primary dimension of focus across its business activities.

Table 1

SUSTAINABILITY PILLAR	FERRARI'S MAIN ACTIONS	STRATEGIC OBJECTIVE
Decarbonization & emissions reduction	Gradual electrification, Net Zero by 2030, GHG reduction across lifecycle and mitigated environmental footprint	Long-term reduction on climate change and environment impact
Technological innovation & performance	Hybrid powertrain technologies, Formula 1 involvement, high-performance engineering	Sustainability alignment with performance and brand identity
Circular economy & product lifecycle	Waste reduction and material reuse, vehicle durability and longevity	Circularity support and resource efficiency
Operation & supply-chain sustainability	Use of renewable energy, supplier engagement and logistics improvement	Sustainability integration across operational activities

By organizing all the actions carried out by Ferrari, the table serve as a reference framework for the analysis that will be successively conducted and will be the basis for an experimental study in the following chapters.

Chapter 4 – Research Design and Methodology

4.1 Research design and approach

This thesis is based on mixed-method research with the aim of targeting two complementary concepts of the research question. On the one hand, the analysis examines how Ferrari implements sustainability into its strategy both in the luxury automotive sector and the motorsport world. On the other hand, the survey that will be explained in detail in the following paragraph, analyses how these measures in adopting a sustainability strategy are perceived by customers and external audiences. By combining both qualitative and quantitative, this method enables to achieve a more in-dept comprehension of both the sustainable strategic actions carried out by the firm and the outcome it has on brand perception.

The mixed-method research is divided in two main sections. Part A investigates the qualitative strategy adopted by Ferrari studying the documents and analysing the content of the firm's official reports and disclosures with the purpose of pinpointing the sustainability actions, environmental initiatives and regulations put in place by Ferrari. By contrast, Part B is made up of a quantitative experiment which is developed to evaluate how different kinds of sustainability statements can influence Ferrari's brand perception in relation to innovation and exclusivity.

By bringing together these two methods, the thesis aims to integrate both the objective sustainability strategy undertaken by Ferrari and the subjective perceptions stemming from the experiment's results and analysis, offering a well-defined model for the assessment of what Ferrari effectively does regarding sustainability matters and how these initiatives are viewed by individuals.

4.2 Part A: Strategy study

Part A, as already mentioned in subchapter 4.1, consist of a detailed qualitative strategy analysis built on reviewing documents and content about sustainability in Ferrari. The primary most frequently consulted documents include Ferrari's Annual Reports, Sustainability Statements and Sustainability Reports. Moreover, some publicly available articles and information related to sustainability actions regarding Formula 1 were taken into consideration. These sources were Chosen because they provide reliable and detailed information on Ferrari's actions regarding implementation of sustainability into its corporate strategy and its commitment in adhering to environmental regulations.

The analysis was carried out by examining key aspects of Ferrari's sustainability initiatives and its significant efforts to embed them within its corporate strategy. These environmental actions include emission reduction, gradual electrification, resource use, implementation of a circular economy and supply-chain sustainability. All the aforementioned, were successively discussed across Ferrari's road-car operations and Formula 1 engagement with the objective of outlining an extensive overview concerning sustainability integration into different sectors of the firm's business area.

Furthermore, Ferrari's sustainability efforts were compared and integrated with that of a few carefully selected competitors, Porsche and Lamborghini, for the purpose of putting into context its sustainability strategy within the luxury automotive sector. All the findings of the data collection were then summarized in Table 1 to highlight Ferrari's main sustainability pillars and environmental footprint reduction measures, as discussed in Chapter 3.

4.3 Part B: Perception experiment and questionnaire

The second part of the study consist of an experimental survey with the scope of assessing how sustainability-oriented statements can influence Ferrari's brand perception. The experiment adopts a 2x2 between-subject design and it combines two contexts, road-cars and Formula 1, with two types of messages, one focused on sustainability while the other was neutral. This survey design enables the examination of the message and the visual stimulus separately and to evaluate whether the message has distinct effects between the road-car and Formula 1 contexts.

During the experiment, participants were randomly assigned to one of the four experimental groups and were shown a single visual stimulus made of an image and a short descriptive sentence. The road-car context revealed a Ferrari vehicle with a neutral background whereas the other displayed a Ferrari Formula 1 car also featuring a plain backdrop. Regarding the sustainability conditions, the verbal stimulus are two: one pointing out the commitment to reduce the environmental impact through innovation and efficiency while the other displayed a neutral sentence oriented toward brand performance, heritage and excellence.

After being exposed to one of the four stimuluses, respondents were asked to complete an online questionnaire which measured innovation and exclusivity. Each question was assessed using three statements for innovation and three for exclusivity measured on a seven-point Likert scale. In the survey a manipulation check was incorporated to verify whether the participants recognized that the content shown highlighted environmental sustainability. Furthermore, an attention check was also included to safeguard that all the individuals were paying attention when completing the questionnaire consequently reducing the influence of careless and distracted respondents on the results of the questionnaire thus strengthening data quality.

Concerning the remaining parts, additional questions were posed in order to evaluate respondent's familiarity with Ferrari and interest in Formula 1. In addition, basic demographic questions on gender and age were formulated with the objective of supplying a description of the sample and to account for systematic differences in answers across different respondents' characteristics. This experiment makes it possible to examine whether sustainability-related statements can influence Ferrari's brand perception in relation to innovation and exclusivity without explicitly prompting participants to assess Ferrari's commitment to sustainability.

4.4 Data collection and sample description

Data for the experimental research were gathered though an online survey using the platform Qualtrics. All participants were given an anonymous link to access the survey allowing them to complete it voluntarily and without the need to provide any kind of personally identifiable information. While completing the questionnaire, individuals were randomly assigned to one of the four stimulus using Qualtrics' randomization function thereby guaranteeing an even distribution of respondents across the various conditions and helping make groups comparable.

The sample of individuals comprises 100 members of the general population with different age, gender and, more importantly, level of familiarity with the Ferrari brand. Being able to acquire responses from a substantial number of individuals with different backgrounds made sure the sample collected was heterogeneous strengthening the reliability and validity of comparisons across experimental stimuluses. All respondents were able to observe only one of the stimuluses and after being exposed to them for 8-10 seconds completed all the same questionnaire regardless of what they saw. Given that all respondents completed the same set of questions, it made it possible to directly compare the answers given considering innovation and exclusivity across experimental conditions.

The entirety of responses was anonymous and people participated entirely voluntarily. Before proceeding with the analysis, the dataset was screened to make sure it was reliable and complete. To accomplish this, incomplete responses and the ones that did not pass the attention test which was inserted in the middle-end of the survey, were not included in the final sample later to be examined. This data preparation helped guarantee that all results documented in the following chapters are built on proper and meticulously checked answers.

4.5 Ethical considerations and methodological limitations

It was particularly important throughout the research and survey process to carefully examine ethical considerations. As mentioned before in subchapter 4.4, participation in the questionnaire was entirely voluntary and the entirety of individuals were provided with all the information regarding the purpose of the research, its academic use and the measures adopted to confirm participant anonymity. Before starting the survey, informed consent was collected by all respondents and at no point during the questionnaire were participants asked to provide any kind of personally identifiable information. In addition, individuals were free and able to withdraw from the experiment at any time without any consequence. Lastly, all answers were acquired anonymously using the online platform Qualtrics where all were securely archived intended exclusively for academic purposes.

Notwithstanding its carefully organized and methodical structure, it is necessary to acknowledge some necessary mythological limitations stemming from the experiment. First, the experiment design focuses on a single brand, in this case Ferrari, meaning that all the results and considerations made may not automatically be applicable to other luxury automotive brands, including the firms Porsche and Lamborghini previously examined in Chapter 3. Second, the survey depends on a single picture associated with a short supplementary statement depicting a simplified real-world version of brand communication which is generally more complex and, for this reason, it may not entirely illustrate the actual and authentic brand communication of companies. Third, another limitation can be observed since the study is based on self-reported perceptions collected through an online survey, answers may be influenced by subjectivity and participants may not always answer questions in a perfectly neutral or accurate way. Finally, the sample size and the characteristics of participants may affect the overall strength and scope of the conclusions. The entirety of these limitations is acknowledged and is taken into account when analysing results and drawing conclusions in the following chapters.

Chapter 5 – Data Analysis and Research Findings

This chapter outlines the numerical results of the perception experiment that was previously introduced in Chapter 4. The objective of this data analysis is to test whether sustainability-related messages affect perceived innovation and exclusivity in a luxury brand context. In order to do it, the hypotheses H1 and H2, earlier presented in Section 2.5, will be tested. Specifically, the aim of this analysis is to evaluate whether being exposed to sustainability communications strengthens impressions of brand innovativeness and whether it has impact on perceptions of brand exclusivity. First this chapter begins by outlining the data analysis procedure which encompasses sample characteristics and the statistical methods employed and afterwards the obtained results of the analysis from testing the two hypotheses. The chapter is concluded then with a short overview of the main empirical results which will be further investigated and interpreted in Chapter 6.

5.1 Data Analysis Approach

Prior to the statistical analysis the dataset was prepared using a methodical data cleaning process. A total of 124 responses were recorded through the online anonymous survey. Incomplete answers where successively removed resulting in a new total of 102 completed responses. Thereafter, another cleaning was conducted by excluding all the answers that failed the attention check hence reaching a number of final valid sample of 98 respondents.

Successively to the dataset clearing procedure, two composite variables were generated by combining questions into two key dependent constructs. These questions about innovation and exclusivity were measured through six total questions evaluated on a seven-point Likert scale. More specifically, the three questions regarding innovation were joint into a single innovation score and the three measuring exclusivity into a single exclusivity score.

In addition, the dataset was divided into two independent subgroups according to the kind of message respondents were exposed to when answering the questionnaire. One group of participants observed a sustainability-related communication while the other viewed a neutral message not emphasising sustainability. In order to simplify the numerical analysis, a dummy variable was formulated to be able to distinguish more quickly and efficiently between the two experimental conditions, where the code 1 represented the participants exposed to sustainability-related condition and the code 0 indicated the respondents exposed to the control condition. This classification made it manageable to directly compare the two experimental groups with respect to perceived innovation and exclusivity.

Descriptive statistics were computed for both the dependent constructs previously mentioned including the mean and the standard deviation for all the experimental variants. Descriptive statistics is a simple data summary which reflects the average level of responses and the variability within each segment. Afterwards, two-tailed independent-sample t-test, a statistical tool used to compare the average scores of two different groups, were performed in order to test both the hypotheses H1 and H2 and to ascertain whether the sustainability and the control groups had significant differences. It is important to mention that a significance threshold of 0.05 was implemented to establish whether the difference observed between the two groups could be considered statistically significant.

5.2 Results of the Perception Experiment

This section presents the results collected with the perception experiment designed to evaluate the presented hypotheses H1 and H2. Firstly, it provides an overview of the descriptive statistics, mean and standard deviation, for perceived innovation and exclusivity across the sustainability and control categories. Subsequently, the outcomes of the two-tailed t-tests conducted to analyse whether statistically significant variations arose between the two conditions is reported.

Table 2 outlines the descriptive statistics, including the mean (M) and the standard deviation (SD) for both perceived innovation and exclusivity across the two experimental settings.

Table 2

CONSTRUCT	GROUP	N	M	SD
Innovation	Sustainability	53	5.761	0.823
Innovation	Control	45	5.548	1.054
Exclusivity	Sustainability	53	6.572	0.593
Exclusivity	Control	45	6.548	0.551

Regarding perceived innovation, the sustainability group, with mean (M) of 5.761 and standard deviation (SD) of 0.823, showed a moderately higher average with respect to the control group, with mean (M) of 5.548 and standard deviation (SD) of 1.054. Nevertheless, after performing the two-tailed independent-sample t-test, it was observed that this difference in average scores was not statistically significant ($t(96) = 1.122$ and $p = 0.265$) hence the hypothesis H1 which supposed that sustainability-related messages would increase perceived innovation was not statistically supported.

Turning to perceived exclusivity, the sustainability segment, with M = 6.572 and SD = 0.593, was characterized by highly similar average scores compared to the control sector, with M = 6.548 and SD = 0.551. Reasonably, the t-test showed and confirmed that the difference in average between the two groups was not statistically significant ($t(96) = 0.208$ and $p = 0.836$) and the hypothesis H2 was not statistically supported.

In summary, with the statistical analysis no significant differences were observed between the sustainability and the control groups for either perceived innovation or exclusivity.

5.3 Summary of Key Findings

This section provides an overview of the principal empirical findings of the perception experiment reporting the outcomes of the statistical analysis used to test the two hypotheses H1 and H2. Furthermore, it summarises the quantitative results gathered by comparing the sustainability and control contexts and presents the overall results of hypotheses testing.

The statistical analysis did not demonstrate any considerable difference between both the sustainability and the control group for either perceived innovation or exclusivity. The sustainability group indicated higher average scores in both the innovation and the exclusivity construct however, these difference in means (M) were not statistically significant at the pre-established significance threshold of 0.05. On this basis, neither hypothesis, H1 or H2, was validated by the data since the results showed that being exposed to sustainability-related communications does not result in quantifiable differences in respondents' innovation or exclusivity perception under the experimental setting.

In conclusion, these key findings serve as the starting point for the interpretation and discussion outlined in the following chapter where the results are examined thoroughly in relation to the theoretical models presented in the previous chapters and the principal research question.

Chapter 6 – Interpretation of Findings

This chapter explores in depth and interprets the empirical findings that were previously introduced in Chapter 5 with the support of the theoretical frameworks outlined in Chapter 2 and the analysis of Ferrari's sustainability strategy described and formulated in Chapter 3. Although the statistical analysis of the previous pages did not reveal significant differences between the two conditions of sustainability and control, the results continue to be relevant and offer useful implications regarding the relationship between sustainability communications, innovation and exclusivity within the luxury branding. The following section offers a detailed analysis and interpretation of the experimental results while liking them to Ferrari's concrete sustainability actions and assessing their implications and relevance from both a theoretical and managerial perspective. In addition, the implications of these findings are furtherly explored in relation to both theoretical implications and practical managerial perspective for luxury brands.

6.1 Interpretation of experimental results

The outcomes of the perception experiment show that sustainability-related messages do not have any statistically significant differences in perceived innovation and exclusivity across the sustainability and the control group. Even though the sustainability condition exhibited higher means for both perceived innovation and exclusivity with respect to the control group, the extent of these differences in average scores was not sufficient to achieve statistical significance. On this basis, despite the fact that a marginal numerical increase was identified, the results cannot be interpreted and regarded as a statistically significant or meaningful effect.

These findings can be interpretated using Keller's (1993) framework of customer-based brand equity which, according to his perspective, outlines that brand perceptions are conditioned by established associations that customers store in their memory. These kinds of associations, particularly in the case of well-known and strong brands, tend to be generally stable over time and are not easy to modify. Over time, since such brands have built stable identities, repeated exposure to branding strategies reinforces these perceptions deeply embedding them into customers' minds and makes them relatively resistant to change. In the luxury brands context, symbolic associations such as prestige, status and exclusivity are generally core elements of the brand identity and, as time passes, tend to be deeply rooted in customers' minds and perceptions. As a consequence, a single exposure to a sustainability-related communication for a limited time may not be sufficient to substantially influence and transform these profoundly embedded brand associations.

Furthermore, Kapferer's (2014) framework of luxury identity argues that exclusivity and symbolic differentiation are the fundamental pillars of luxury identity. According to his view, luxury brands originate their values not solely from performance but also from their capability to express distinction, rarity which allows customers to manifest status and uniqueness. For this reason, in Kapferer' view, exclusivity is not considered a secondary temporary marketing attribute but a core structural component of luxury branding. Subsequently, the lack of significant decrease in perceived exclusivity suggests that sustainability-related messages do not naturally weaken the fundamental symbolic attributes that delineate luxury brands. Simultaneously, the absence of considerable change in perceived innovation may suggest that sustainability initiatives and actions, despite being linked to responsibility, progress and forward-thinking principles, are not automatically viewed as supporting evidence of technological progress and innovation within the luxury context.

These results support the idea that perceptions of luxury brands are relatively stable and reluctant to limited-time communications and influences. Taking into consideration the solid symbolic attributes of luxury brands, consumers' perceptions are particularly arduous to modify as a result of one single or isolated communication stimulus. Accordingly, rather than being substantially affected by a single sustainability-related message, existing and established brand association appear to stay largely unaffected. This suggests that substantial alterations in perceptions of both innovation and exclusivity could require consistent, sustained and long-term communication initiatives, not solely one brief and isolated message. In the luxury branding context, identity is constructed and reinforced over time through long-term positioning and symbolic value and, for this reason, significant changes in perception of exclusivity and innovation are likely to emerge under the condition that sustainability becomes a consistently integrated and repeatedly communicated component of the brand strategy.

6.2 Comparing Ferrari's real actions and public perception

As previously outlined in Chapter 3, Ferrari has implemented a structured sustainability strategy demonstrating a multifaceted commitment to the environment. The firm has progressively shifted towards electrification, incorporating it into its product portfolio, has implemented circular economy initiatives in its production processes and adjusted its governance practices to reflect ESG-related commitments. In addition, Ferrari's engagement in Formula 1 sustainability initiatives and its efforts to reduce emissions confirm a wider strategic focus and commitment to environmental sustainability matters. Looking from an operational and strategic perspective, sustainability is not treated as minor program rather it seems to be fully implemented into Ferrari's long-term strategic orientation.

Nevertheless, drawing a comparison between these applied initiatives and the findings of the perception experiment earlier discussed in Chapter 5, an interesting discrepancy becomes evident. Notwithstanding the fact that Ferrari has demonstrated a clear commitment to sustainability by implementing practices into its strategic and operational framework, the experimental results did not show statistically significant differences in terms of perceived innovation or exclusivity subsequent to the exposure to sustainability-related communications. This finding suggests that solely the communication of sustainability is not sufficient to translate into measurable and observable shifts in brand perception.

A plausible interpretation of this difference can be found in the difference between corporate-level strategy and consumer brand perception. While Ferrari's strategic initiatives, including sustainability practices, are formulated within the organizational and strategic settings and mostly represent long-term objectives, these actions do not directly result in direct changes in consumer's evaluation of the brand. Corporate strategy refers to the long-term actions and initiatives executed within the organization, such as sustainability policies, whereas brand perception is defined by accumulated associations, prior experiences and established symbolic meanings, all of which reflect how consumers interpret and evaluate the brand. On the basis that luxury brands rely heavily on stable identity aspects, such as prestige, performance and exclusivity, these dominant attributes may give rise to a temporal communication-related gap between corporate initiatives and consumers perception.

Furthermore, within the luxury setting, sustainability may serve as a supportive attribute enhancing brand image without necessarily redefining it or significantly altering the brand's identity. For a brand like Ferrari, which is already strongly associated with technological excellence and high-performance innovation, sustainability actions may be interpreted as responsible corporate actions rather than be considered as an explicit indicator of increased innovativeness. Likewise, the information that also perceived innovation did not fall suggests that sustainability messages do not directly conflict with the luxury image of the brand but instead, it appears that sustainability aligns and coexists with established symbolic attributes without fundamentally reshaping them.

In conclusion, the comparative analysis between Ferrari's actual sustainability initiatives and the experimental key findings highlight that even though sustainability is solidly incorporated within the firm's corporate strategy, its perceptual impact may rely on the strength, consistency and intensity of communication strategies over time. This result draws attention to the importance of analysing not solely what companies do regarding sustainability but also how consumers perceive, interpret and absorb those initiatives.

6.3 Theoretical and managerial implications

The findings this study offer important insight at both the theoretical and managerial extents by extending beyond the specific experimental context. Particularly, by analysing relationship between sustainability-related messages and key luxury brand features, the chapter offers meaningful understanding into how sustainability communication operates within the luxury sector and how it interacts with established brand identity components.

From a theoretical standpoint, the absence of statistically significant outcomes suggests that deep luxury brand associations may not be affected by short-term sustainability-related communications. These implications closely a align with Keller's (1993) perspective which implies that brand associations stored in consumers' memory are reinforced over time in consumers' memory and are not easily reshaped by temporary independent communications.

In addition, the results contribute to the discussion on sustainability's role within luxury branding in particular concerning how sustainability-related actions are considered in relation to its core symbolic dimensions such as exclusivity and innovation. It is important to notice that sustainability is often viewed as either a potential threat which weakens exclusivity or a driver which strengthens innovation but the empirical findings suggest that its impact may produce more neutral effects in the short term. In light of these results, it can be implied that sustainability messages do not significantly enhance nor undermine the main luxury attributes but instead it coexists and integrate with existing brand attributes.

Taken as a whole, these findings broaden the existing literature by outlining the stability and durability of symbolic brand identity in luxury brand settings and by indicating that successful sustainability signalling necessitates sustained and well-structured messaging strategies in order to result in quantifiable changes in perception of both exclusivity and innovation.

By contrast, from a managerial perspective, the findings suggest even though sustainability communication is important, it may not give rise to immediate shifts in consumers' perception in neither innovation nor exclusivity. For brands operating in the luxury context such as Ferrari, this entails that sustainability-related initiatives should not be regarded as standalone marketing messages but rather they should be incorporated systematically into the general long-term brand strategy.

In this regard, the lack of a negative effect on exclusivity is particularly of importance for luxury managers since it indicates that sustainability messages do not unavoidably weaken brand prestige or symbolic differentiation. More precisely, integrating sustainability into brand communication does not undermine the exclusivity that is associated with luxury brands. For this reason, luxury brands can embed sustainability-related messaging into their communication strategy without having to compromise their core identity or perceived position.

However, if the strategic goal is to present sustainability as a source of innovation, brands may necessitate to more clearly and more explicitly demonstrate the links between sustainability actions and technological progress. Instead of introducing sustainability uniquely as an ethical or environmental initiative, luxury brands may derive value from highlighting how sustainability contributes to performance improvements, engineering quality and forward-looking innovative technological solutions. By implementing this methodology, sustainability may be framed not uniquely as responsible and ethical commitment but also as a source enhancing competitive performance and innovation.

6.4 Discussion summary

This chapter has evaluated the empirical findings of the perception experiment by making use of the theoretical framework and Ferrari's sustainability strategy. Even if the statistical analysis did not highlight statistically significant differences in perceived innovation or exclusivity between both of the two conditions of sustainability and control, the outcomes shed light on the dynamics of sustainability-related communication within the luxury context.

The results strongly indicate that pre-established luxury brand associations, in particular the ones related to exclusivity and innovation, may be moderately stable and unresponsive to short-term single communication stimuli. In this regard, sustainability communication does not seem to undermine key attributes of luxury brands and it does not directly produce a short-term increase in perceptions of innovation.

At a theoretical level, the study highlights and support the idea that brand identity in luxury contexts is deeply rooted and shaped by long-term and stable symbolic positioning. From a managerial standpoint, the results indicate that sustainability communication should be strategically and consistently integrated over the long term instead of being treated as single isolated promotional effort.

Overall, the analysis highlights the importance of implementing and coordinating corporate sustainability initiatives with consistent and persistent communication strategies to have a considerable impact on consumer perception. The next chapter will summarize the principal conclusions of the study, will examine its limitations and will identify potential directions for further future investigation.

Chapter 7 – Conclusions

This last chapter of the thesis highlights the principal conclusions of the study by summarizing the main results and findings with respect to the research question. Building on this, it then analyses the key limitations of the research and identifies potential directions for further future investigation. By bringing together the theoretical and empirical results emerged throughout the thesis, this chapter's purpose is to offer an extensive overview of the study's overall contribution.

7.1 Main findings and conclusions

This study aimed to examine how Ferrari incorporates sustainability into both its corporate and Formula 1 strategy and how sustainability-related communication shapes perceptions of innovation and exclusivity conditions within a luxury setting. It was combined a strategic analysis of Ferrari's sustainability strategy and initiatives with an experimental perception study with the aim to investigate both the strategic implementation sustainability efforts and the impact on luxury branding perception.

By examining Ferrari's sustainability strategy, it was demonstrated that environmental matters are structurally and comprehensively integrated within its product development, manufacturing processes and Formula 1 operations. Sustainability is found to be embedded within Ferrari's long-term strategy instead of being handled as an isolated or purely symbolic actions. Ferrari's implementation of electrification across its portfolio, circular economy practices and ESG alignment demonstrate an ongoing and consistent commitment to environmental responsibility.

Nevertheless, the outcomes of the perception experiment showed that a one-time exposure to sustainability-related messages did not give rise to statistically significant differences in perceived innovation or exclusivity. While the sustainability condition showed marginally higher averages, these differences, after being tested, were regarded as statistically significant suggesting that short-term communication stimuli may be not be sufficient to reshape established and deeply rooted luxury brand perceptions.

All together, these results show that while sustainability is firmly integrated into Ferrari's corporate strategy, changes in perception of innovation and exclusivity hinge on systematic and long-term communication rather than isolated single messages. In addition, the study shows that sustainability is not associated with undermining exclusivity nor does it inevitably strengthen perceptions of innovation in the initial phase, instead, it seems to coexist alongside pre-established symbolic attributes that characterize luxury brand identity.

In conclusion, the findings highlight the difficulties of translating corporate sustainability strategy into significant changes in consumer perception in the luxury sector. Furthermore, it demonstrated that solely sustainability initiatives are insufficient to induce immediate shifts in perception in consumers' mind and that constant communication and alignment with the brand strategy are indispensable to noticeably influence consumers' brand perception.

7.2 Limitations of the research

Despite its offering numerous contributions to the interpretation of sustainability within the luxury sector, it should be acknowledged that this study presents several limitations when evaluating its results.

To begin with, it is necessary to point out that the study was conducted by focusing exclusively on a single luxury brand, Ferrari. Even though this choice made it possible for an in-depth analysis of a specific case, it reduces the capability to generalize the results also to other luxury brands or sectors since different firms with distinct positioning strategies may give rise to different responses in perceptions to sustainability-related communications.

In the second place, participants, when completing the questionnaire, were exposed to a single stimulus that was limited in duration and scope which may not have accurately reflected real-world complexity of brand communication processes that usually become evident over time through repeated and constant exposure. As previously mentioned in Chapter 6, changes in perception in luxury contexts are likely to necessitate consistent and repeated messaging efforts.

A third important aspect to consider is the sample composition which may represent a limitation. The sample size, composed of 98 respondents, may constitute a constraint as larger samples could offer stronger statistical significance and could strengthen the reliability and rigor of the findings. Additionally, if respondents are categorized into a specific demographic group, such as university students or specific age category, it may constrain the capability to generalize the results since consumer perceptions of luxury and sustainability may differ across age, cultural background and purchasing experience.

Finally, the experimental stimulus that were showed to respondents simplified sustainability communication into a simple format that consisted of a single image accompanied by a brief written text. While this experimental setup was fundamental for ensuring methodological consistency, as previously acknowledged in past chapters, it does not fully represent the complexity of real-world brand communication.

Nevertheless, the mentioned limitations do not invalidate the overall validity of the study but rather they establish and clarify the scope and context within which the results are valid and should be interpreted. By acknowledging these limitations, the study's results can be more accurately understood and evaluated in a more precise and transparent method.

7.3 Recommendations for future research

In light of the limitations previously explored, future studies can explore a number of new directions in order to further explore the topic of sustainability communication within the luxury sector.

The first point to note is that future research could expand the analysis to different luxury brands to evaluate whether the results obtained in the Ferrari's case would still be valid across different brand positioning strategies. Comparative studies involving brands with various levels of sustainability integration may lead to a deeper understanding of the relationship between sustainability-related communication and the luxury identity.

Turning to the second aspect, future studies could make use of larger and more diverse samples with the aim to strengthen and improve the generalizability of the results seen that differences in age, cultural background and prior exposure to luxury brands may impact how sustainability communication is perceived by consumers. As a result, analysing these factors could provide a deeper understanding of how perceptions differ across consumer segments.

Third, they could further explore whether repeated exposure to sustainability messages leads to significant changes in perception over a longer period of time. As already discussed in the previous chapter, significant changes in luxury brand perception may arise only if consumers are exposed to sustained and consistent messaging rather than isolated stimuli.

In addition, future studies could expand the research by adding and examining other perceptual dimensions beyond innovation and exclusivity including trust, authenticity or brand credibility. This different approach would yield to a deeper and more complete understanding of the overall impact of sustainability-related communication within the luxury setting.

To conclude, by pursuing and examining these aspects in depth, future research can help to further understand the relationship between sustainability strategy, communication practices and consumer perception in the luxury context.

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