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Environmental and Social Impact Assessment for Startups: A Project-Based Approach Towards Sustainability

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Abstract

In an increasingly sustainable business environment, start-ups go through the complex process of adopting sustainable practices while maintaining their lightness and capacity for innovation. In an attempt, specific projects can provide a more accurate method of assessing the extent to which these start-ups are helping to address their social and environmental issues.

The need for such an approach becomes even more relevant in a context in which the focus on sustainability is constantly growing and in which start-ups struggle to find effective ways of assessing and communicating the specific impact of projects in the absence of appropriate tools. For these reasons, the main objective of the research was to develop and draw on an in-depth methodological examination that can support project-based social and environmental impact assessments that foster informed choices and sustainable continuous learning processes for companies.

The investigation used a mixed approach, comprising first a comparative analysis of assessment tools and then an experimental phase in which personal baseline indices were developed through the Merits case study, with the intention of filling current gaps in the tools and generating practical solutions.

The results of the work show that a focus on specific projects fosters a deeper and more measurable understanding of social and environmental impact. The generation of customised baseline indices could offer more practical and detailed assessments that go beyond the current limitations of tools. The work moves forward in examining project analysis as a useful approach for start-ups to assess and improve their sustainability.

The design perspective not only allows for more accurate assessments, but also encourages critical reflection on sustainability processes. Furthermore, these findings lay the foundations for future research and entrepreneurial activities, suggesting that an increased focus on design could benefit start-ups in their efforts to manage and communicate their sustainability.

The implications of this study are relevant for policy makers, investors and entrepreneurs, highlighting the importance of supporting initiatives for accurate and contextualised impact assessments.

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1. Introduction

In today's business landscape with a focus on sustainability, emerging companies face the challenge of integrating eco practices while maintaining their adaptability and innovation. This research explores this dilemma by proposing an approach centred on projects to assess the impact of ventures. Specifically, it investigates how scrutinizing specific initiatives can offer a way to measure the extent to which these startups are involved in addressing environmental concerns.

The primary issue explored in this study revolves around the challenges faced by businesses when it comes to evaluating and expressing their influence without access, to tools designed specifically for them. In today's evolving landscape, where sustainability is gaining attention, there is a demand for a method that can facilitate evaluations of environmental impacts tailored to the requirements of startups. This approach aims to encourage informed decisions and ongoing learning practices that promote sustainability, within companies.

The primary purpose of this study is to create and carefully assess a method that can aid in evaluating the environmental impacts of project-based initiatives. The research employs a combination of methods beginning with a comparison of assessment instruments and progressing to a phase using the Merits case study aiming to address existing tool lack and produce solutions suitable, for startups.

The significance of this study, in the existing body of knowledge lies in its enhancement of project evaluation as a method for new businesses to evaluate and enhance their sustainability. Creating metrics could provide hands on and thorough assessments surpassing the current constraints of commonly used tools. Moreover these discoveries establish a basis, for research and business ventures indicating that emphasizing design could help businesses in effectively handling and conveying their sustainability efforts.

The thesis is structured in the manner; it begins with an introduction, followed by a review of existing literature, on sustainability in start ups in the second chapter. The third chapter outlines the methodology used and discusses the primary tools available while the fourth chapter delves into an analysis of the Merits case study. Finally concluding remarks touch upon the obtained results. Emphasize their significance, for policymakers, investors and entrepreneurs. The conclusion also stresses the importance of initiatives that advocate for context specific impact evaluations.

2. Literature Review

Sustainability assessment within the domain of start-up enterprises constitutes an emergent field of academic inquiry. The burgeoning importance of this area necessitates a comprehensive understanding of its foundational principles, the myriad of factors influencing its evolution, and the practical ramifications thereof. Thus, the subsequent chapter presents an exhaustive bibliographical survey of the research areas germane to this topic.

A literature review was undertaken to delineate the current state of affairs in the realm of sustainability, with a particular emphasis on the environmental and social impact assessments incumbent upon every emerging company. Scholarly databases such as Google Scholar and Science Direct were utilized to aggregate pertinent literature. The objective of this analytical endeavor was to delineate the contemporary landscape and to elucidate pivotal indicators.

In executing this analysis, strategic deployment of keywords 'environmental and social impact assessment' alongside 'start-ups' was paramount in querying for scholarly articles. This was complemented by a rigorous scrutiny of the resultant documents and a subsequent in-depth review of their bibliographic references.

The documents thus identified, whether directly via database searches or indirectly through referenced citations, were subjected to a two-pronged analytical process: an initial screening predicated on title and abstract content, followed by a thorough critique of the complete texts.

2.1 The Discussion on Sustainability in Start-up Innovations

Lately, the topic of sustainability within the sphere of start-up innovation has become a prominent subject in both scholarly and corporate circles. As businesses endeavor to incorporate sustainable practices into their operational models, the link between sustainability and entrepreneurial ventures is emerging as a key area for exploration. This section is dedicated to unraveling the intricate debates around sustainability in the context of start-up growth, setting the stage for a thorough investigation into the notions of sustainability and sustainable entrepreneurship in subsequent discussions.

2.1.1 Understanding the Concept of Sustainability

The quest for a clear and universally recognized definition of "sustainability" is a complex challenge in the realm of academic study. This complexity is due to the term's diverse applications across multiple disciplines, with each field interpreting it from its own perspective, leading to a wide array of definitions informed by specific disciplinary contexts and sustainability viewpoints. As a result, a universally accepted definition of "sustainability" is hard to come by. Its interpretation often hinges on a mix of value judgments, ethical standards, and cultural contexts [3]. Bell and Morse succinctly state, "the definition and scope of sustainability vary depending on the user and the context of its application" [4].

In this thesis, "sustainability" is approached through a three-dimensional perspective, encompassing environmental, economic, and social factors. This tripartite model is deeply entrenched in academic discourse, forming the basis of what is generally recognized as the core of sustainable development. To further clarify sustainable development, one can refer to the seminal definition by the United Nations in 1978, which describes it as "development that meets the needs of the present without compromising the future generations' ability to meet their own needs" [5].

The concepts of Sustainability and Sustainable Development, dynamic and multifaceted in nature, correspond well with Star and Griesemer's concept of "boundary objects" [6]. These concepts act as connectors among diverse professional groups, like economists, entrepreneurs, policymakers, and ecologists, each interpreting them through their unique terminologies and viewpoints. For example, an economist may focus on resource allocation and long-term economic health in sustainable development, while an ecologist may emphasize biodiversity preservation and ecosystem integrity.

Despite having different professional goals, these varied communities converge on the broad relevance of these terms. However, the role of these concepts as unifying elements does not eliminate the inherent contradictions and complexities typical of "boundary objects". Such contradictions may emerge in the juxtaposition of economic progress against environmental stewardship, or the alignment of local interests with overarching global sustainability goals. These dialectics, however, underscore the import of "boundary objects", facilitating a confluence of diverse perspectives and the integration of varied knowledge systems, from empirical science to indigenous insight.

Amidst this interplay of sustainability conceptions and the pivotal role of business initiatives, particularly in the domain of sustainable entrepreneurship, the notion of "Sustainable Entrepreneurship" has burgeoned, swiftly capturing the attention of academia and industry alike [7].

Table 1 Key Stakeholder Perspectives on Sustainability in Entrepreneurship

PROFESSIONAL COMMUNITY	INTERPRETATION OF SUSTAINABILITY	EMPHASIS
Economists	Sustainable development conceptualized as the judicious management of resources for enduring economic stability.	Equilibrium between economic advancement and sustainable resource utilization.
Entrepreneurs	Businesses harnessing sustainability as a strategic lever to secure competitive positioning, catalyzing industry-wide shifts.	Fostering industrial innovation via sustainable business practices.
Ecologists	Advocacy for sustainability centered on the safeguarding of biodiversity and the vitality of ecosystems.	Stewardship of the natural environment and safeguarding of biodiversity.
Startups and Incubators	Start-up entities as architects of sustainable transition, fostering integrative sustainable solutions.	Championing sustainable entrepreneurship and advancing sustainability through impactful initiatives.

2.1.2 The sustainable entrepreneur

There is a broad consensus that historically, the primary focus of entrepreneurship was solely on economic growth, particularly evident during the industrial boom of the 19th and early 20th centuries [8, 9]. However, in the past 60 years, a growing awareness has emerged that this singular focus has led to the neglect of other vital sustainable goals, including environmental and social development, with profound consequences.

This shift in perspective has given rise to the idea that businesses can gain a competitive advantage by aligning with values that resonate with their customers, such as sustainability. This shift has catalyzed a transformative wave across modern industries. In the last thirty years, various entrepreneurial sectors have surfaced, each concentrating on distinct facets of entrepreneurial growth. The rise of these sectors is linked to the essential need for integrating and harmonizing the three fundamental aspects of sustainability: environmental, economic, and social development.

New forms of entrepreneurship can be distinguished that focus on determinant factors other than profit, unlike traditional economic entrepreneurship. For instance, social entrepreneurship prioritises social issues and seamlessly integrates them with economic considerations, resulting in the creation of significant societal value with appropriate funding. On the other hand, eco-entrepreneurship addresses environmental problems and blends them with revenue generation strategies for the sustainable development of the environment [10].

Although the models have similar structures, they differ in their objectives. Therefore, the creation of an all-encompassing approach, named "sustainable entrepreneurship" (SE), became crucial. The aim of this concept is to create a symbiotic relationship between the three components of sustainability, leading to the establishment of the Triple Bottom Line (TBL): an equilibrium of environmental, social, and economic progression [11].

The achievement of this balance is not without debate amongst academics. Critics argue that for entrepreneurship to be genuinely sustainable, the traits of the entrepreneur must be subordinated [12]. Sustainable entrepreneurship, building on Schaltegger and Wagner's definition, is the implementation of innovations focused on promoting sustainability in the mass market to benefit a wider range of individuals [13]. Hockerts and Wüstenhagen expand on this definition by integrating Schumpeter's definition of entrepreneurship, characterising sustainable entrepreneurship as "the identification and utilisation of economic opportunities through the creation of market imbalances that instigate the progression of a sector towards a more environmentally and socially sustainable state." [14, 15].

These opportunities arise due to market imperfections that harm society and the environment, creating room for innovative business models to tackle these issues [16]. To implement sustainable entrepreneurial practices in daily business, it is crucial for individuals, organizations, and societies to seek methods and criteria that facilitate a comprehensive understanding of the sustainability level and nature associated with their actions [17].

The United Nations Sustainable Development Goals (SDGs) represent a practical framework for this purpose. The UN introduced the SDGs in 2015, outlining 17 sustainable development goals and 169 associated targets. Their objective is to offer guidance and support to organizations in pursuit of sustainable practices, including the Triple Bottom Line (TBL) approach [15, 18].

The 17 goals, illustrated in the table below, are utilized worldwide as a reference and framework for policy development and economic measures. To sum up, the concepts of sustainable entrepreneurship and the TBL approach strive to produce a constructive influence and profits for

stakeholders. Fundamentally, they represent a concession between characteristics intrinsic to advancement [19]. For example, it is widely believed that economic development and ecological development clash and hinder one another. The theory of limits is often invoked in this context to argue that economic growth leads to irreversible ecological harm beyond a certain threshold, thereby imposing unconditional limitations on economic pursuits [20].

Analyzing the implications of sustainable entrepreneurship in different developmental areas and distributing knowledge of their correlation is of paramount importance. This facilitates well-informed decision-making processes in entrepreneurial undertakings. It is apparent that an increasing number of stakeholders show an escalating interest in sustainability-related information [21]. Therefore, precise methods for assessing the impact of sustainability in sustainable entrepreneurship are of increased importance.

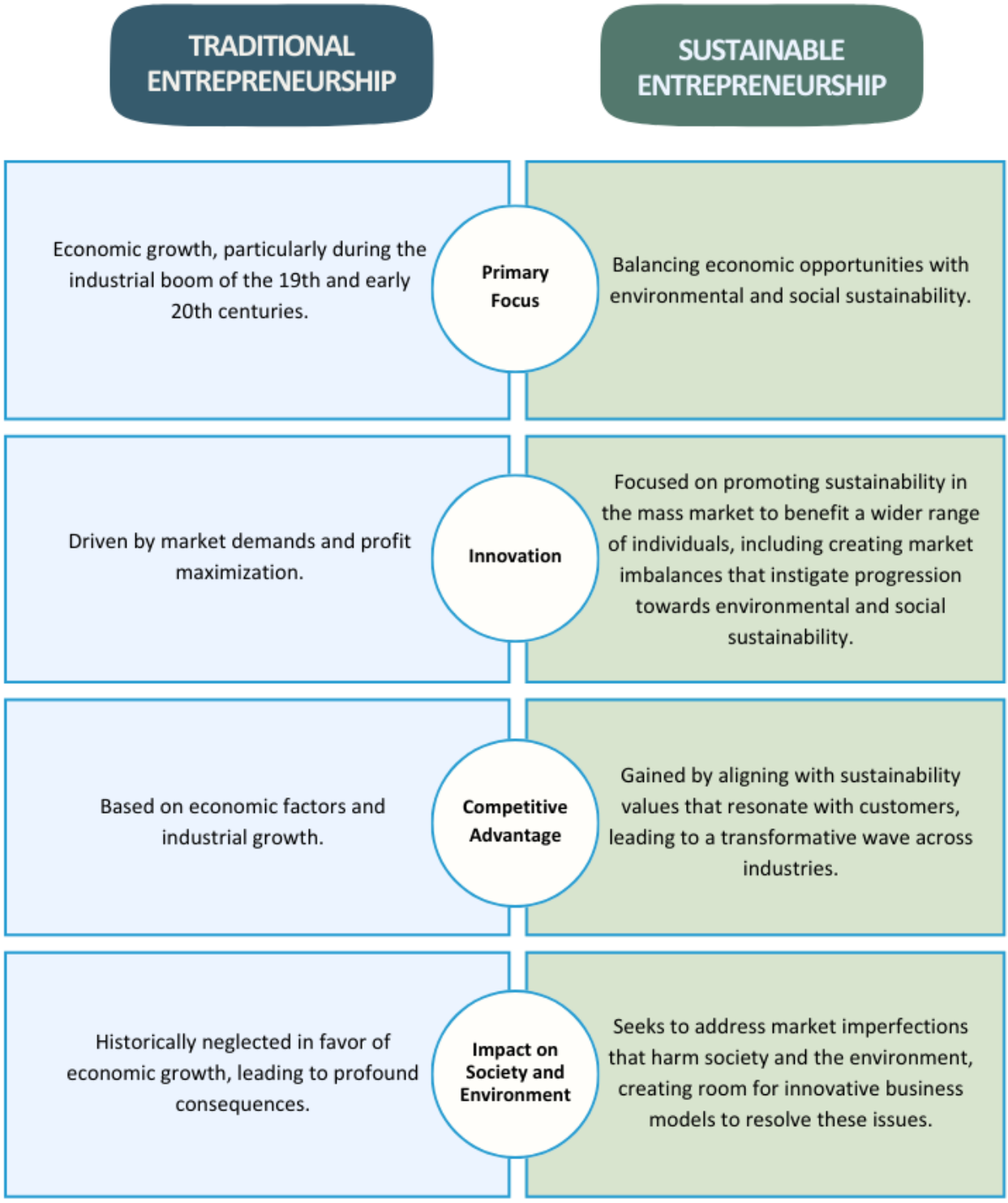
Several sustainability and/or impact assessment approaches and frameworks exist across various domains, as noted by numerous developers. However, there is a gap in the current literature regarding assessment approaches that take into account specific traits of startups [22, 23]. The subsequent section will examine the particular features and attributes of startups.

Entrepreneurs who aim for corporate sustainability firmly connect their business achievements with the attainment of favourable impacts on the environment and the human race. They, in turn, generate worth for a comprehensive scope of interested parties [24]. It is reasonable to anticipate that business initiatives align with those of other stakeholders (civil society, governments, etc.) in accordance with the SDGs. [25].

Difficulties arising from the implementation of sustainable systems are primarily due to the extensive array of environmental, economic, and social factors that must be considered throughout the system's life cycle. Given that research confines business models in perspective to three elements: value proposition, value creation, and the value delivery and capture system, companies must first analyze their behavior, responsibility, and corporate performance; identify resources to set up core activities, and finally, examine stakeholders and their economic context [26, 27].

Research on business models for sustainability reveals that the process is iterative, with sustainability goals gradually integrated into stakeholder priorities [28]. The research gap exists because it is a novel topic that requires studies to empirically analyze barriers associated with sustainability business models and the effectiveness of related strategies [26]. Therefore, it is essential to continue studying the relationship between organizational commitment to sustainability and its actual implementation and performance [29].

Table 2 Comparative Analysis of Traditional vs. Sustainable Entrepreneurship



2.1.3 Benefit Corporation: Revolutionary paradigm in Business Ideology

Benefit Corporations (B Corps) signify a crucial shift in the corporate framework, distinctly different from traditional companies focused solely on delivering dividends to shareholders. In divergence from this traditional approach, B Corps adopt a forward-thinking strategy, striving to yield beneficial outcomes for both society and the environment.

The Benefit Corporation serves as a legal framework, laying a robust groundwork for aligning enduring visions and fostering collective value. This format ensures the preservation of the

company's mission through periods of capital growth and changes in leadership, while offering enhanced adaptability in assessing possible divestments. It stands apart from mere social enterprises or as a straightforward progression from the non-profit sector. Instead, it embodies an affirmative shift in standard profit-driven business models, addressing the demands and prospects presented by the markets of the 21st century.

2.1.3.1 Entrepreneurial Characteristics of Benefit Corporations

B Corps voluntarily pursue the goal of the common good in addition to profit when carrying out their activities. Public benefit means that they aim to have one or more positive impacts on individuals, communities, territories, the environment, cultural and social goods, organisations and associations, and other interest groups. These companies are committed to pursuing these goals in a responsible, sustainable and transparent manner and require their managers to harmonise the interests of shareholders with those of the community.

To fulfil these obligations, Benefit Corporations appoint a leader responsible for the impact of the company in accordance with the law. In addition, they are obliged to present their activities transparently and comprehensively in an annual impact report, which documents not only the measures implemented, but also the plans and commitments for the future. This approach reflects a commitment to corporate governance that goes beyond pure profit and actively contributes to the common good and global sustainability [30].

2.1.3.2 Benefit Corporation: Purpose, Ethical Commitment and Accountability

A B Corp is a conventional corporate form with revised obligations that commit management and shareholders to a higher level of purpose, accountability and transparency [30]. More specifically:

Objective: B Corps are dedicated to exerting a beneficial influence on society and the biosphere, fostering common principles while also realizing profits. Their business model fundamentally incorporates sustainability, contributing to both present and future social and environmental well-being.

Accountability: B Corps are dedicated to assessing their company's effects on both society and the environment, and are committed to pursuing sustainable, enduring value creation for every stakeholder involved.

Openness: B Corps are dedicated to regularly disclosing and accounting for their achievements, ongoing progress, and future pledges regarding their social and environmental impact. This is done on an annual basis, targeting both shareholders and the general public.

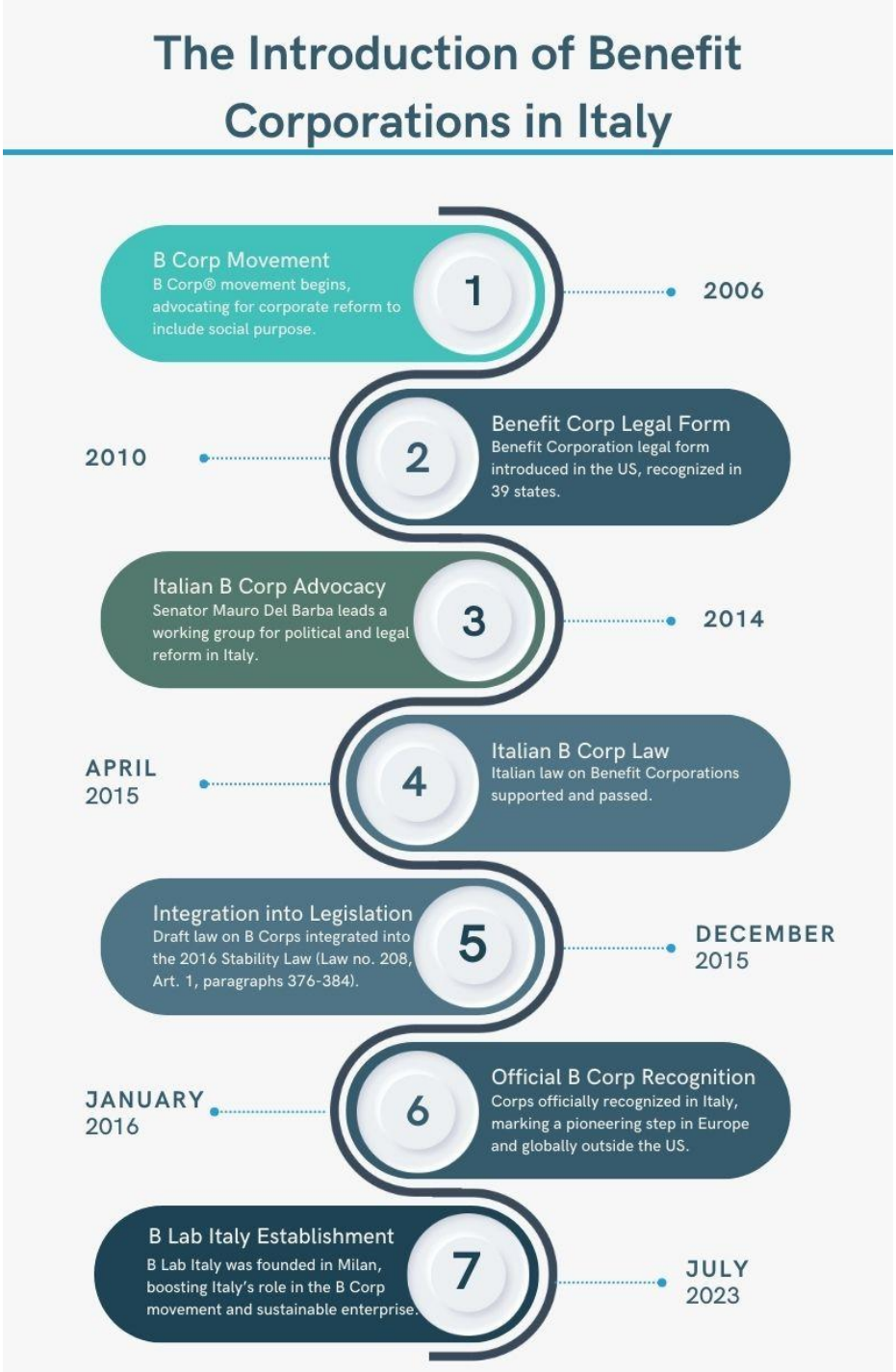
2.1.3.3 The Introduction of Benefit Corporations in Italy

B Corps has been in existence in Italy since January 2016, a pioneering role in the European and global context outside the United States. The Benefit Corporation legal form, introduced in the US in 2010 and currently recognised in 39 states, has been innovatively adopted and allows entrepreneurs to protect their company's mission and stand out in the market through an ethical legal approach.

In 2006, a global business movement, represented by B Corp™, advocated for fundamental corporate reform that impacted the statute and social purpose. The Italian view is that companies are traditionally designed to pay dividends to shareholders. This structure, in the Italian view, limits management's ability to innovate in a direction beneficial to society and makes virtuous companies

vulnerable to changes in management, the entry of new shareholders and stock market listings, among other things.

Since 2014, a working group led by Senator Mauro Del Barba has been driving forward a political and legal project, which was supported by the law on the benefit corporation passed in April 2015. The Italian legislation on Benefit Corporations was drafted by an international team of lawyers, entrepreneurs and stakeholders, modelled on the discipline of Benefit Corporations in the USA and adopted in various nations. The draft law on B Corps was subsequently integrated into the 2016 Stability Law, which contains the provisions of Law no. 208 of 28December 2015 (2016 Stability Law), Art. 1, paragraphs 376-384, and came into force on 1 January 2016.



Timeline 1 The introduction of Benefit Corporations in Italy

2.1.3.3.1 Reporting Obligations in Italy

To fulfil the regulatory requirements for transparency, Benefit Corporations must prepare an annual impact report, which is attached to the balance sheet and published on their corporate website. The reporting criteria in Italy require that this report contains the following:

1. A detailed account of the specific objectives, methods and actions undertaken by the administrators to achieve the public benefit objectives, indicating any circumstances that may have hindered or slowed progress;
2. An assessment of the impact achieved using the external assessment standard with the specifications given in Annex 4 of the law, covering four areas of assessment: governance, employees, other stakeholders and environment;
3. A section describing the objectives that the company intends to pursue in the following financial year.

The legal reference point for the impact report is the B Impact Assessment (BIA) architecture, which we will examine in the next chapter. The B Impact Assessment is based on the principles of materiality and is freely accessible [31]. Other standards are permissible, but must fulfil the criteria of correctness, transparency and completeness. The reporting obligations are set out in sections 383 and 384 of the Public Benefit Corporation Act.

The requirement for transparency aims not only to inform the public about B Corp's overall social and environmental impact, but also to provide managers and impact officers with a detailed framework for exercising their functions more effectively and shareholders with the opportunity to exercise their rights. The proper preparation and dissemination of the impact report plays a crucial role for Benefit Corporations in fulfilling the transparency obligations associated with the creation of public benefit, both in general and specific terms [31].

2.1.4 Sustainability in Startups: A General Analysis

Entrepreneurship has been shown to be a key driver of sustainable innovation. Furthermore, the creation of new enterprises can contribute greatly to the expansion of such innovations. Although the entrepreneurial role has been recognized from the outset of transition research, it has not been the focus of discussions related to technical and social transitions. This role is characterized as an interactive relationship among three levels [11]:

- the existing landscape:
- the regime;
- innovative solutions created by niches.

" Landscape pressures and regime problems also stimulate entrepreneurs and new firms to develop radical niche-innovations " [35].

Since Schumpeter placed the entrepreneur at the centre of the process, researchers have focused on the transformative role that entrepreneurs play in generating economic and social wealth [29].

The study of sustainability transition, social entrepreneurship, and sustainable entrepreneurship has given rise to the notion that entrepreneurial initiatives have the potential to make notable societal and environmental advancements [26]. Based on sociological analyses that conceptualize mechanisms as entities carrying out activities have linked the entrepreneurial duty to the idea of a 'causal mechanism,' describing it as 'the processes by which an outcome is reached.' [29].

Hedström and Wennberg have categorized causal mechanisms at multiple levels, including:

- Situational mechanisms;
- Action-formation mechanisms;
- Transformation mechanisms.

The latter have proven crucial for investigating the role and impacts of startups, Johnson and Schaltegger assert: “… transformational mechanisms explain the collective effects of multiple ventures (micro-level) on markets (meso-level) and grander institutional landscapes (macro-level).” [29].

The authors have identified seven mechanisms by which entrepreneurs facilitate changes at the meso and macro levels.
Meso Level:

- Genesis of sustainable local value.
- Introduction of market innovations aimed at sustainability.
- Creation of sustainability-oriented networks.
- Transformation of markets towards sustainable development.

Macro Level:

- Creation of institutions or transformation of existing ones towards sustainable development and sustainability.
- Genesis of large-scale value oriented towards sustainability.

Based on the research conducted, it is a reasonable hypothesis that entrepreneurial activity can have a significant impact on multi-level transformations towards sustainable development. Furthermore, it is accurate to presume that various actors, such as startups, can contribute to these actions and initiate changes through transformation mechanisms.
Startups, as new market entrants, play a significant role in multi-level transitions. According to Hockerts and Wüstenhagen (2010), the "Emerging Davids" are more prone than established companies to explore prospects for sustainable development. This tendency is especially prominent during the initial phases of sectoral transformation [11]. Fichter and Clausen (2013) successfully demonstrated, through an analysis of 100 environmental innovations, that startups play a pivotal role in the introduction of radical environmental innovations to markets [30]. The importance of startups is further highlighted by transition research.

Geels et al. (2016) have identified four pathways categorising the intricate and complex network of actors emerging from the multi-level transition process. New entrants play a key role in three of these pathways, with the reconfiguration pathway involving alliances between new entrants and incumbents navigating the transition course [33].
In the reconfiguration pathway, the transition course is shaped by alliances between new entrants and incumbents. During the de-alignment and re-alignment phase, landscape pressures cause the collapse of incumbents, creating new opportunities for growth in new entrants. The replacement pathway sees incumbents ousted by the "Emerging Davids". Startups play a critical role in this phase by introducing and scaling radical innovations that replace existing ones.

Although it is widely accepted that new entrants play a crucial role in the introduction and expansion of sustainable innovation, it remains uncertain how startups can effectively contribute to sustainable transitions by scaling their market-oriented innovations for sustainability, thereby facilitating the transformation of markets towards sustainable development.

Impact startups refer to newly established enterprises that aim to provide scalable solutions that deliver tangible sustainability benefits. Therefore, startups have the potential to support transitions to sustainability and the Sustainable Development Goals (SDGs). Describing them in this way emphasizes that, for many startups, their role in the transition is an ex-ante concept rather than a concrete reality. Additionally, it does not provide clarity on the methods or mechanisms through which they contribute to the transition.

The definition asserts that an impact startup utilises a pioneering approach to tackle sustainability issues on a grand scale. Through their expanding market share, they strive to supplant existing practices with more eco-friendly alternatives. Their achievements aid mechanisms like presenting market-oriented innovations for sustainability and transforming markets towards sustainable development. In certain cases, these accomplishments can also facilitate macro-level mechanisms, such as institutional change.

2.1.2 Arguments Supporting the Transition of Startups Toward Sustainability

In the previous section, we presented the notions of "transformative mechanism" and the influential part that startups can perform in multiple transitional periods as emerging entrants in the market. These are basic points that necessitate theoretical support and further analysis. Evaluating the theories that concentrate on this matter is helpful in clarifying why sustainability leads to the advancement of a startup.

2.1.4.1 Theories of Startup Growth

In order to better understand the context of startup growth, it is crucial to examine the theories that outline the underlying factors of this phenomenon. Startup growth theories provide a conceptual framework for analysing how and why new ventures thrive, focusing on various aspects, including sustainability. In this section, we will explore some of the key theories that drive the understanding of start-up growth and its implications for the transition to sustainability.

A review of the available literature on entrepreneurship and strategic management in search of explanations for start-up growth reveals two main perspectives. One focuses on internal factors, while the other examines external factors.

Regarding internal factors, the most appreciated theory is the Resource-Based View (RBV) of the firm [34]. Barney argues that the most significant performance effects stem from valuable and rare resources that are difficult to imitate and hardly substitutable.

Another perspective emphasises that the importance of internal components comes from a dynamic capabilities perspective, extending the previous theory to dynamic markets [33]. "The rationale is that RBV has not adequately explained how and why certain firms have a competitive advantage in situations of rapid and unpredictable change" [36].

According to Eisenhardt and Martin "The rationale is that RBV has not adequately explained how and why certain firms have a competitive advantage in situations of rapid and unpredictable change" [36]. For this reason, another perspective emphasises that the value of internal factors comes from the perspective of dynamic capabilities. This extends RBV to dynamic markets and focuses on the ability of firms to voluntarily improve their resource base and its use [35].

Important research related to this perspective includes, for example, the study of firm resilience by Linnenluecke [37]. The literature suggests that modelling the growth potential of impact start-ups must take into account the composition of internal resources [38, 39]. For this reason, our definition of growth must take into account the 'internal factors of the firm' that influence the outcomes of a startup.

Focusing on the impact of external factors, we find numerous studies that offer contextual theories and emphasise their importance. Geels looks at seven social science ontologies, their theories of agency and causal mechanisms, and their views on environmental sustainability [39]. Since our focus is on impact start-ups, it seems more appropriate not to concentrate on one in particular, as our research topic requires multiple explanations.

The previous discussion of MLP has already shown the importance of external factors in the transition to sustainability. The socio-technical landscape can facilitate the growth conditions of a startup, but at the same time the configuration of the socio-technical regime can increase the challenges a startup faces in achieving its growth at the meso level. The strategic management literature also highlights the importance of this influence; for example, Porter emphasises the relevance of industry structure for the competitiveness of new entrants [41, 42]. This research provides information on the socio-technical regime and the factors that make it accessible to start-

ups. Population ecology literature provides insights into the socio-technical landscape and the limited ability of incumbents to adapt to changes in the landscape [43].

Similarly, entrepreneurship research has recognised the importance of external factors and, as Welter states, understanding entrepreneurship requires 'historical, temporal, institutional, spatial and social contexts because these contexts provide opportunities for individuals and set boundaries for their actions' [44, 45, 46].

Building on these arguments, the theory of entrepreneurial ecosystems has become a prominent approach to understanding start-up growth. Audretsch and Belitski claim that it is possible to define an entrepreneurial ecosystem as "a dynamic community of interdependent actors (entrepreneurs, suppliers, buyers, government, etc.) and system-level institutional, informational and socio-economic contexts" [47].

In such a context, actors such as start-ups and incubators develop synergies with each other. These ecosystems play a fundamental role in the growth of enterprises. The concept of entrepreneurial ecosystems aligns entrepreneurial ecosystems with sustainability and promotes sustainable entrepreneurship [48, 49, 50].

2.1.4.2 Benefits for sustainability

This section aims to clarify when the growth of start-ups leads to sustainable benefits that justify the term 'impact'. The term "impact" refers to the logic of input-output-result-impact, which defines causal links between an organisation's activities (inputs and outputs) and the social change it creates (outcomes and impacts). To reduce complexity, we will use the term 'impact' only to define start-ups that make a positive contribution to the transition to sustainability [51, 52, 53].

Let's consider Horne's understanding of the concept of Net Sustainability Benefits (SNB). Horne presents SNBs as "the net benefits for sustainable development (taking into account negative externalities and rebound effects) that a venture creates compared to available alternatives in the socio-technical regime", highlighting the need for a startup to assess the sustainability impact of an innovation in terms of its potential widespread application [54]. The definition of "net benefits" refers to the need to balance positive and negative changes resulting from an innovation. In order to balance two opposite effects, a heuristic is used that estimates global limits above the agreed priorities of the Sustainable Development Goals [54, 55, 56]. This method helps to balance different outcomes, but is less effective when trying to provide quantitative answers, such as how many tonnes of CO2 exceed the loss of a job.

2.1.4.3 A multi-level framework of startup growth in the transition towards sustainability.

The forthcoming illustration depicts the facilitation of sustainability transition by impact startups through their expansion. Protected niches assume a significant function in the transition process, as asserted by Geels and Schot “Technological niches form the micro-level where radical novelties emerge. These novelties are initially unstable sociotechnical configurations with low performance. Hence, niches act as ‘incubation rooms’ protecting novelties against mainstream market selection.” [58]. At first, new concepts need to be "protected, nurtured, and enabled" [59] until they are sufficiently developed to endure the competitive pressures of the socio-technical regime. This stage is shaped by internal factors, such as the vision and strategy of the entrepreneurial team, as well as external factors, such as the quality of the entrepreneurial ecosystem. Developing new responses is the initial step towards achieving sustainability (see Figure 2).

However, the mere existence of innovative solutions is not enough; maturation and surpassing of niches are imperative for mutation [58]. In addition, diffusion necessitates the existence of an appropriate actor capable of implementing an established innovation outside of a protected environment. In our scenario, a startup (Phase 2) embodies this figure. The initial stage of the transformation process (TM 1) is marked by the introduction of a sustainable market innovation. Within the socio-technical setting, an impact startup that thrives in the market can augment innovative practices (Phase 3). The expansion of sustainable innovations encapsulates the second transformative mechanism (TM 2). By increasing its market share at the cost of rivals (Phase 4), the startup effectively changes the market. This is an added mechanism of transformation at the meso level (TM 3). As the impact startup's solution provides sustainability benefits over other companies, its expansion aids in the transition towards sustainability (Phase 5).

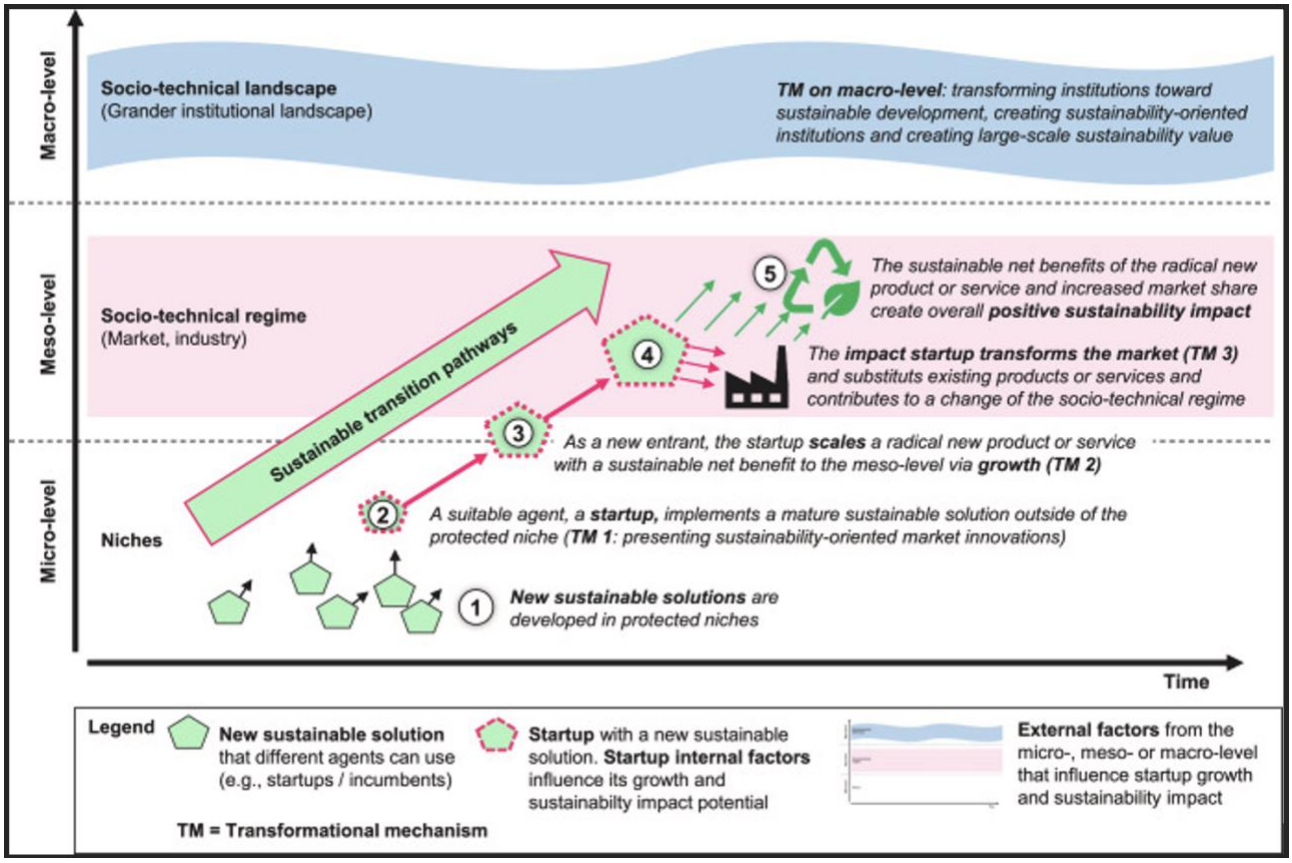


Figure 1 Horne, J., & Fichter, K. (2022). Growing for sustainability: Enablers for the growth of impact startups – A conceptual framework, taxonomy, and systematic literature review. Journal of Cleaner Production, 349, 131163. https://doi.org/10.1016/j.jclepro.2

2.2 Eco-efficiency and Sustainability Indicators for Startups

2.2.1 Challenges in Sustainability Management for Startups

Startups encounter numerous challenges in managing their environmental and social impact, which are typically associated with limited resources in terms of both finances and personnel. It is important to note that startups need to address these challenges to ensure sustainable business practices. The existing literature on sustainability management for startups categorizes the challenges as internal or external.

Internal challenges arise from the startup itself and include, for example, a shortage of resources and expertise, both managerial and technical. Da Silva, Oliveira, and de Pinho identify several internal challenges faced by startups regarding sustainability [60, 61]:

- Limited resources: Startups typically have limited resources that are directed towards survival and business growth, which poses difficulties for investment in sustainability measures.
- Inadequate Skills: Ineffective sustainability management may stem from a shortage of appropriate skills, encompassing technical expertise, such as subpar proficiency in green technologies, and managerial proficiency, such as incapacity to formulate a sustainable strategy.
- Difficulty in measurement of results: Measuring progress towards preset sustainability goals can be difficult despite the availability of indices and tools.

External challenges, however, can result from the environment and may be due to competitive pressure and a lack of customer attention, posing a barrier for startups to convey their goals and accomplishments. Existing literature points out certain challenges:

- Communication barriers: Start-ups may struggle to communicate their sustainability goals and results to customers and stakeholders [60].
- Competitive pressure: Startups implementing sustainability policies may be at a disadvantage in comparison to competitors who do not invest in sustainable practices.
- Lack of customer awareness: The importance of sustainability may not yet be fully understood by customers, presenting a challenge for startups to communicate their sustainability objectives and outcomes [61].

Some of the key factors triggering challenges for startups embarking on a sustainability-oriented path include:

- Lack of data: Data collection necessitates both time and resources, commodities that are invariably limited in nascent enterprises. Moreover, it may be hindered by an inadequate infrastructure for monitoring and evaluating activities.
- Growth pressures: Startups are often faced with the need to grow quickly, which can lead to favouring unsustainable social and environmental choices.
- Existing regulations: Current regulations can be demanding and necessitate significant time and resource investment, which detracts from resources available for startup growth.
- Competing priorities: Startups may have other pressing business aims, such as acquiring customers and generating revenue, which may appear more critical than ensuring sustainability.

However, numerous startups have acknowledged the significance of sustainability and are exploring ingenious approaches to tackle these issues. A few may incorporate sustainability into their corporate culture from the outset, whereas others may seek partnerships or investments with like-minded associates who share the same values. While sustainability management for startups is challenging, it can also present distinguishing prospects and achieve long-term positive impacts.

2.2.2 The challenges in the implementation of CSR (Corporate Social Responsibility).

One key challenge when implementing a CSR strategy in a startup is the limited availability of resources. Yuen and Lim have identified a range of resource deficiencies, including insufficient funds, human capital, knowledge, and experience [62]. In order to effectively implement CSR, a significant amount of resources is typically required. Furthermore, assessing CSR management from an economic point of view presents a more intricate issue due to the interplay of short-term expenditures and long-term rewards. The delayed profitability, combined with an absence of a long-range strategy, contradicts managers' desire to optimize immediate gains, ultimately resulting in the disregard for CSR in favour of tasks that ensure prompt revenue. One possible resolution to exhibit commitment to CSR is to incorporate its strategy into the core mission [62].

Kechiche & Soparnot highlight a further challenge in the form of manager reluctance. Some executives express doubts about the potential advantages that CSR programmes could bring, leading them to approach the matter cautiously and be unwilling to go beyond previous requirements. Other managers view themselves as too occupied to tackle social and environmental matters beyond their field of expertise, deeming such issues as having no bearing on their company's commercial interests. The obstacle may partly result from an insufficiency of knowledge and preparation regarding CSR. The Sustainability Barometer conducted in the Parisian region in 2007 identified that 47% of SME managers consider the lack of information as a primary challenge in implementing sustainable development practices [63].

Another significant impediment to CSR adoption is greenwashing. Porter and Kramer argue that perceiving CSR exclusively as a communication tool can hinder its implementation [64]. An instance of greenwashing is the integration of CSR in operations exclusively for customer attraction, or the tactic of "Selective Disclosure," where only CSR actions with favourable outcomes are unveiled in order to conceal and counterbalance damages. The erosion of CSR's popularity is largely due to greenwashing, as the public is questioning the authenticity of companies [65].

The lack of evaluation tools and benchmarks is another challenge for CSR development. These are essential for performance review and, therefore, gaining insight into the advantages and downsides of executed tactics. As we shall observe subsequently, only a handful of environmental and social indicators are widely acknowledged and utilised among diverse entities. Therefore, financial report indicators are not standardized and often lack adequate information. It is typically necessary to establish a measurement system for each new project to assess and track its progress. Furthermore, the challenge of quantifying CSR components further complicates the development of such a system. As a result, management finds it difficult to assess the value of the investment and often scales back efforts to implement a CSR-supporting strategy [62].

2.2.2 The Importance of Legal and Social Compliance for Startups

The adoption of measures targeted at environmental and social sustainability presents a lucrative opportunity for proficient businesses, bringing potential benefits such as differentiation from competitors, government backing, and commercial advantages. Adopting sustainable practices not only mitigates the risk of violating environmental laws and enhances reputation, but also provides notable economic and legal benefits for organisations. The European Union has consistently supported such initiatives and actively introduces new ones. Currently, the European Commission is committed to achieving the objectives of the Green Deal and aims to raise at least £1 trillion in sustainable investments over the next decade. Thirty percent of the EU's multiannual budget and the NextGenerationEU are dedicated to green investments. Additionally, 37% of the Cohesion Fund is allocated to achieving climate neutrality by 2050 [66].

One of the foremost economic initiatives of the European Union is the European Investment Fund (EIF), which offers diverse financial instruments to aid businesses, including sustainable startups. Such instruments encompass advantageous financing or guarantees for startups investing in sustainable technologies. The EIF supports new businesses, particularly those that prioritise environmentally sound practices, by means of the InvestEU scheme. It forms a central section of both the NextGenerationEU and the Recovery and Resilience Facility. This scheme channels funds to fledgling businesses through financial partners, with the EU budget providing a guarantee. This approach offers the benefit of simplifying processes and fostering a more effective investment environment. The objective is to boost investment, aiming to attract at least 372 billion euros between 2021 and 2027 [reference 66].

Another significant initiative by the EU that offers numerous benefits to startups embracing sustainable practices is the Horizon Europe programme. This is the EU's flagship research and innovation initiative, spanning from 2021 to 2027 [67]. With an allocated budget of 95.5 billion euros, its purpose is to generate scientific, technological, economic, and social advancements through EU investments in research and innovation. Horizon Europe is designed to meet its objectives by allocating funds to research projects, with a substantial part of its budget reserved for sustainable investments. This allocation underscores the program's commitment to aiding the shift towards a more sustainable, greener economy. For startups that prioritise CSR, the availability of funds designated for green investments under Horizon Europe presents a substantial opportunity. Furthermore, the Horizon Europe initiative provides sustainable start-ups with a variety of financial instruments, such as the EIC Accelerator - an acceleration programme that offers funding, mentoring and networking opportunities to pioneering start-ups, and the EIC Pathfinder - a research and development programme which supports innovative projects that tackle significant global issues, such as climate change, resource depletion and healthcare [68]. These incentives can aid sustainable start-ups in cutting costs, creating novel technologies, and accessing the market.

2.3 Evaluation of Environmental and Social Impact in Startups

2.3.1 The main indicators

In this paragraph, we will examine the primary indicators employed to assess the environmental and social effects of startups and corporations more generally. A total of five indicators will be analysed. These indicators were not chosen arbitrarily; instead, they serve as the foundation for the evaluation tool that is the focus of this thesis.

2.3.1.1 UN SDG

In 2015, the member states of the United Nations adopted the 2030 Agenda for Sustainable Development, forming a global strategy for the welfare of people and the planet.

The preceding sections delineate that the Agenda encompasses a suite of 17 Sustainable Development Goals (SDGs). These objectives recognize the imperative for an integrated approach to eradicate poverty and mitigate human distress. This comprehensive strategy necessitates the bolstering of educational and healthcare systems, the diminution of social and economic disparities, and the stimulation of inclusive economic prosperity. Such an approach is to be undertaken in tandem with efforts to combat climate change and advocate for the conservation of terrestrial and marine ecosystems [69].

Figure 2 United Nations. (September 2023). "Sustainable Development Goals Guidelines." Retrieved from https://www.un.org/sustainabledevelopment/wp-content/uploads/2023/09/E_SDG_Guidelines_Sep20238.pdf

The conceptualization of Agenda 2030 is deeply embedded in a series of progressive agreements and strategic frameworks that have developed over an extended period. This evolutionary process was inaugurated in June 1992, during the auspicious United Nations Conference on Environment and Development, convened in Rio de Janeiro, Brazil. This seminal conference witnessed the convergence of representatives from over 178 nations, collectively endorsing Agenda 21 — an intricate and comprehensive blueprint aimed at establishing a global partnership for sustainable development. The paramount objective of this strategic blueprint was to significantly elevate the standard of human living conditions while simultaneously safeguarding and nurturing the environmental ecosystem.

In accordance with these objectives, the United Nations Secretary-General bears the annual onus of assembling and disseminating a detailed report. This document conducts a thorough analysis of the progress and significant achievements within the domain of the Sustainable Development Goals (SDGs). These goals encapsulate the core of global ambitions for sustainable development. The formulation of this report is a synergistic effort within the United Nations System, integrating data sourced from the global indicator framework, national statistical systems, and inputs from regional databases, as indicated in [reference 69]. Currently, the SDGs play a pivotal role in the assessment of environmental and social impacts attributed to corporate entities. The SDGs, with their wide-ranging applications and multifunctional nature, are employed in various contexts to guide, measure, and enhance sustainable practices within the business sector.

- Objective Formulation in Corporations: The SDGs assist in the articulation of social and environmental aims that are congruent with an organization's mission and vision.
- Impact Quantification: They provide a framework for assessing a company's impact on environmental and social dimensions, evaluating how corporate operations contribute to these overarching goals.
- Strategic Development and Planning: This involves the creation of strategies and actionable plans rooted in the SDGs, frequently pinpointing sustainability initiatives that have objectives aligned with specific SDGs.
- Transparent Reporting and Communication: Corporations engage in the transparent disclosure of their progress toward achieving SDG-related targets, enhancing accountability and public trust.

- Stakeholder Engagement: Companies actively involve various stakeholders in SDG-centric projects to garner support and align interests with their sustainability objectives.
- Benchmarking for Continuous Improvement: The SDGs act as reference points for continual enhancement, involving regular monitoring and strategic modifications based on performance outcomes.
- Collaborative Endeavors and Partnerships: Firms establish collaborative relationships with government entities and non-governmental organizations to further the attainment of the SDGs, thereby amplifying their collective impact.

In essence, the SDGs provide a comprehensive global schema that aids companies in synchronizing their operations with sustainable development principles, quantifying their operational impacts, and communicating their accomplishments. Companies that adeptly integrate the SDGs into their strategic frameworks not only contribute to global sustainability objectives but often experience an elevation in their market standing and competitive edge. As a result, several pivotal indicators for appraising companies' social and environmental footprints are derived from the SDGs. These indicators and their applications in corporate evaluation will be examined in subsequent sections.

2.3.1.2 Cerise MetODD-SDG

"MetODD-SDG" stands for "Method for Organizations to Define and Deliver the Sustainable Development Goals" and is being developed by Cerise and SPTF. Cerise is a non-profit organisation that has contributed to the development of many social performance indicators. SPTF (Social Performance Task Force) is a for-profit organisation that emerged from the joint venture that developed the Universal Standards for Social and Environmental Performance Management. The two organisations have been working together since 2000, following a common strategic plan [70].

While the SDGs provide 284 macro-economic indicators to measure the impact of enterprises, Cerise and its Social Enterprise Working Group decided to compile a list of micro-economic indicators to facilitate the assessment of social enterprises wishing to demonstrate their contribution to the SDGs [72].

MetODD-SDG is an assessment mechanism that compiles a list of micro-level indicators for the SDGs. Its main purpose is to support organisations in defining goals and identifying specific actions to contribute to the SDGs, while measuring the progress of these actions.

Micro-level indicators are more specific and detailed than the macro-level indicators addressed by the SDGs. This makes it easier for individual companies to assess and monitor their social and environmental impacts in line with the SDGs.

These indicators can provide a more detailed and personalised view of how a company is contributing to specific aspects of the SDGs, allowing them to identify areas for improvement and increase their impact. This approach can be particularly useful for small and medium-sized enterprises (SMEs) and start-ups, given their limited resources for extensive data collection and reporting.

By focusing on micro-economic indicators, businesses can better understand their strengths and weaknesses in addressing sustainability issues and make targeted efforts to drive positive change in areas that matter most to them and the broader SDG agenda.

Its operation can be divided into five different stages:

1. Impact assessment: Analysing the impact of the company's operations, products or services on the goals to assess the impact on different SDGs.
2. Target definition: Based on the impact assessment, companies define specific goals they want to achieve in relation to the SDGs. These goals are aligned with the company's mission and vision, as well as the needs of the community in which it operates.
3. Action planning: Companies identify actions to achieve the SDG targets they have set, which may include changes to operations, products or services offered.
4. Measurement and monitoring: Companies implement action plans and, through the collection and analysis of relevant data, measure progress towards achieving the SDGs.
5. Reporting and communication: Companies transparently communicate their efforts and impact on the SDGs, both internally and externally. This can help improve reputation and engage stakeholders.

The categories covered by MetODD-SDG:

- Economic indicators
- Social indicators
- Environmental indicators
- Governance indicators
- Well-being indicators
- Sustainability indicators

Strengths of the MetODD-SDG [70]:

- Can be applied to all mission-driven organisations.
- A limited number of simple operational indicators that can be adapted to most situations.
- Aligned with international standards, including the IRIS catalogue of widely accepted performance indicators.
- A logical selection of indicators to measure from intention to impact.
- Indicators are grouped into six categories, from the simplest to the most complex.

In conclusion, MetODD-SDG guides companies through a structured process to assess, define, plan, monitor and communicate their participation in the SDGs. It promotes sustainable development and responsible social and environmental behaviour, making it more accessible to SMEs and start-ups.

2.3.1.3 SDG Action Manager

The SDG Action Manager, developed collaboratively by the United Nations Global Compact and B Lab in 2020, serves as a pivotal strategic and operational instrument. Its core aim is to assist corporations in enhancing and scrutinizing the efficacy of their sustainability initiatives, thereby accelerating progress towards the SDGs [73].

This tool's primary objective is to catalyze SDG-aligned corporate activities, steering companies towards heightened sustainability and social responsibility. By providing a complimentary platform, the SDG Action Manager empowers businesses to thoroughly assess their impact on the Sustainable Development Goals. This assessment is uniquely comprehensive, integrating the SDGs, B Lab's B Impact Assessment, and the UN Global Compact's Ten Principles. This synergistic approach not only allows companies to conduct in-depth self-evaluations but also engages them in a continual process of benchmarking and improvement. It's a dynamic journey towards sustainability, fostering a culture of self-awareness and progressive enhancement in corporate practices. The process initiates with pinpointing priority Sustainable Development Goals and extends to formulating business strategies for their realization. These strategies encompass the adoption of best practices, realization of tangible results, risk management, and collaboration with other entities [73].

The SDG Action Manager enables companies to:

- Have a starting point: Understand which SDGs are most relevant to the company, based on its business profile, and how to start taking action.
- Understand and share impact: Gain a clear view of the positive impact of their operations, supply chain and business models, and identify areas of risk for each SDG.
- Set targets and monitor improvement.
- Build collaboration across the business: Engage all employees so everyone can contribute with their skills.
- Learn step by step: Identify highly relevant actions using assessment questions that are both concise and practical, compare against reference standards and follow guidelines for improvement.

2.3.1.4 GRI

The Global Reporting Initiative (GRI) is the leading organisation in the field of sustainability reporting and aims to promote transparency and accountability in the social, environmental and economic performance of organisations. Its standardised guidelines help organisations to communicate consistently and improve their sustainability performance.

Sustainability reporting needs to be aligned with financial reporting principles and frameworks. The GRI Standards are an existing example of these principles and frameworks, providing guidance that enables companies and other organisations to report information on the environmental, social and economic impacts of their activities in a consistent and credible manner, and to facilitate the comparability of this information across organisations. The primary audience for this information is stakeholders, but it is also of interest to analysts and investors [74].

The Global Reporting Initiative (GRI) is an independent international organisation that has been developing and promoting sustainability reporting guidelines since 1997. Based in Amsterdam, GRI is now one of the most important global standards for corporate sustainability reporting.

The GRI standards support organisations in increasing their transparency and publicly disclosing their sustainability impacts. By following these standards and improving their impact, companies can demonstrate their contribution to environmental protection and social well-being in more than 67 countries [75].

As a measure of their importance, these standards have been adopted by leading companies in over 100 countries and are cited in policy instruments and stock exchange guidelines around the world. More than 160 policies in over 60 countries and regions refer to or require the GRI. At a more granular level, the GRI guidelines are based on fundamental principles such as materiality (organisations should only report information that is relevant to their stakeholders and sustainable impacts), completeness (the report should provide a complete picture of impacts), accuracy, timeliness and clarity.

Within the GRI Standards there are three types of content: Requirements, Recommendations and Guidelines. Requirements are mandatory, but organisations can comply with the standards even if they are not fully compliant. Recommendations are not mandatory, but are strongly encouraged, while Guidelines provide information and examples to help understand and integrate the requirements.

Strengths of GRI:

- Broad range of issues: The standards cover a wide range of topics, including corruption, water use, biodiversity, employment, taxes and forced labour. These issues cover economic, environmental and social aspects. Organisations select the ones most relevant to their impacts and include them in their reporting.
- Modular system: The standards are divided into three sets: Universal Standards, Sector Standards and Topic Standards. They include disclosures that provide a means for an organisation to report information about itself and its impacts.
- Designed for use by any organization: The Standards enable consistent reporting and help organisations meet the data needs of their stakeholders. Regardless of the type, size or sector of the organisation, the Standards can be used to produce standardised and comparable reporting.
- Flexible structure: The Standards support organisations in preparing a comprehensive sustainability report covering all issues where they have a material impact. Alternatively, organisations can choose to focus on specific topics to respond to stakeholder requests or to comply with specific regulations.
- Development of sector standards: Introducing more consistent reporting on specific sector impacts increases transparency.
- Compatibility with other reporting frameworks: GRI is committed to ongoing collaboration with similar organisations to support the creation of a single global set of reporting standards. The GRI Standards can be used in conjunction with a wide range of frameworks, such as the Climate Change Questionnaire or the International Integrated Reporting Framework.
- Aligned with best practice in impact reporting: The Standards follow international guidelines for ethical business conduct, including the UN Guiding Principles on Business and Human Rights, ILO Conventions and the OECD Guidelines for Multinational Enterprises. Organisations can also use the Standards to report on impacts and progress against the UN Sustainable Development Goals.
- Updated to reflect the latest developments: The standards are continually revised to incorporate new issues, enabling organisations to respond to new regulatory and stakeholder requirements.
- A free public good, available in multiple languages: The standards are distributed free of charge and translated into several widely spoken languages, including French, traditional Chinese and many others.

The use of different GRI Standards is part of a sustainability reporting process that begins with the identification of material issues. The organisation identifies reporting topics that best reflect its environmental, social and economic impacts. These topics, known as "material" topics, form the basis of the report.

The Universal Standards provide valuable support in identifying the organisation's material topics and outline the principles for preparing a report. They include information about the organisation's specific context, such as governance, size and stakeholder engagement. Where applicable to the company, sector standards are useful in identifying material issues and what needs to be reported on for each issue. For example, an oil company will need to follow the Oil and Gas Sector Standard if it complies with the GRI Standards. Corporations use the 33 Topic Standards to report on their impacts on a particular topic and explain how they manage them. For example, a company may use the GRI Water and Wastewater Standard to report on the environmental impacts of withdrawing water from water-stressed areas and how it manages these impacts.

By using this methodology to identify and report on relevant topics, companies can build relationships that highlight the impacts of their activities and operations and respond to stakeholder requests for information.

For the reporting process, GRI offers a wide range of products to guide organisations through the various stages of the process. The focus is on using the standards to create an accurate reporting process and produce higher quality reports. Products offered by GRI include:

- The Professional Certification Programme, a globally recognised professional training programme offered online by the GRI Academy and/or in person through certified training partners.
- The GRI Community, a global network of organisations that work together to advance the knowledge and practice of sustainability reporting.
- Alignment reviews to ensure that reporting meets the requirements of the Standards.
- Workshops that deliver targeted support and guidance to master the reporting process.
- Software and digital tools that leverage GRI content to make sustainability reporting easier and more manageable.

Using the GRI Standards offers several benefits to organisations, including improved sustainable development performance, increased transparency, better understanding of environmental and social impacts, and improved access to sustainability investment funds. These reasons, together with the comprehensive guidance provided, the modularity of the Standards and the ability to provide sector or issue-specific guidance, have made the GRI Standards the most widely used in the world.[76]

3. Methodology

In this chapter, we take a look at the leading environmental and social impact assessment tools that currently exist in the market. In addition, these tools are used in numerous fields and offer excellent ways of understanding and assessing the wide-ranging influence that a business could possibly make on its surroundings and among societies. We will discuss different tools that include B Impact Assessment (BIA), Ecomate, IMPACTO and Carbon Footprint Management bringing to light distinctive features as well as advantages in addition to limitations entailed. Besides, two major theories will be worked out and explained that substantiate impact evaluation: the Stakeholder Theory that has been elaborated by Freeman as far back as 1984, putting special emphasis on accounting for all stakeholders when any strategic decision is taken, and the Theory of Change that would help to map and comprehend processes that have to be followed for reaching long-term goals. These theories provide a crucial framework for interpreting and effectively applying impact assessment tools.

3.1 Description of the Model for Environmental and Social Impact Assessment

3.1.2 I The main existing tools

In this part, we will delve into some of the used tools, for evaluating the environmental and social impact of businesses. Each of these tools looks at aspects that define a company's impact taking into account the company as a whole. While they may not directly relate to our case study these methods offer ideas and important standards for comparison. Studying them will contribute to a better grasp of the approach taken in this research and situate it within the scope of tools for assessing social impacts.

3.1.2.1 BIA - B Impact Assessment

The B Impact Assessment (BIA) represents a tool created by B Lab to measure the commitment of a company in terms of social and environmental impact. The latter represents an international network of non-profit entities which, since 2006, has been working on the transformation of economic systems toward an inclusive, equitable and regenerative economy.

BIA features how a company is driving on sustainability goals to reach the 17 UN Sustainable Development Goals. It's an over 150,000 companies' digital solution for measuring, managing, and improving their environmental and stakeholder impact performance. Prospective companies wishing to take advantage of the fact that they engage in social and environmental accountability provide this evaluation, allowing commending with a B Corp certification and featuring their commitment to more sustainable business.
It caters works based on the planned five-step process:

1. Registration: The company should get registered in the B Lab website.
2. Filling the questionnaire: The second procedure consists of filling a huge questionnaire, which is destined to gather data about business activity, and social and environmental subjects as well.
3. Scoring and analysis: The answers score, which allows taking a look at the overall social and environmental impact and is obligatory prerequisite for getting B Corp certification [72].
4. Improvement and benchmarking: As one of the motivating factors in the continuous improvement process, membership of the BIA provides important benefits in this apply. The companies can use the scores to spot potentials for betterment and benchmark them with those of the best in class of the respondents. Moreover, B Lab offers free tools to help B Corps navigate through the pathway and include personal improvement reports, best practice guides and case studies [73].

5. B Corp certification: A B Corp certification is achieved by scoring above 80 in a rigorous impact assessment based on meeting high environmentally and socially performance standards. A B Corporation has high standards of verified performance, which also increases society and environmental sustainability as well as profitability.

Certification is applied to the whole company, and new certified B Corps have the right of using the Certified B Corporation logo in all corporate communications, on websites and social media, for their products and services promotions.

The major advantage of the seal is added to the brand reputation of the company and, as a result, reinforced financial performance. At this, the company's capability of attracting capital and talent for cooperation is influenced by the seal [72].

3.1.2.2 Ecomate

Ecomate is a new self-serve suite for driving integration and sustainability management across corporate environments. It includes many flexible, scalable tools that are unlike the production of traditional cloud-based platforms. The "ALL-IN-ONE" setup is also one of the facets that includes a one-stop integrated solution ranging from a wide suite of products in order to maximize flexibility and scalability all rounding whilst maintaining its economic value for a user. Notably, Ecomate focuses greatly upon Europe, with a lot of emphasis on the consideration for legislative frameworks of the European Union and performance metrics within the EU27 cluster and this way can be said to provide better assessments compared to its other competitors.

It employs an open ESG standard, to offer a solution to the monopolistic trends in assessment criteria and rating models evident in multinational corporations or institutions. Openness of these models to refinements proposed by external, decentralized validation by scientific committees guarantees transparency and involvement. A striking aspect of Ecomate is its strong privacy control that allows businesses to have a say in determining sharing of data in the ecosystem and ensuring that sensitive information does not step foot outside European soil. It provides various tools that are 'plug and play' which facilitates a seamless convergence of sustainability in business operations.

The ESG Rating is one of the tools that offer rapid access to detailed sustainability analyses, where it is easy to compare with other entities and rapidly spot out the details derived as possible details for improvement.

The ESG Monitor enables to interpret in real-time the performance of the company who being a significant contribution to supply chain management and risk exonerations for corporates. Furthermore, Ecomate differentiates with a monitoring to its ESG process that guarantees the respect of the Corporate Sustainability Reporting Directive (CSRD) and contributes towards putting in place reports on sustainability. This is within an overall approach supporting environmental benefits and as well as social and economic effects. Open to all type of businesses the platform stimulates development of technologies and promotes transition to a circular economy.

It also carries out promotion and popularizes products and services "made in Europe" contributing to sustainable development of the continent. Ecomate aims at making sustainability available for all the enterprises of Europe by contributing to streamlining and simplifying its implementation and management in all the business landscape.

3.1.2.3 IMPACTO

The IMPACTO platform, conceived by NATIVA, a leader in Regenerative Design and the first B Corp in Italy, arises from the necessity of a comprehensive system to assist Benefit Corporations in

the annual drafting of the Benefit Report. NATIVA's intention with IMPACTO is to foster a shift towards more regenerative and less extractive economic models, reflecting the company's commitment to sustainable enterprise evolution.

IMPACTO is distinguished by its streamlined process for drafting the Impact Report, offering a solution that is complete and intuitive, while adhering to legislative requirements. The platform enables effective monitoring of the Key Performance Indicators (KPIs) associated with common benefit goals, which is critical for Benefit Corporations to demonstrate their statutory commitments through the annual report, published alongside the financial statements [77].

IMPACTO's guided process is divided into four main stages:

- Definition and planning of actions and objectives;
- Ongoing monitoring of actions throughout the year;
- Tailoring the Impact Report to corporate needs;
- Archiving and managing historical corporate data for future reference.

Developed using Google's Angular framework and powered by RESTHeart and MongoDB, the platform utilizes AWS cloud services to ensure flexibility and scalability [77].

Additionally, IMPACTO provides editorial functionalities for report drafting, enabling companies to create a historical archive of impact relations. Its intuitive dashboard, corporate profile, and dedicated sections for action planning and KPIs, provide meticulous oversight of progress in report compilation.

Lastly, IMPACTO not only meets regulatory obligations but also turns the Impact Report into a strategic communication tool with stakeholders, increasing transparency and strengthening corporate commitment to a more sustainable economy. Thus, the platform emerges as a strategic partner for Benefit Corporations, offering a comprehensive view of corporate impact and promoting active commitment to sustainability.

3.1.2.4 Carbon footprint management

"Carbon Footprint Management" offers an innovative toolkit which is poised to assist business persons in converting their business into a net-zero carbon economy. This interactive online manual comprises the carbon footprint calculator along with the predefined strategic road map comprising of four essential phases[78].

Stage One: Energy Consumption Measurement
The first phase makes use of a very sophisticated calculator to measure the carbon emissions through a series of questions in four main sectors: electricity, heating, travel, and flying. The result gives a very concrete metric that provides an accurate view of the energy profile of the enterprise[78].

Stage Two: Reducing Energy Consumption
This is the second stage focusing on sustainable business practices towards energy consumption. It provides pragmatic advice and solutions consisting of a measure boosting cost-effectiveness in energy, the binding element linking up energy improvement in an organization's overall environmental footprint[78].

Stage Three: Renewable Energy Generation

This phase brings out the transition towards renewable sources of energy, urging users to adapt sustainable solutions for generating the energy need that could include solar, wind, and biomass as also seek out providers with some concern taken in for the green energy [78].

Stage Four: Stake Holder Engagement
The final phase deals with strategic communication with the stakeholders to share the progress done in emission reduction, at the same time involving the corporate community to participate actively in eco-friendly practices [78].

In essence, "Carbon Footprint Management" is a valuable guide for an enterprise geared towards sustainability and provides a structured approach in how an enterprise should manage carbon footprint and advocate for the practices that support progress towards attainment of a sustainable future.

3.1.2.5 Critical Overview of Environmental and Social Impact Assessment Tools for Startups.

All of the above tools are among the most valid and used in the industry. Although these tools provide broad insights, their broader focus may overlook some crucial nuances for start-up-specific evaluations.
In critically examining the landscape of environmental and social impact assessment tools available to startups, a common theme surfaces: the emphasis on evaluating the enterprise as a whole rather than on the impact of individual projects. This overarching approach provides a comprehensive assessment of the company's sustainability practices but may overlook the specific nuances and impacts of discrete initiatives.

The B Impact Assessment (BIA), with its globally recognized B Corp certification, is indicative of this broad evaluation strategy. While such a comprehensive assessment is beneficial for overall branding and demonstrating a commitment to sustainability, it does not accommodate the detailed scrutiny of the environmental or social impact of individual projects within the organization, which can vary significantly in scope, focus, and outcomes.

Ecomate, despite its adaptability and emphasis on European regulatory frameworks, also adopts this macroscopic approach, evaluating the company's performance against ESG standards. While beneficial for integrating sustainable practices at the corporate level, it may not provide the granular analysis necessary for individual projects that require targeted evaluations and strategies.

IMPACTO, tailored for Benefit Corporations, supports the detailed drafting of the annual Benefit Report. Still, it focuses on the collective report of the company rather than examining the impact of isolated projects. While this ensures alignment with the company's broader benefit goals, it may leave the specific aspects of projects that require unique attention and strategies uncovered.

Lastly, the Carbon Footprint Management tool aims at reducing emissions at the corporate level, offering a clear roadmap for environmental sustainability strategies. Yet, this tool is not designed to tackle the complexities and particularities that arise from the analysis of single projects, each with its distinct environmental characteristics and impacts.

Within the context of a startup, where individual projects can represent crucial experiments, innovations, and growth opportunities, the absence of an assessment tool at this micro-level can be a significant gap. Project-level evaluation would enable a more precise understanding of impact, guiding informed strategic decisions and specific corrective actions to optimize environmental and social benefits.

Thus, there is an evident gap in the impact assessment toolkit for an approach that disaggregates impact analysis at the project level. Such a tool could provide startups with the means to demonstrate the positive impact of specific initiatives, thereby attracting investments, partnerships, and customers aligned with the sustainable values championed by these particular projects.

3.2 Stakeholder Theory

Stakeholder Theory, as articulated by Freeman in 1984, posits that during strategic decision-making, organizations should focus on all stakeholders, not just shareholders. The theory highlights a relationship between organizations and individuals who share common interests and exert mutual influence, promoting collaboration between them to bring about value and innovation.
Stakeholder Theory serves as an apt tool for managing stakeholders and their interests. Its developments can be applied to other areas of interest such as ethics, sustainability, and corporate social responsibility, forming the foundation for understanding the dynamics that drive the social legitimization of organizations.

3.2.1 Historical Context of Stakeholder Theory

Over the years, this theory has been the subject of countless studies, but its origin can be traced back to the Stanford Research Institute. In 1963, the Institute introduced the concept of stakeholders, highlighting how organizations needed the support of all parties with a genuine interest in their activities, not just their shareholders. This definition evolved into a theory that encourages firms to recognize and satisfy their shareholders by managing their needs and desires, thereby creating a comprehensive framework that maximizes value creation through strategic decisions focused on long-term success and sustainability of the organization[79].
Freeman's theory was later extended by Donaldson and Preston in 1995, who posited that an organization has a moral obligation to satisfy the needs of its stakeholders and that proper management of this leads to long-term performance[80].
The two authors identified three theoretical approaches to stakeholder management:

- Descriptive Approach, which views organizations as conglomerates of stakeholder groups, each pursuing their interests.
- Instrumental Approach, which focuses on the tactical value of involving stakeholders in the pursuit of economic success.
- Normative Approach, which places stakeholders at the heart of the strategic vision, rather than considering them as means to financial ends.

Subsequent studies and research on Stakeholder Theory have culminated in a unified theory of stakeholders, presenting three different perspectives:

- Instrumental Perspective, which focuses on the tactical significance stakeholders hold within the organization.
- Normative Perspective, centered on the moral obligations organizations have towards stakeholders.
- Descriptive Perspective, consisting of an analysis of the empirical relationships between entities and their stakeholders[79].

3.2.2 The Evolution of the Definition of Stakeholder

Freeman defines a stakeholder as any individual or group that influences or is influenced by the organization, but the concept has evolved over the years. Among the most significant developments is Fassin's 2009 categorization, which distinguishes three main groups:

- Real stakeholders, who possess a true and direct interest in the company and hold power and influence over it. The company has a moral obligation to respect these stakeholders.
- Stakewatchers, who are not directly interested in the company but are concerned with the real stakeholders, representing their rights and interests. Their power over the company

derives from defending the rights of the real stakeholders, allowing them to act as watchdogs.
- Stakekeepers, consisting of external regulators who have no interest in the company but exercise control and impose regulations, thereby indirectly imposing responsibilities [81].

A more recent formulation expands the boundaries of stakeholders to include potential interest bearers, extending the moral obligations of organizations to future generations, as stated by Clarkson: "Stakeholders are persons or groups that have, or claim, ownership, rights, or interests in a corporation and its activities, past, present, or future." [82].

3.2.3 Stakeholder Theory Benefits

The prolonged use of stakeholder theory provides organizations with a comprehensive method to be applied to the decision-making process, allowing for considered decisions that take into account the needs of both shareholders and stakeholders. The adoption of this theory supports ethics, as it encourages organizations to adopt more responsible and sustainable strategies, thus safeguarding legitimacy, which is the ability to obtain community approval for their actions through stakeholder support.

Among the strengths of this theory is its approach to risk management; it is capable of anticipating and mitigating potential issues that, if they were to occur, would negatively impact the operations and reputation of the organization due to stakeholder perception.

Finally, another merit of the theory is its support and promotion of innovation, providing stakeholders as a source of inspiration for organizational progress [79].

3.2.4 Stakeholder Map Methodology

In the case study presented in the following chapter, a stakeholder map was pivotal. This tool is part of the basic MAPs (Methods, Artifacts and Procedures) of strategic analysis in Business and Project Management and provides a technique for identifying and graphically representing individuals or interest groups (stakeholders) that can influence or be influenced by the activities and outcomes of a specific project or company. In this research, its goal was not different: it is essential for understanding the forces in play in the project environment and for identifying the most effective strategic action levers.

The methodology deployed followed the efficient procedure described in the literature comprising several phases:

1. Identification of Stakeholders: The first step consists of identifying the interested parties. This task was accomplished through documental analysis and interviews previous to the fieldwork carried out with some of the key actors of the project. Both direct stakeholders (such as customers, suppliers and collaborators) and indirect stakeholders (such as sector associations, competitors and regulators) were included.
2. Classification of Stakeholders: The stakeholders identified were subsequently classified according to their level of interest (low, medium, high) and their power of influence (low, medium, high) using a two-dimension matrix which allowed the classification of the stakeholders in four quadrants - (1) minimal attention, (2) keep informed, (3) take into account and (4) actively manage - the latter formalizing a number of strategies for the management of this relationship.
3. Relationship Analysis: For each stakeholder the type and strength of the relationships with the project and the other stakeholders was analyzed, using techniques like Social Network Analysis (SNA) to visualize and quantify these relationships.
4. Definition of Engagement Strategies: The next phase involved the elaboration of targeted engagement strategies for the groups of stakeholders, considering their specific needs and expectations and the level of impact they have in the project.

5. Monitoring and Updating: The stakeholder map can be seen as a dynamic tool, thus a periodical review process was established, allowing for the updating of the information about the stakeholders and their relationships along the evolution of the project.

The value of the methodology is found in its capability to provide a whole picture of the environment of a project, allowing for the anticipation and proactive management of the relationship dynamics. The analysis will support management decisions and communication along the lifecycle of the project, aiming to maximize the involvement of the stakeholders in the project and minimize the risks associated with it.

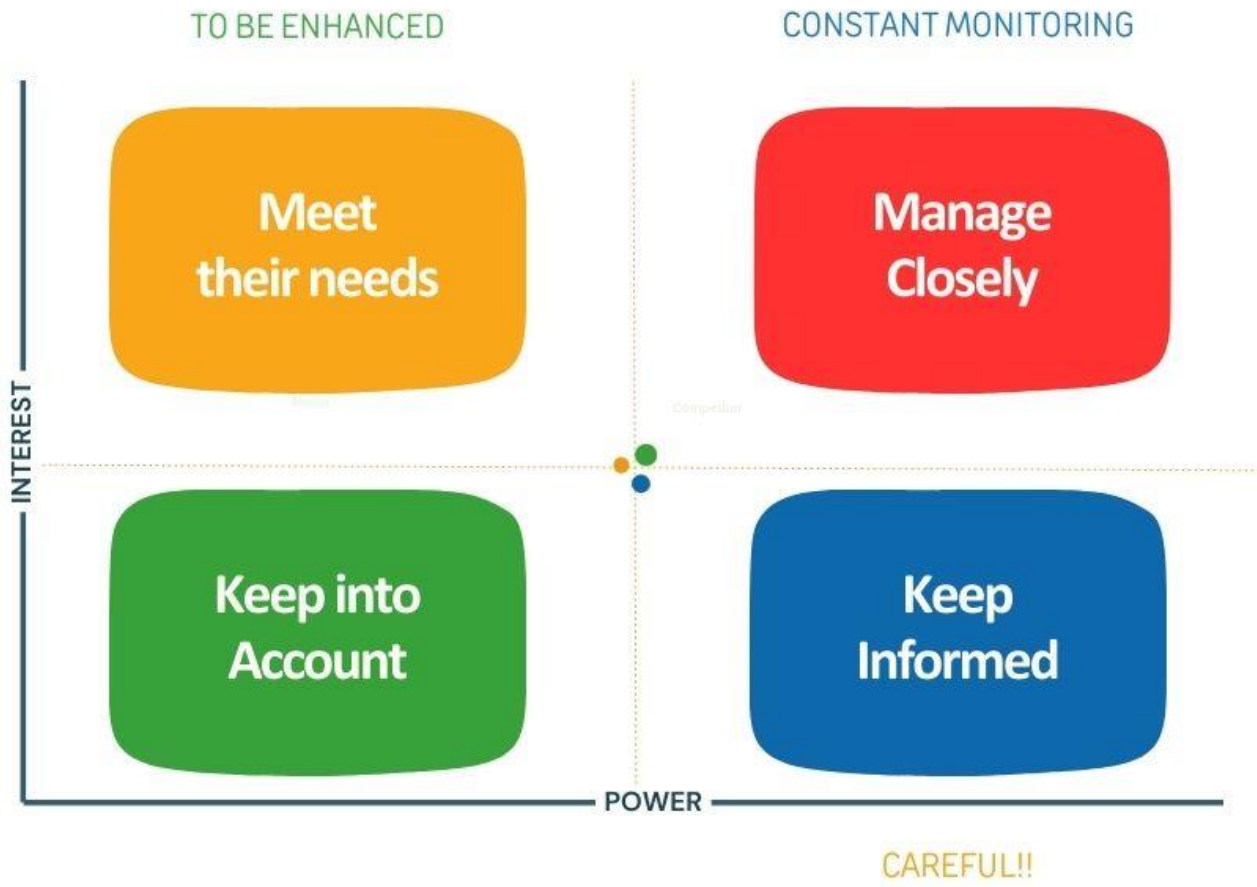


Figure 3 Stakeholder Map

3.3 Theory of Change

The Theory of Change delineates the rationale and methodology for anticipated transformations within a specific context, focusing primarily on mapping the 'missing middle.' This concept refers to the elusive link between operational activities and their culmination in achieving set goals. The theory is structured on a reverse engineering process, progressing from long-term objectives back to the necessary operations, and involves the identification of interconnected events critical for realizing the ultimate goal.

This method aims to thoroughly comprehend the relationship between executed operations and the attainment of objectives. Central to the theory is the Results Framework, which entails mapping all the gaps to pinpoint the process required for fulfilling the conditions needed to achieve long-term goals. This approach enhances superior planning by understanding the links between activities and

their resultant changes, and it also improves the quality of evaluations by enabling quantification of the progress in processes leading to long-term goals.

The theory comprises six steps:
1) Defining the long-term goal.
2) Developing a backward map to identify and justify the essential conditions or requirements for realizing the initial goal.
3) Recognizing key contextual assumptions.
4) Determining the specific actions your initiative will undertake to effect the desired change.
5) Developing criteria to quantify outcomes and assess the effectiveness of the initiative.
6) Drafting a report that explicates the reasoning behind your initiative.

The objective is to realize the "path of change," encompassing all necessary changes, both initial and intermediate, and the time required to achieve the goals.

The essence of this theory is captured in the "pathway of change," which evolves through a process that, starting from long-term goals, moves backwards through intermediate changes until the initial changes necessary for successful activities are achieved.

The construction of the "pathway of change" is based on the details and hypotheses posited by participants about the change process. These elements undergo rigorous analysis to determine their sustainability or fallacy. The requested details enable stakeholders to evaluate the feasibility of the desired outcomes, potentially leading to a reevaluation of the goals. Therefore, substantial detail is sought on aspects such as the target population, the extent of change needed to define a successful initiative, or the timeframe for the change.

In terms of assumptions for analysis, they typically encompass:

- Assumptions about interdependencies among long-term, intermediate, and preliminary goals as identified on the map.
- Theses advocating for the full identification of all essential requirements for the initiative's success.
- Assertions linking initial changes with the final ones.
- Theses identifying contextual or environmental factors that may either hinder or enhance the success of the changes constituting the pathway.

3.3.1 Historical background of the Theory of Change

While doing a background search on the Theory of Change, it is fascinating to trace back the historical antecedents of this idea to the realm of evaluation. The trail apparently starts with the apogee achieved by Kirkpatrick in his "Four Levels of Learning Evaluation Model" during 1950s. Over the years, this concept has grown and blossomed to incorporate the models as the CIPP by Stufflebeam and the logical frameworks, or logframes.

It was marked by their sage role played by the Aspen Institute and her Roundtable on Community Change in the being milestone in this point on evolution of the scale. Insights from their work, and especially the revelations of Weiss in "New Approaches to Evaluating Comprehensive Community Initiatives," bring to light a central issue: murkiness in the guiding assumptions of complex programs that has produced very significant challenges for their evaluation.

But Weiss did identify one significant problem: often, stakeholders of Comprehensive Community Initiatives lack a 'change process' vision of the major steps their initiatives anticipate. This results in

inadequate focus on crucial intermittent milestones - the so-called "mini-steps" - essential for reaching the ultimate goal.

The lack of a clear path not only compromises the process of evaluation but jeopardizes due attention to all critical aspects linked to the ultimate job. Weiss coined "Theory of Change," framing it as a comprehensive set of ideas that map out both these mini-steps and the interlinks between planned activities and their ensuing outcomes.

This has revolutionized change in the perception of such change processes – from being linear progressions to more complex, cyclical patterns that require intricate interpretation. Today, in fact, the Theory of Change empowers the realms of monitoring, evaluation, and knowledge gathering, particularly in traditionally challenging areas like institutional development and governance.

While this theory has been widely dispersed, its comprehension and practical application, still remains somewhat patchy. However, strides have been made with tools such as the Theory of Change Online - a specialized software by ActKnowledge, standardizing the implementation of this approach.

3.3.2 Benefits of the Theory of Change

More precise guidance attainable: The fact that the Theory of Change demands a high level of detail means that there can be more specific guidance that can make a considerable impact to one's project using this approach. The key advantages possible using this approach include:

The development of a clear, evidence-based premise of how change is believed to occur facilitates the identification where responsibility lays for the results reached and increases credibility of the results been predicted according to the predefined model.
Formation of a graphic image of the change, which is needed in one's community and the way to follow for change to be realized.
Developing of sound grounds for analysis of results with measurable indicators of success.
Realization of a stakeholder-agreed, clearly stated, comprehensive definition of what success looks like in terms of the means required to achieve success.
An opportunity to use a communication tool that can capture the complexity of a project succinctly and comprehensively[83].

3.4 Methodology for Calculating the Extremes of Indicators and Bands

After delving into the theories surrounding social and environmental impact assessments, in the preceding sections we now shift our focus to a aspect that will be thoroughly explored through practical application in chapter four. This segment introduces the methodology employed to determine both practical extremes of indices essential components for gauging the impact of Merits initiatives.

The necessity to establish extremes for these indices arises from the significance of defining measurable standards. These benchmarks not facilitate evaluating the efficacy of implemented actions. Also aid in transparently communicating achieved results. The theoretical extremes denote the positive impact for each index serving as an ideal goal to aspire towards. Conversely practical extremes are derived from scrutinizing data gathered from projects reflecting the impact achievable in specific operational scenarios.

By delineating these extremes and categorizing indices into performance tiers the objective is to offer an instrument of steering future decisions concerning strategic planning and intervention. This

methodology not enhances the evaluation framework adopted in our research. Also presents itself as a replicable model, for appraising other social and environmental impact endeavors.

In the Merits case study utilizing this approach demonstrates how the theoretical concepts can be put into use giving readers an understanding that connects theory to real world implementation. The following section will delve deeper into how this method was utilized to assess and explain the effects of Merits actions emphasizing the significance of evidence based assessment, in overseeing sustainability projects.

3.4.1 Definition and Differentiation of Practical and Theoretical Extremes.

Following the development of the indices, the calculation of the practical and theoretical extremes was essential, in order to determine a solid and concrete basis of comparison. The practical extremes, calculated following an empirical analysis of the collected data, mark the minimum and maximum values actually observed, directly expressing the actual performance and magnitude of the impact of the evaluated projects. These are the tangible expression of the effectiveness of initiatives taken within a given operational context. Theoretical extremes, on the other hand, are based on a conceptual basis, indicating the maximum terms of the conceivable impact for each index, constituting an ideal aspirational maximum. The distinction between practical and theoretical extremes is critical in evaluation, as it allows for a balanced appreciation between the theoretical potential of an initiative and its actual observed impact.

3.4.2 Subdivision into Bands Based on Theoretical Extremes.

Subsequent, in order to facilitate a rigorous comparative analysis, a four-band subdivision of each index calculated with reference to practical extremes was implemented. This segmentation procedure makes it possible to apportion the initiatives by adopting ranges of considered low and high impact promoting an accurate and stratified evaluation of the results obtained. These bands, cast with reference to the practical parameters, provide a scale for measuring the effectiveness of initiatives against with the objectives achieved by the other projects examined, allowing a clear distinction between projects that excel, those that realize a moderate benefit and those that lay bare the need for improvement. These bands provide a clear reading of the impact generated on initiatives for possible adoption of manoeuvres aimed at increasing impact and enhancing the social and economic contribution of future initiatives.

4 Case Study: Merits

The following chapter aims to examine a significant case study, namely that of Merits, a young company based in Milan, which has chosen to undergo analysis in order to evaluate its impact on the context in which it operates.

The impact assessment conducted on this startup is peculiar and innovative, as it focuses not so much on measuring the overall environmental and social impact of the entire company, but rather on the analysis of five specific projects undertaken by Merits in the period between 2021 and 2023.

Within this chapter, the evaluation process will be examined in detail, and the results obtained from this analysis will be presented.

4.1 Merits: Overview and Foundation

Merits is a distinguished startup based in Milan, renowned for its commitment to integrating technology with social and environmental sustainability. Founded with a vision to revolutionize the way individuals and organizations interact and contribute to societal good, Merits has rapidly established itself as a leader in its domain. While specific details about the core team are not readily available in public domain sources, it is known that the team consists of individuals with varied expertise, united by a common goal of fostering sustainable practices and community engagement. As a certified B Corporation, Merits adheres to the highest standards of social and environmental performance, transparency, and accountability. This distinction emphasizes its role not just as a business entity but as a catalyst for positive change, fostering a community-driven approach to sustainability.

4.1.1 Operational Framework and Activities

4.1.1.1 Type of Project

Merits operates on a novel model, incentivizing socially and environmentally beneficial activities through a virtual currency. This model encourages users to engage in various sustainability-oriented activitIES, rewarding them with merits for their contributions. These merits can be utilized within a network of affiliated businesses, creating a sustainable, incentivizing ecosystem.

4.1.1.1.1 Top-Down Model

The Top-Down approach involves sponsorships from private or public entities for projects that encourage and facilitate specific behaviors among citizens. Successful implementation of these behaviors results in rewards for participants in the form of merits-cash, which can be spent in affiliated stores. This model efficiently drives large-scale behavioral changes that align with broader social and environmental goals.

4.1.1.1.2 Bottom-Up Model

The Bottom-Up model is more localized, focusing on small communities and neighborhoods. It involves partnerships between local businesses and non-profits to offer special discounts to volunteers and donors. This model enhances community bonds and aligns with the "15-minute city" concept, promoting sustainable local economies and social cause-based alliances.

4.1.2. Human-Centric Technology and Phygital Thinking

4.1.2.1 Human-Centric Technology

At the core of Merits' operation is a human-centric approach to technology. This approach prioritizes the user, emphasizing privacy, participation, and diversity in the design and implementation of their technological solutions. Embracing blockchain technology since 2019, Merits has enhanced the transparency and reliability of its platform, aligning with the European Commission's Next Generation Internet initiative's values.

4.1.2.2 Phygital Thinking

Merits employs Phygital Thinking to merge digital and physical experiences, amplifying real-world impact. This strategy leverages the interconnectedness of online and offline experiences, enhancing user engagement and participation in social and environmental initiatives. By applying service design techniques, Merits ensures a seamless integration of digital and physical interactions, enriching the user experience and fostering a more engaged and connected community.

In conclusion, Merits exemplifies a cutting-edge approach in the field of social entrepreneurship, combining innovative operational models, human-centric technology, and phygital experiences. This holistic approach not only positions Merits as a leader in sustainability and social responsibility but also provides a rich case study for academic exploration, especially in the context of a master's thesis on the impact evaluation of startups and B Corporations [84].

4.2 Stakeholder Map of Merits

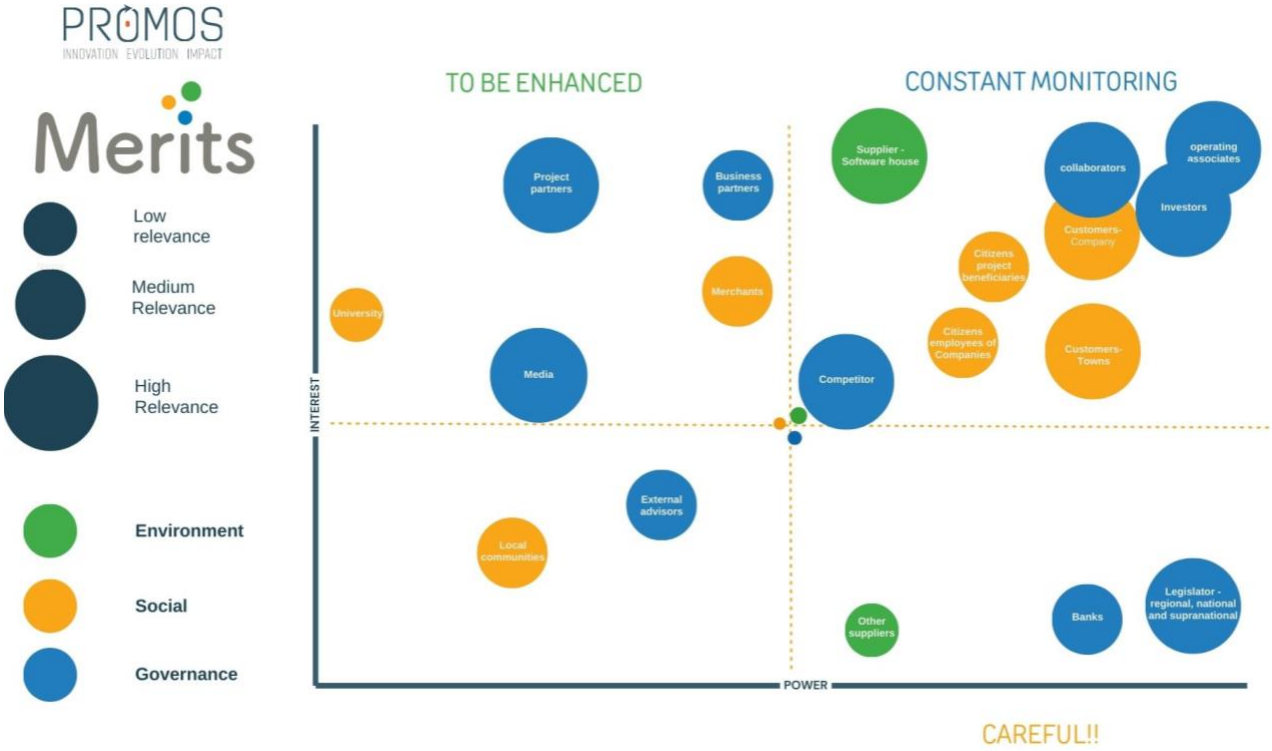


Figure 4 Merits Stakeholder Map

Stakeholder mapping plays a role, in assessing the social impacts of the Merits project. The process of identifying and categorizing stakeholders was carried out meticulously marking a step in shaping an interactive strategy.

4.2.1 Survey and Stakeholder Identification Process for Merits

To pinpoint and analyze the stakeholders involved in the Merits project a detailed series of interviews was conducted to isolate entities essential to the projects ecosystem. Through this phase involving nineteen entities, their roles and levels of influence within or around the project became apparent through thorough qualitative research.

The interactions were methodically conducted in a setting to ensure that each interview contributed significantly to painting an overall picture. By asking precise questions not were stakeholders identified but their potential impact on and interest, in Merits activities and goals were also assessed. The goal was not to quantify these aspects but to gauge them on a scale that considered the nature of interpersonal relationships.
Furthermore the initial phase of investigation laid the groundwork for creating an information map, for the following evaluation and sorting phases. The method used for identification was not, about collecting data but aimed to provide an analysis crucial for understanding the complex network of relationships and categorizing stakeholders based on their importance in Merits operations and strategies.

This information was then used to create a stakeholder map that visually represents each stakeholders position in terms of power and interest. The size of each stakeholders circle on the map indicates their level of relevance determined by criteria. This map goes beyond being a list. Becomes an analytical tool that paints a dynamic and detailed picture of potential interactions within the Merits project environment.

4.2.2 Analytical Evaluation of Stakeholder Interest and Power

During the evaluation process the level of interest and influence of each stakeholder was carefully measured using insights, from interviews. This detailed assessment considered the range of interests and capabilities that different entities have in shaping the projects direction.
Using an approach we assessed each individual involved to gauge their level of dedication and their influence, on project decisions and operations. This wasn't, about creating a map; it was actually an evaluation aimed at establishing a structured approach to steer stakeholder interactions and future management decisions.

The level of interest was seen as an indicator of how attention and concern a stakeholder had for the projects outcomes. This included their wish for the projects success and their worries about how the project might affect their operations or interests. Similarly power was viewed as an entitys ability to influence the project either directly or indirectly through resources, professional knowledge, institutional connections or strategic positioning.

By combining these two factors – interest and power – stakeholders could be placed on a two grid that highlighted four categories; stakeholders who needed updates stakeholders to be monitored closely stakeholders requiring active management and stakeholders with minimal impact. This classification helped in developing approaches for engaging with stakeholders based on their influence on the Merits project.

Each stakeholder was then positioned on an interest power chart providing Merits with an aid and practical recommendations, for prioritizing relationships and resource allocation.
The layout, on the grid also mirrored the importance that each party held in the project setting aiming to enhance stakeholder involvement and oversight efficiency to the fullest.

4.2.3 Articulation and Differentiation of Stakeholder Relevance.

In the Merits project context stakeholders were grouped based on a detailed assessment process inspired by data, from interviews. This involved evaluating each stakeholders role in the projects network of relationships.
Each stakeholders impact was analyzed to determine their position on the stakeholder map visually represented by nodes of varying sizes indicating their level of importance categorized as low, medium or high.
This categorization process was carried out with attention to detail considering each stakeholders significance and assigning them a size corresponding to their importance, in the project. The levels of importance were classified as follows:

- Low Relevance: Identified through circles of small size, these stakeholders represent entities that, while present in the network of influences, have limited or episodic impact on the operational or strategic directions of the project.
- Medium Relevance: Characterized by circles of intermediate size, they reflect stakeholders who hold a more significant role, with the ability to exert appreciable, though not decisive, influence on the project.
- High Relevance: Marked with larger size circles, these stakeholders are those with the highest interest in the project, with considerable power and influence on Merits decisions and outcomes.

Careful attention was given to not the size but the choice of colors representing different aspects, like environmental, social and governance impacts. This helped in broadening perspectives and enhancing the insight into how stakeholders interact and their significance.
The method used to determine the level of importance served a purpose; creating a depiction of the stakeholder network and structuring information for easier understanding and strategic planning.

4.2.4 In-depth Systematization of Merits Stakeholders by Impact Category

When sorting Merits stakeholders a careful evaluation was conducted to categorize them based on the kind of impact they have; environmental and governance. Using color codes, like yellow for Social aspects for Environmental and blue for Governance wasn't for visual clarity on the stakeholder map. It was a method to simplify and analyze the areas of influence providing a detailed view of how stakeholders affect and are affected by different aspects.

Social Dimension (Yellow)

In the Social sphere, indicated by the color yellow, each stakeholder was screened to determine how and to what extent their actions influence the human and relational dynamics within the social fabric in which Merits is integrated. This involved examining their contributions to being, social equality and community involvement in the areas where Merits operates. Social stakeholders play a role in shaping values, ethical standards and community partnerships. The assessment delves deeper into understanding how these interactions shape perceptions of Merits and its relationships, with clients, staff and other social stakeholders.

Environmental Dimension (Green).

Stakeholders categorized under the group represented by the color green were analyzed for their influence, on Merits operations sustainability and impact on the environment. The focus was not on the environmental impact but also, on individual practices related to resource usage, waste disposal and sustainable policies. Stakeholders are assessed based on how they consider the impact of their choices their dedication, to sustainable progress, adherence to environmental regulations and efforts to raise awareness about ecology, in communities and industries.

Governance Dimension (Blue)

The Governance aspect, represented by the color blue encompasses those individuals who play a role, in shaping Merits strategic direction and policy making. This involves assessing their impact on the organizations power dynamics, processes, adherence to rules and ethical standards. Governance stakeholders are those who influence regulations, internal policies and key business decisions through their involvement and influence.

This classification based on impact was further elaborated by examining power and interest dimensions resulting in a map that acts as a tool for allocating resources defining engagement strategies and planning communications. Each color not highlights a sphere of influence. Also emphasizes the necessity for tailored approaches, for each stakeholder segment. This requires an understanding of their standing and potential to affect Merits achievements and expansion.

4.2.5 Insight and Enhancement of the Merits Stakeholder Map

The stakeholder map, within the Merits project holds value and strategic importance. It goes beyond being a list of stakeholders serving as a tool for guiding targeted interventions and managing external relationships effectively. By utilizing this tool decisions can be made based on an information framework.

Currently the map plays a role in identifying and categorizing stakeholders meticulously forming the backbone of Merits network interactions. Each stakeholder is strategically placed based on their relevance and impact creating a matrix that highlights their significance in advancing the project.

This map is not merely an inventory. Acts as a source of insights that point towards areas for growth and attention. The use of colors and sizes for each stakeholder offers guidance on their importance and level of engagement required. This leads to outcomes such, as tailored communication approaches, efficient resource allocation, partnership negotiations and expectation management.

This meticulous and thoughtful work lays the groundwork, for creating an engagement plan that can adapt to the changing landscape and variables in Merits lively setting. Looking forward regular updates and revisions are anticipated for the map reflecting the evolving business environment and ensuring that Merits strategy remains aligned with findings, emerging obstacles and growth prospects.

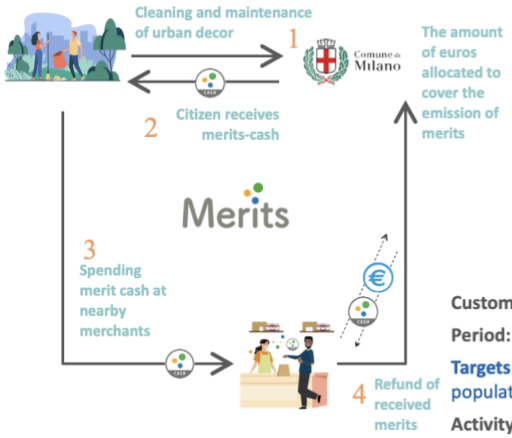
In summary Merits stakeholder map serves as a guide and driver for creativity. It serves as a tool, through the web of relationships allowing Merits to steer its course with care fortify its base and construct a resilient future marked by collaborative achievements.

4.3 Projects Description

In this section, the projects examined within the case study are described. The purpose is to provide a clear and concise overview that reflects the goals, activities, and community involvement of each initiative.

Bella Milano

A project to beautify and care for the neighborhoods of the city of Milan. Active citizenship and community responsibility by promoting citizen involvement in urban cleaning and maintenance activities.



Customer: City of Milan | **Area:** Milan

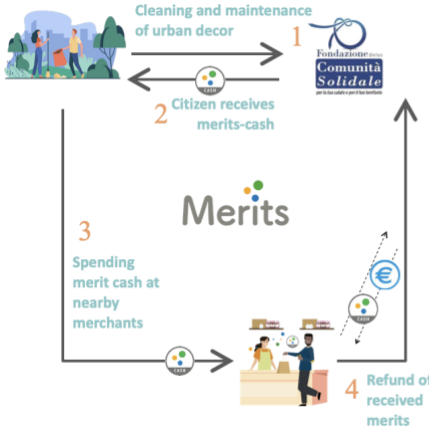
Period: December 2022 | **Typology of merits:** merits-cash

Targets: Beautification of the neighborhood | Community building | Integration of vulnerable population groups

Activity: City cleaning, in teams organized by three cooperatives

Settimo Città Solidale

A project for social cohesion and promotion in the Settimo Torinese municipality. Involvement of citizens in neighborhood cleaning activities with the aim of promoting the inclusion of the weaker segments of the population.



Customer: Fondazione Settimo Città Solidale | **Area:** Settimo Torinese

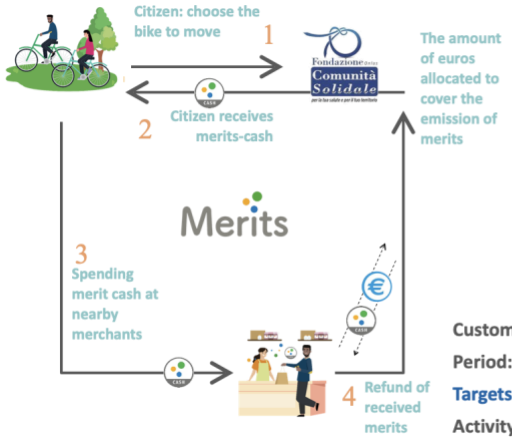
Period: 2021 | **Typology of merits:** merits-cash

Targets: Beautification of the neighborhood | Community building

Activity: City cleaning

Preferisco la Bici

Initiative promoting the use of bicycles for daily commuting. Cardiovascular health of citizens and reduction of pollution and urban traffic.



Customer: Fondazione Settimo Città Solidale | **Area:** Settimo Torinese

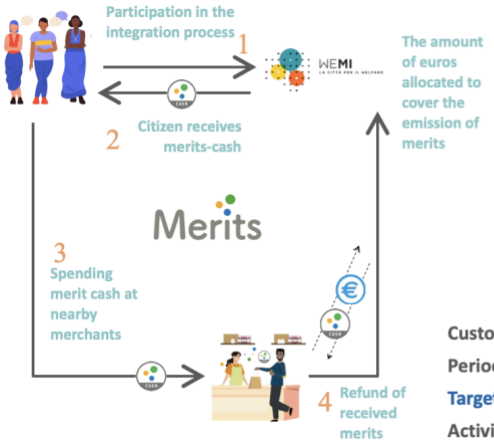
Period: May - December 2022 | **Typology of merits:** merits-cash

Targets: Improve citizens' cardiovascular health | Reduce pollution and traffic

Activity: Cycling from home to work

RaggiungiMi

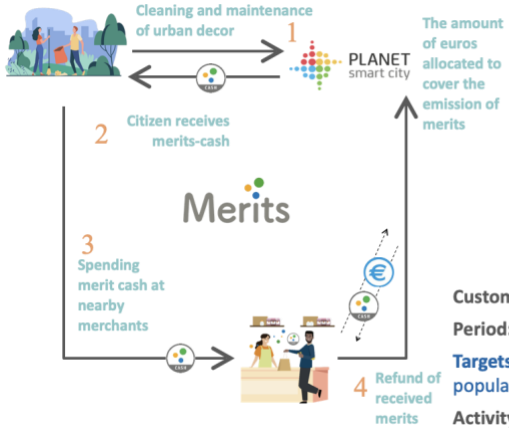
Recovery program carried out in Milan that is based on the integration of reunited migrant women starting from pathways of welcome and support through workshops and collective activities.



Customer: WeMi Inclusione – City of Milan | **Area:** Milan
Period: May – September 2023 | **Typology of merits:** merits-cash
Targets: Integration of newly arrived migrant women following family reunification procedures
Activity: Participation in an integration program with workshops and group activities

Custodi del Bello Merezzate

Project to integrate fragile segments of the population through activities to clean and maintain urban aesthetics in the Santa Giulia and Merezzate neighborhoods. Project carried out together with teams from the Detto Fatto cooperative.



Customer: Planet Smart City and REDO Sgr | **Area:** Milan, Santa Giulia and Merezzate
Period: May - October 2023 | **Typology of merits:** merits-cash
Targets: Beautification of the neighborhood | Community building | Integration of vulnerable population groups
Activity: Neighborhood cleaning, alongside teams from the cooperative Detto Fatto

These descriptions provide an overview of the various initiatives examined and their social and environmental improvement component, highlighting the multiplicity of approaches and the depth of expected impact on the community and environment.

4.4 Deep Dive on Impact Indices.

In order to carry out an impact analysis of the social and environmental responsibility projects carried out by Merits, it was essential to have measurement tools that could provide a quantitative and qualitative assessment of the outcomes achieved by individual projects. Evaluation indices play a key role in monitoring the effectiveness of initiatives, in the power to guide future decisions, and in communicating outcomes to stakeholders. In this context, based on the types of data collected by Merits, five key indices were identified that can provide an overview of the impact generated by the projects analyzed:

1. ICI (Index of Community Involvement): Expresses the degree of active community participation in projects by relating the number of citizens involved and volunteer hours.
2. IESI (Index of Economic and Social Impact): Arises from the combination of economic and social factors that can express the influence of projects on the local economy and social welfare.
3. IMM (Index of Mobilization of Merits): Expresses the ability of the project to transform the Merits issued into concrete actions and citizen participation, placing them in relation to the

projects for which they were currency, in their dual function as catalysts of resources and means through which to channel the energies of project participants.

4. IRES (Index of Economic and Social Return): It expresses the economic and social return of projects in quantitative and qualitative terms, relating the value derived from them to the investment required to generate them, providing an idea of the cost-effectiveness of the operation both from the quantitative point of view of the use of resources and the social impact generated.
5. IESu (Index of Engagement and Sustainability): Analyzing the available data, such as the number of citizens involved and the percentage of merits spent, this index allows for the development of a comprehensive view of the efficiency and effectiveness of projects in engaging and promoting sustainable practices.

Each index has been constructed and designed to provide specific insights into the aspect it aims to measure, so that an overall assessment can be developed that takes into account multiple dimensions of social and environmental impact. The development of the indices was somewhat conditioned (and in this case limited) by the data provided by Merits, it being clear that the design of indices intended to monitor social and environmental responsibility projects constitutes in itself a kind of "rating" in the choices of those who decide to carry out certain activities. Many other indices can be developed by extending the same approach to other types of projects, subdividing them according to the type and origin of the data they return.

4.4.1 ICI - Index of Community Involvement.

The ICI is an index that reflects the degree of citizen participation and active involvement in projects. In particular, this index is useful for measuring community engagement, which is one of the key aspects of successful social initiatives. A high ICI indicates high community involvement and can translate into greater awareness, greater social responsibility, and greater positive impact on the social fabric.

The formula used is as follows:

$$ICC = \frac{Citizens}{\text{Maximum Number of Citizens Involved in Projects}} + \frac{\text{Hours of volunteering}}{\text{Maximum Number of Volunteer Hours between Projects}}$$

4.4.2 IESI - Economic-Social Impact Index

The IESI is an index that combines economic and social aspects to assess the overall impact of projects. This index considers how projects affect local merchants, the city economy, and the socio-welfare of citizens. A high IESI indicates that the project is contributing to the development of the economy and the improvement of social conditions in the community.

The IESI is calculated using the equation below.

$$IES = \frac{Merchants}{Maximum\ Number\ of\ Merchants\ Involved\ in\ Projects} + \frac{\%\ Merits\ Spent}{100}$$

4.4.3 IMM - Index of Mobilization of Merits.

The IMM defines the efficiency with which Merits issued are translated into actual citizen action and adherence. Specifically, it correlates the percentage of Merits spent versus Merits allocated and correlates them to citizens who participated and the number of participation, giving an indication of the project's ability to mobilize resources and people in relation to the size of the project and the intensity of the use of Merits in relation to the number of merchants or activities involved in the project.

The formula is as follows:

$$IMM = \frac{Merits\ Spent}{Merits\ Assigned} \times \frac{Citizens}{Project\ Price} \times \frac{Number\ of\ participations\ or\ trips}{Merchants}$$

4.4.4 IRES - Index of Social Economic Return

The IRES offers to measure the economic and social return of the project in relation to the investment required to carry it out. This index is concerned with comparing the total price of the project with the amount of Merits spent and citizen involvement, placing a value on the relationship between the cost of the project and its social impact.

The formula for IRES is defined as follows:

$$IRES = \frac{Merits\ Spent}{Project\ Price} \times \frac{\%\ Merits\ Spent}{100} \times Citizens$$

4.4.5 IESu - Engagement and Sustainability Index.

The Engagement and Sustainability Index is an index designed to capture the efficiency and effectiveness of projects in generating engagement and driving sustainable behaviors. Unlike traditional indices that might focus on either aspect, the IESu combines several metrics to provide a comprehensive view of project impact on both the engagement and sustainability fronts. The IESu is calculated as the percentage of Merits spent as an indicator of active participant involvement, related to (a) the number of citizens involved, expressed in thousands, in order to assess the extent of the project's social impact and (b) the number of merchants involved to appreciate the commitment to engaging the local economic fabric in sustainability actions. A high score on the index suggests not only considerable citizen involvement, but also a good ratio merits spent merchants involved, this implies a good level of economic return for local seller.
The IESu formula is defined as follows:

$$IESu = \%\ Merits\ Spent \times \frac{Merits\ Spent}{1000 \times Citizens} \times \frac{Merits\ Spent}{1000 \times Merchants}$$

4.5 Development and Calculation of Indices of Impact on Merits Projects

4.5.1 Calculation of the Indices

According to the impact analysis of the five projects promoted by Merits, the five afore mentioned indices related to the five initiatives under study were computed. Merits processed and calculated each of these indices thanks to the granular and extensive data collected. The data mentioned were provided by Merits and are detailed in Table 1.

The results from these index calculations (which capture the wide range of impacts that are created by the projects under study) and our consistent reporting are shown systematically in Table 2. In this way of analyzing, we can create a nice and crisp number that helps us compare and plan new efforts because we have built solid metrics on the community, economic and sustainable dimensions that each project produces.

Table 3 Dataset provided by Merits

Projects	Project price	Merits issued	Merits assigned	Merits spent	% Merits spent	Citizens	Number of participations or trips	Number of Merchants involved	Hours of volunteering/ active citizenship
Bella Milano	60.000 €	33.200	17.050	11.908	69,84%	46	1.364	13	8.184
Settimo Città Solidale	5.000 €	9.650,00	9.650,00	9.064,00	93,93%	60	965	15	2.895
Preferisco la Bici	5.000 €	10.000,00	4.111,85	3.352,91	81,54%	41	2.819	16	N/A
RaggiungiMi	11.000 €	6.000,00	5.198,00	5.153,88	99,15%	17	167	8	459
Custodi del Bello Merezzate	10.000 €	1.500,00	1.050,00	960,90	91,51%	12	52	7	104

Table 4 Project Result

Projects	ICI	IMM	IESI	IRES	IESu
Bella Milano	1,7667	0,056	1,511	6,376	0,166
Settimo Città Solidale	1,3537	0,725	1,877	102,163	0,086
Preferisco la Bici	N/A	1,178	1,815	22,419	0,014
RaggiungiMi	0,3394	0,032	1,492	7,897	0,194
Custodi del Bello Merezzate	0,2127	0,008	1,353	1,055	0,010

4.5.2. Criteria for calculating extremes.

The determination of the theoretical and practical extremes was obtained by following a methodical approach capable of combining the data collected and the conceptual potential of the indices studied.

4.5.2.1 ICI – Theoretical Extremes.

The theoretical extremes for ICI identify levels of community involvement and volunteer contribution in projects. The lower theoretical extreme, is 0 and occurs when no community members are involved and consequently no volunteer hours are performed, representing a complete absence of community participation. In contrast, the upper theoretical extreme, equal to 2, occurs when the number of citizens involved in the community and the number of volunteer hours reach their respective maxima, reflecting complete community involvement and volunteer engagement relative to the best observed performance among all projects. This analysis of extremes provides a clear picture of the goals of community involvement and volunteer engagement that the projects aim to achieve.

4.5.2.2. IMM – Theoretical Extremes

The lower theoretical extreme of the IMM is revealed in efficiency and effectiveness contexts, specifically when one of the three ratios forming the index is zero, making that theoretical extreme zero. To calculate the upper theoretical extreme of the IMM, it was necessary to maximize the three ratios following precise guidelines:

Merits Spent/Merits Allocated: This ratio peaks when 100% of the Merits distributed are utilized, indicating full utilization of available resources.

Citizens/Price Project and Number of Participations or Trips/Merchants: For these two ratios, the maximum values observed in the various projects were adopted in order to reach theoretical peaks reflecting maximum community involvement and la maximum intensity of the use of Merits in relation to the number of traders

$$\frac{Citizen}{Project\ Price} = 0{,}012 \textit{ (Settimo Città Solidale)}$$
$$\frac{Number\ of\ Participations\ or\ Trips}{Merchants} = 176{,}19 \textit{ (Preferisco la Bici)}$$

Using this approach, it was possible to define an upper theoretical extreme of the IMM based on the most relevant results obtained from the overall analysis of the projects, thus establishing a benchmark for excellence in terms of efficiency and effectiveness.

$$IMM_{Upper\ theoretical} = 2{,}11425$$

4.5.2.3. IESI – Theoretical Extremes

The theoretical lower extreme of the IESI occurs when neither
Merchants are involved or the Percentage of Merits Spent is zero. Applying these values to the formula, the lower extreme of the IESI turns out to be 0, indicating that the project under analysis has no social-economic impact.

As for the upper theoretical extreme, this occurs when all potential merchants participate in the project; in such a scenario, the first ratio is equal to 1, that is, the totality of merchants involved; similarly, for the Percentage of Merits Spent, the upper extreme is realized when 100 percent of the allocated Merits are employed, a value that is represented as 1 in the formula. As a result, the sum of these ratios, both of which are at their maximum and equal to 2, which is nothing but the upper theoretical extreme.

4.5.2.4. IRES – Theoretical Extremes

The theoretical lower bound occurs when no Merits have been spent and no citizens are involved in the project, resulting in a value of 0, which reflects the lack of social-economic return and total inefficiency in creating any positive impact on the community or specific goals. This situation underscores the importance of effective resource management and community engagement for project success. An IRES index of 0 indicates that the project has failed to convert allocated resources into tangible benefits or meaningfully engage the community.

The theoretical upper bound is related to the maximum return that could be achieved from the investment. It is realized when Merits are spent in the most efficient way possible, maximizing the Merits Spent/Project Price ratio to 1.8128, when the entirety of the Merits allocated is spent making the percentage of Merits Spent/100 equal to 1, and when the number of citizens involved is at the maximum possible. This calculation based on the best results of all projects analyzed sets a benchmark of excellence in terms of efficiency and effectiveness.

$$IRES_{Upper\backslash\ theoretical} = 108{,}77$$

4.5.2.5 IESu – Theoretical Extremes

The lower and upper theoretical extremes of the IESu are governed by the effectiveness with which Merits are used and impact in combination on user and target accomplished. The theoretical lower extreme arises when no Merits are spent, for a score of 0, indicating no actual contribution towards projects' sustainability or citizens' engagement. Conversely, the theoretical upper extreme arises when Merits are used at the maximum efficiency on both the number of citizens involved and specified targets accomplished, theoretically indicating the maximum attainable impact and effective use of Merits. This ideal condition reflects a situation where each individual Merit would significantly contribute to engaging with citizens and impacting on the local economy, setting a benchmark of excellence for assessing the social and ecological impact of projects. The calculation for the upper extreme needed for maximal the two ratios required to be maximised is shown below:

$$\frac{Merits\ Spent}{1000 \times Citizens} = 0{,}303\ \textit{(RaggiungiMi)}$$

$$\frac{Merits\ Spent}{1000 \times Merchants} = 0{,}92\ \textit{(Bella Milano)}$$

The analysis of the data collected made it possible to set the theoretical upper bounds on IESu by taking the best results in all the projects analyzed as and thus defining an extreme of maximum efficiency and effectiveness.

$$IESu_{Upper\ theoretical} = 0{,}278$$

Once the data appeared to be well understood and analyzed, a range of maximum and minimum values were selected for each of the relevant metrics (documented in Table 3). From this exercise, the practical extremes for each of the indices can be seen in Table 4.

Table 5 Theoretical Extremes

Theoretical extremes	ICI	IMM	IESI	IRES	IESu
Upper bound	2	2,114	2	108,8	0,278
Lower bound	0	0	0	0	0

4.5.2.6 Calculation of practical extremes

The procedure adopted to quantify the applicable extremes of project indices consisted of a careful calculation phase in which each project was examined individually. This phase required the use of a precise algorithm, tailored forged to interpret the data collected for each specific initiative. With a complete set of ratings obtained, the focus was on identifying the values located at the antipodes of the scale: the minimum, which provided us with a picture of the lower practical extreme, revealing which among the projects manifested the least ability to impact or operate efficiently according to the parameters established by the index; and the maximum, which delineated the upper practical extreme, highlighting the project with the highest degree of impact or efficiency. This evaluation process was critical not only for understanding the range of project performance, but also for setting a benchmark for future initiatives.

Table 6 Practical Extremes

Practical extremes	ICI	IMM	IESI	IRES	IESu
Upper bound	1,767	1,178	1,877	102,163	0,194
Lower bound	0,213	0,008	1,353	1,055	0,010

4.5.3 Methodology for Dividing Performance Indices into Bands

The method of ranking projects in a by their performance against the goals defined by the indexes designed the categorization of indexes into bands. The process entails these steps:

1. **Spotting the Extremes**: This is the first step of the process. The practical range from the lowest to the highest scores projects have received for each index is identified to set the performance spectrum.
2. **Creating Bands**: Four bands were selected for each index so that project performance could be distinguished in a clear, manageable way. The bands are sized to capture significant performance differences, with an eye towards the frequency of low, medium, and high performers.

3. **Dividing Intervals**: The total performance span for each index was divided into four equal intervals, assigning projects to bands so that each quartile accounts for a quarter of the performance spectrum. This strategy makes it easier to classify the outcomes of a project.
4. **Placing Projects in Bands**: Projects were then placed within those bands based on the "splitting" of the index range. A project with an index score near the actual lowest goes in the lowest band. Conversely, projects near the highest band are placed within the top band.

The rationale for the breakdown of performance into four distinct bands was, by these means, to keep the analysis categories manageable while clearly distinguishing levels of project success. This system was chosen to strike a balance between pinpointing the top performers, those garnering middle-of-the-road achievements, and those with the most room for improvement. Thus it best facilitates the interpretation of the data, the communication of the results, and the planning of strategic improvement.

4.5.3.1 ICI - Definition of bands

In order to develop the bands for the ICI indices, it was necessary to calculate how long the overall band was (0.388). Once this was done, the four bands were calculated so that the characteristics and implications of each could be described, outlining the type of projects they represent and their significance in terms of community involvement and volunteer hours:

Band 1: 0.213 to 0.601
Projects in this band have the lowest community involvement and volunteer hours. There was no significant participation and volunteer contribution, indicating potential areas where these initiatives can focus their attention to increase community involvement and volunteer hours in future phases of the projects.

Band 2: 0.6011 to 0.990
Projects in this band have a moderate degree of community involvement and volunteer hours. These projects have managed to move beyond the threshold of minimal participation, but not yet to a level that we can consider high involvement. They represent initiatives with good potential for growth in terms of involvement.

Band 3: 0.9901 to 1.378
The third band is occupied by projects with a high level of community involvement and volunteer hours, indicating that the projects were particularly effective in reaching out to the community and generating volunteer hours. Projects with massive community involvement and can serve as models for future initiatives.

Band 4: 1.3781 to 1.767
Projects that fall within this band represent excellence in terms of community involvement and volunteer hours. Projects that have reached the pinnacles of participation and volunteer contribution, setting a benchmark of maximum possible community participation. These are examples of how initiatives can have a significant impact on community participation and volunteer hours.

These bands provide a clear framework on which to assess and compare the degree of community involvement and volunteer engagement that different projects have achieved, making it easier to identify projects that have done better than others and those that will need additional strategies to increase participation and volunteerism.

4.5.3.2 IMM - Definition of bands

For the development of the IMM index bands, it was necessary to calculate the band length of 0.292. From this value, four bands were calculated into which to divide the performance achieved by the projects. These bands are crucial in order to be able to categorize the projects in terms of effectiveness in using the assigned Merits, citizen involvement versus project cost, and the ratio of the number of participations/Merchants involved.

First Band: 0.008 to 0.301.
Projects in this band have the lowest level of mobilization of Merits. This means a result related to effectiveness in turning assigned Merits into action, citizen involvement or specific objectives. Projects in this band may require excellent strategies to make the most of their resources and increase engagement.

Second Band: 0.3011 to 0.593.
Projects in this area have an intermediate level of Merits mobilization. This indicates that they have had some success in turning merits into community involvement, however there is room for impact and possible greater efficiency.

Third Band: 0.5931 to 0.886.
Projects in this area have a high level of Merits mobilization. These projects have excellent resources of having meritoriously converted into involvement, reflecting effective selection and handling of proposals.

Fourth Band: 0.8861 to 1.178.
This last band represents Merits mobilization projects of the highest excellence. It is a signal of exceptional ability to exploit these awards in order to maximize involvement, minimize cost-benefit ratios, and effectively achieve project objectives. These projects set the benchmark for the highest possible efficiency and impact.

The division into these bands, allows for a clear and structured assessment of project performance in Merits mobilizations, providing a solid basis for the recognition of the most successful initiatives and the identification of areas in which the effectiveness of future initiatives can be improved.

4.5.3.3 IESI - Definition of bands

In order to carry out the calculation of the IESI (Index of Economic-Social Impact) bands, a band length of 0.190 was established. Making this calculation was one of the key steps that allowed us to be able to categorize projects in terms of economic and social impact. Here is what the bands look like:

First Band: 1,353 to 1,484
Projects in this category show a basic level of economic-social impact and indicate that while they contribute positively to the local economy and social welfare, there is room for substantial improvements. Initiatives in the first band, are the projects that have begun to generate benefits but have not yet fully realized their potential.

Second Band: 1.4841 to 1.615
Initiatives that are ranked in the second band have demonstrated moderate economic-social impact with tangible results that reflect a good degree of success in positively influencing the local economy and community well-being; these activities have moved beyond the basic level of contribution and are moving toward more significant impact. Nonetheless, their results show good room for improvement.

Third Band: 1.3191 to 1.746
The third band includes projects with a high level of economic-social impact; these initiatives have demonstrated a remarkable ability to positively influence the economy and society with results that reflect deep engagement and substantial contribution to their goals. Their goals are excellent and projecting a contained room for improvement.

Fourth Band: 1.7461 to 1.877
Initiatives ranked within the fourth tier represent excellence in terms of social-economic impact; these projects set the benchmark for maximum impact having achieved significant and lasting changes that positively affect both the local economy and social well-being. These projects are unparalleled examples of how initiatives can meet and exceed their goals and achieve truly outstanding results.

With the bands in this way, it is easier to identify and recognize the projects that have achieved the best results in economic and social terms. Thus it is easier to compare and better understand the effectiveness of different initiatives. Also, this kind of divide helps identify areas where projects need to be improved in order to increase their impact.

4.5.3.4 IRES - Definition of bands
In order to calculate the bands into which to divide the performance obtained in the IRES index, a band length of 25.277 was established. This length was necessary for the development of four equivalent bands, which were able to categorize the projects

This is then how the impact of these brackets in terms of the economic-social return generated for each investment could be described in detail:

First Band: from 1.055 to 26.332
The initiatives enclosed within this band are those projects that already at 1.055 and above have returned a level of 'basic return' in socio-economic terms with respect to the investment made.
The elements classified within it were able to have a positive, albeit relatively small, impact on the community or economic environment, showing a high potential for improvement.

Second Band: 26.3321 to 51.609
Projects in this band show an 'average economic-social return', a sign that the investment made has begun to generate 'tangible' benefits both economically and socially, at a more consistent level.
These projects reflect successful initiatives that have gained a higher degree of impact than those in the previous band.
Although their results are already satisfactory, they are not yet optimal and may therefore be subject to improvement precedents.

Third Band: 51.6091 to 76.886
The third band includes projects with a "high level of socio-economic return", i.e. those projects where results have been achieved that translate into a "substantial" impact on the community and the economic environment, and reflect "effective" optimisation of the initial investment. Their results are very good but can still be improved.

Fourth Band: From 76.8861 to 102.163

This is the "excellence band" that includes projects where the index reports the highest levels of return achieved on investment. These are projects that show how the investment has been transformed into benefits that are extensive and long-lasting for society and the economy, and thus set a standard for the maximum return achievable.

The banding of the IRES index makes it possible to assess in detail how effectively a project is able to transform investment into both economic and social benefits. This structure also makes it possible to identify the best performing initiatives and opportunities to increase the efficiency and impact of future investments.

4.5.3.5 IESu - Definition of bands

A bandwidth of 0.046 was used in the calculation of the bands used to categorise the performance of the five projects in the IESu index.
Its segmentation into bands allows the categorisation of projects according to sustainability and engagement:

First band: 0.010 to 0.056
This band represents projects with the lowest degrees of engagement and sustainability. It indicates that the project in the category would have had minimal impact in terms of sustainability and engagement and implies ample room for improvement and/or implementation of more effective strategies to increase sustainable impact. This category represents all those initiatives where time and resources need to be invested to improve performance.

Second Band: 0.0561 to 0.102
Projects in this band demonstrate moderate engagement and sustainability levels. These projects have exceeded the minimum level of sustainable contribution, but have not accumulated a high impact; they serve as initiatives with good potential for greater engagement or sustainability. These also need improvement, but to a lesser degree.

Third Band: 0.1021 to 0.148
The third band includes projects with a high level of engagement and sustainability. These projects have demonstrated the ability to generate decidedly significant sustainable impact; they reflect effective use of sustainable practices and successful engagement in the community. They also present room for improvement, but not necessary.

Fourth Band: 0.1481 to 0.194
Projects in this band represent the ultimate in engagement and sustainability. They have demonstrated the highest degrees of impact, setting a benchmark for sustainable excellence; these initiatives are exemplary in their ability to maximize Merits to promote sustainability and actively co-manage the community.

This segmentation of bands for the IESu index enables a clear assessment of a project's sustainability and engagement performance, providing a solid basis for recognizing outstanding initiatives and identifying areas where projects can be improved to increase their sustainable impact.

Table 7 Index Band

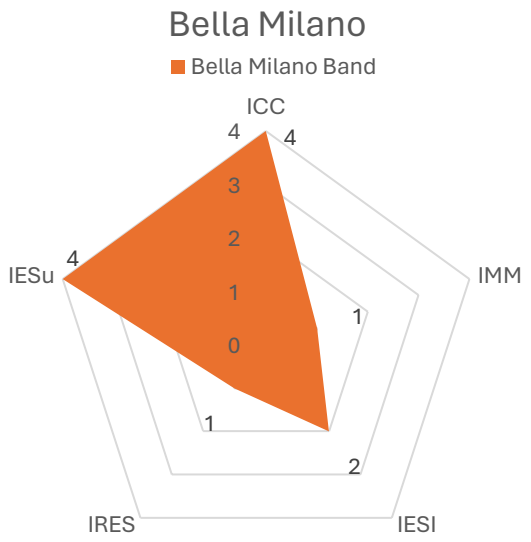
Band		ICI	IMM	IESI	IRES	IESu
	Band Length	0.388	0.292	0.131	25.277	0.046
First	From	0.213	0.008	1.353	1.055	0.010
	To	0.601	0.301	1.484	26.332	0.056
Second	From	0.601	0.301	1.4841	26.332	0.056
	To	0.990	0.593	1.615	51.609	0.102
Third	From	0.990	0.593	1.6151	51.609	0.102
	To	1.378	0.886	1.746	76.886	0.148
Fourth	From	1.378	0.886	1.7461	76.886	0.148
	To	1.767	1.178	1.877	102.163	0.194

4.6 Individual and Comparative Analysis of the Results of Merits Projects

4.6.1 Individual Analysis of Projects

After the division into bands, it was possible to carry out an analysis of all five projects conducted by Merits. The analysis of each project used the results they achieved for each index, which are shown in Table 2. The following sections will show the results achieved by the projects in the various indices, each of which will be placed in the bands to which it belongs.

4.6.1.1 Individual project analysis: Bella Milano



Radar Chart 1 Performance Overview of Bella Milano

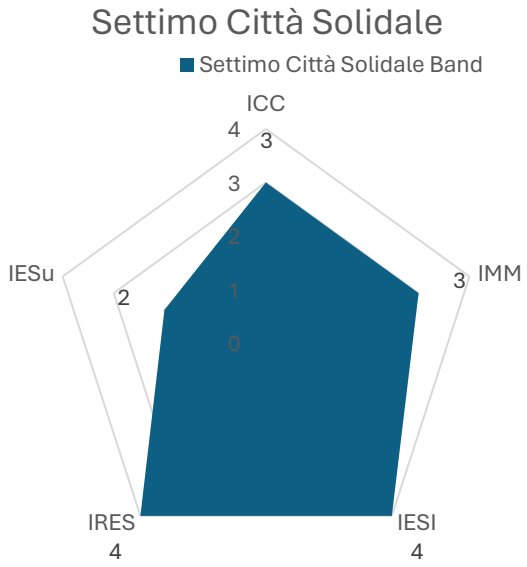
At the end of the division into bands, it was possible to conduct an analysis of all five projects conducted by Merits. To carry out the analysis of each project, the results they achieved for each index were used, which are shown in Table 2. The following sections will show the results obtained by the projects in the various indices, each of which will be placed in the bands to which it belongs.

The "Bella Milano" project, which stands out from others, particularly shines in its social and environmental performance as demonstrated by its radar chart. The analysis of this project was broken down index by index:

- **ICI** (1.7667): With this score, "Bella Milano" ranks in the highest range for the Index of Community Involvement, revealing extraordinarily high community participation and engagement and a significant number of volunteer hours, highlighting its triumph in encouraging active civic involvement. One achievement sets it as a benchmark for other projects, which should strive to match it over time.
- **IMM** (0.056): This index shows one of the weaknesses of the initiative; the score obtained places it in the lowest band, evindicating a serious lack of effectiveness in the use of Merits to stimulate action and active participation, underlining the need to review strategies to mobilise resources.
- **IESI** (1.511): Due to its score on the IESI index, the project can be placed within a medium-low range, indicating a moderate socio-economic impact with room for further improvements that could bring more significant benefits to the community and local economy.
- **IRES** (6.376): In the Social-Economic Return Index, "Bella Milano" is in the lower band, suggesting that the social-economic return is less evident than in other projects, an area considered to be susceptible to greater effectiveness and improvement.
- **IESu** (0.166): The score places the project in the fourth tier of sustainability and engagement, easily positioning 'Bella Milano' as one of the frontrunners in these areas. Not only does it mark significant progress toward sustainability, but also reveals an impressive environmental impact. This ongoing commitment to strengthen the IESu index, can finally move from a goal, to a goal well met. The time and resources can now be invested to continue expanding its sustainable footprint over time. 'Bella Milano' is at a level of sustainability where it can continue to enhance its initiatives indefinitely.

Furthermore, the radar chart effectively displays the strengths and areas for improvement of the 'Bella Milano' project, providing a detailed overview of its performance. In summary, 'Bella Milano' continues to excel in community engagement, with an exceptional level of civic participation and a significant number of volunteer hours that set a high standard for others to follow. However, the text also suggests areas for improvement, particularly in utilising merits as a motivator for action and encouraging active participation, as well as in enhancing socio-economic performance. 'Bella Milano' has already become a leader in its field. However, there are still new areas to explore and frontiers to cross in order to achieve even greater success. The company's commitment to sustainability has placed it among the avant-garde, and maintaining and extending this lead will be the focus in the coming weeks.

4.6.1.2 Individual project analysis: Settimo Città Solidale



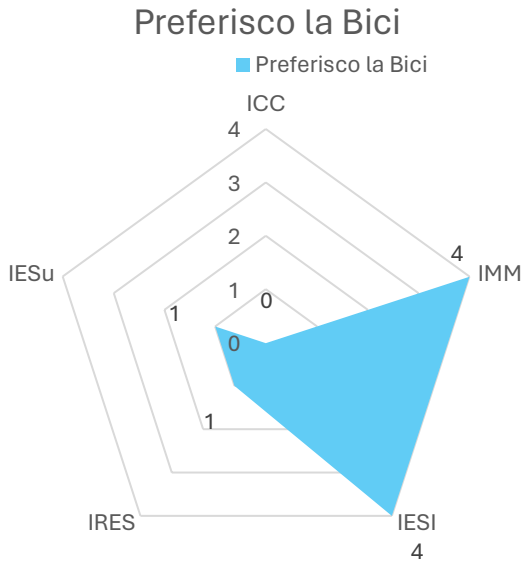
Radar Chart 2 Performance Overview of Settimo Città Solidale

The Settimo Città Solidale initiative showed distinctive results in the various aspects of social and environmental impact, as can be seen from the radar chart provided. Here is a summary of the project's performance based on the scores obtained for each index analysed:

- **ICI** (1.3537): This score places the project in a high range for the Index of Community Involvement, indicating above average community involvement with a considerable volume of volunteering, reflecting a solid level of civic participation.
- **IMM** (0.7251): The results obtained in the Merits Mobilisation Index suggest that the project effectively deployed available resources to stimulate the community and achieve its goals, ranking high.
- **IES** (1.877): The project's achievements record the highest score achieved in the Index of Economic-Social Impact testifies to the project's positive contribution to the local economy and social welfare, indicating a significant impact on the community, which must be a model for other projects to follow.
- **IRES** (102.163): The project achieved an outstanding result in the Economic-Social Return Index, showing a significant economic and social return on investment, and setting a benchmark for efficiency and effectiveness in the use of resources. Within the selection of projects analysed, this project may give the cue to others to constantly improve their Social Economic Return.
- **IESu** (0.086): The score obtained in this index places the project in the second band of the Engagement and Sustainability Index, indicating a moderate commitment to sustainability and the possibility of further extending such initiatives. This shows considerable room for improvement that can be filled in future projects.

In summary, Settimo Città Solidale emerges as an outstanding initiative, especially for its social-economic return and the mobilisation of Merits. However, there is room to increase the economic-social impact and engagement in sustainability. The radar graph offers a clear visualisation of the areas of strength and opportunities for improvement, providing an overall picture of the project's performance and potential.

4.6.1.3 Individual project analysis: Preferisco la Bici



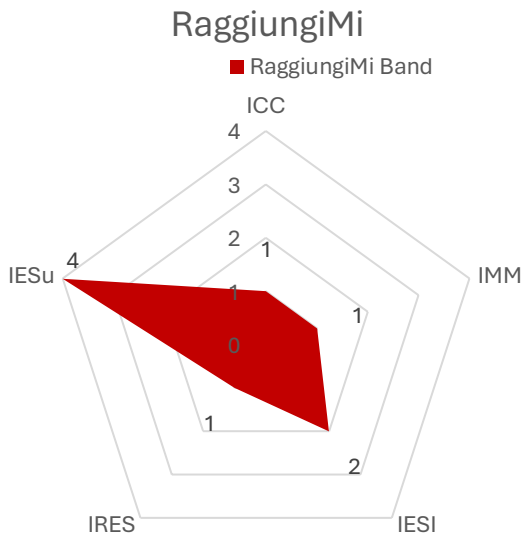
Radar Chart 3 Performance Overview of Preferisco la Bici

The Preferisco la Bici project shows a distinctive profile of impact as illustrated in the radar graph. A detailed analysis based on the scores obtained in each index will be presented in the next section:

- **ICI**: The data needed to calculate the Index of Community Involvement could not be found.
- **IMM** (1.178): The initiative ranks in the highest range for the Merits Mobilization Index, indicating excellent use of Merits to stimulate action and active participation, a sign of great efficiency in this area.
- **IES** (1.815): The project scored excellently on the Economic-Social Impact Index, placing it almost at the top of the highest band, indicating a significant positive impact on the local economy and social improvement of the community. Again, Preferisco la Bici can be identified as a benchmark for projects in need of improvement in this particular index.
- **IRES** (22.419): The score in the Social-Economic Return Index suggests a relatively low return on investment, showing one of the weaknesses of this initiative. This indicates that there is room to improve the effectiveness and efficiency of the project's investment. Raising the results obtained in this index must be one of the priorities if a similar project is to be replicated.
- **IESu** (0.014): Again the project was not flawless, ranking in the lowest range for the Engagement and Sustainability Index, the project shows that there is a need to further develop sustainable practices and increase community engagement in this area.

In conclusion, "Preferisco la Bici" has demonstrated remarkable capabilities in resource mobilization and has had a positive social-economic impact. However, the project has room to grow especially in increasing its socio-economic return and sustainable engagement. The absence of data on ICI underscores the need for more attention in collecting and analyzing information related to community engagement. The radar chart visually highlights the project's areas of strength and where there is potential for further improvement.

4.6.1.4 Individual project analysis: RaggiungiMi



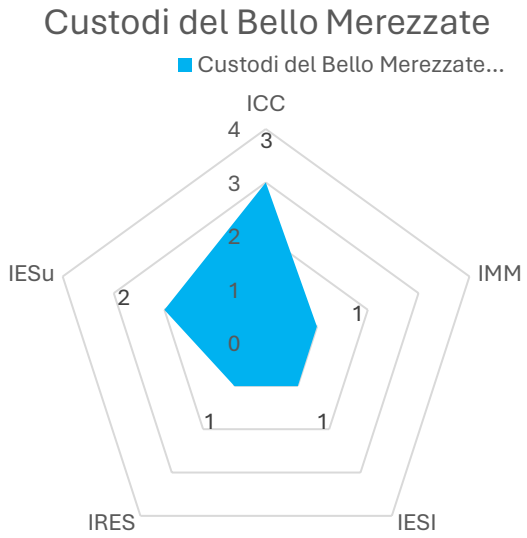
Radar Chart 4 Performance Overview of RaggiungiMi

The RaggiungiMi project stands out in the various social and environmental impact indices, as highlighted by the radar graph. An analysis of the specific results for each index can be seen within this section:

- **ICI** (0.3394): The result obtained places the project in a lower range for the Index of Community Involvement. This relatively low level of participation suggests the need to develop additional strategies to increase citizen engagement and volunteer hours.
- **IMM** (0.032): Once again, the results achieved by RaggiungiMi are not entirely satisfactory; in fact, the project records a low mobilization of Merits, reflecting a resource mobilization strategy that may need to be rethought in order to enhance the capacity to transform Merits into actions and effective participation.
- **IESI** (1,492): The RaggiungiMi project's IESI score lands in the second tier, revealing a balanced blend of environmental sustainability within its framework. This midway mark indicates that RaggiungiMi has made good perfomrmance in some sustainability aspects, but there still exists much room for progression and improvement. The project shows good foundations in pursuing green goals, but with ample space still available to adopt broader sustainable actions and pursuits that would enhance its environmental footprint.
- **IRES** (7.897): In the calculation of the Social-Economic Return Index, the project shows a score that is in the low range, signaling a lower return on investment than other projects, an area in which RaggiungiMi can seek to improve.
- **IESu** (0.194): The RaggiungiMi initiative excels in the Engagement and Sustainability Index, ranking in the highest range. This result suggests that the project has successfully implemented sustainable initiatives and effectively engaged the community toward sustainable goals.

In conclusion, the RaggiungiMi project exhibits excellent performance in sustainability and social impact, but it is possible to improve the community engagement and resource mobilization. In order to maximize the project's effectiveness, a stronger focus on increasing community engagement and Merits utilization strategy would be helpful. The radar chart provides a clear view of where the project excels and where it can improve further.

4.6.1.5 Individual project analysis: Custodi del Bello Merezzate



Radar Chart 5 Performance Overview of Custodi del Bello Merezzate

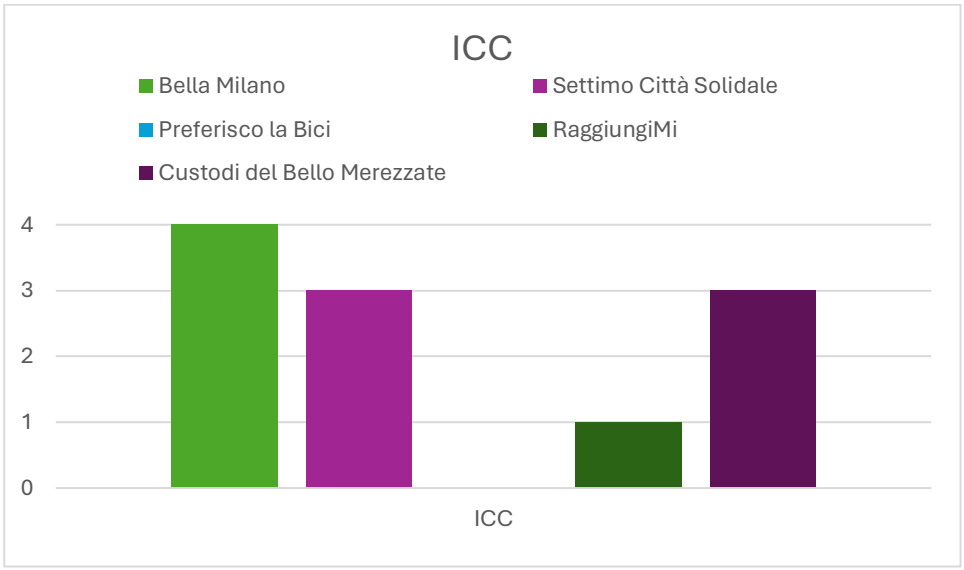
The " Custodi del Bello Merezzate " project showed varying results in the different social and environmental assessment indices, highlighted in the radar graph. Within this section, an analysis in performance detail was conducted:

- **ICI** (0.2127): The performance brings the initiative to place in the lowest range, this index reflects limited community involvement and few volunteer hours, highlighting the need to develop stronger strategies to promote active participation.
- **IMM** (0.0082): Again, the project is in the lowest range, suggesting that the Merits awarded were not effectively converted into concrete actions or broad civic participation, underscoring the need for a more effective mobilization strategy.
- **IESI** (1.353): The calculation of this index highlighted the weak point of this initiative; in fact, the result obtained by Custodi del Bello Merezzate ranks in the lower band for the Index of Economic-Social Impact. This score indicates that there is room to strengthen the positive effect on the wellbeing of the community and the local economy. Investing in the improvement of these aspects must be one of Merits' objectives should it wish to repeat a similar project.
- **IRES** (1.055): Again, the results of the calculation performed show project enclosed within the lowest range in terms of economic-social return. The outcome obtained highlights the limits reporting economic and social benefits generated by the investment, highlighting a key area where the project could increase its effectiveness.
- **IESu** (0.010): The low score in this index highlights the need for the project to improve engagement in sustainability and intensify sustainable initiatives to strengthen their influence and and and community involvement.

To sum up, " Custodi del Bello Merezzate " showed significant shortcomings in almost all indexes analyzed, with the need for greater resource mobilization and stronger commitment to sustainability. Despite the moderate impact on the local economy and society, it appears necessary to take advantage of new and possible opportunities to enhance the overall impact and effectiveness of the project. The radar chart provides an effective visualization of where the project is doing well and where it can expand and further improve its efforts.

4.6.2 Comparative Analysis of Projects

4.6.2.1 Comparative Analysis of Projects: ICI



Bar chart 1 ICI

The Index of Community Involvement (ICI) separates the project under examination from others on a number of grounds, giving a broader sense of the communal engagement and volunteerism of the researched works. "Bella Milano," for example, clearly leaves the rear of this fourth tier with an ICI of 1.7667. Such is extraordinary community engagement that is well above average, and that hews closely to the total volunteer hours.

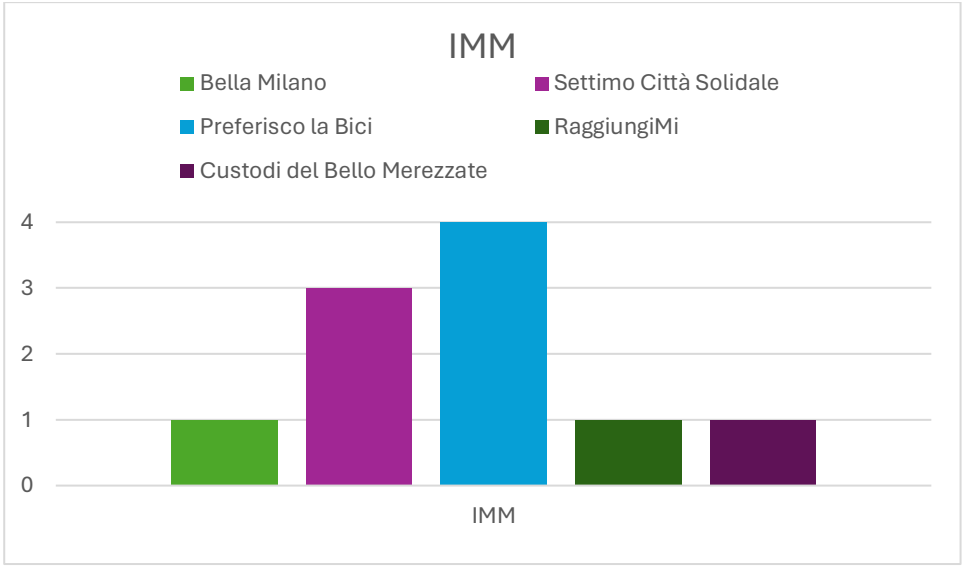
This impressive result suggests that "Bella Milano" has been more of the same, an active engagement of the community and one that pointed the collective energy toward the project goals. but with a well-crafted series of strategies for getting people involved. "Settimo Città Solidale," meanwhile, ranks a respectable third with an ICI of 1.3537. Such placement indicates that it neither reached the level of "Bella Milano" nor achieved the overall volunteerism of the average. Nonetheless, the level of involvement seems to be significant with respect to the community, suggesting that the project had a positive impact.

The ICI index cannot be calculated for "Preferisco la Bici" due to missing data. The absence of this data not only makes a full evaluation of the project impossible, it also says something important about the sorts of impacts that are possible in this community.

"RaggiungiMi"'s modest ICI of 0.3394 puts it at the first level, an indication of relatively low overall community involvement and volunteer hour. Again, the next set of strategies will need to be about getting active participants involved."Custodi del Bello Merezzate" come in at the less friendly fifth level with an ICI of 0.2127. At this level, we can consider them to be showing the lowest level of community involvement and voluntary engagement and requiring particular attention to developing methods for building community involvement.

In summation, the ICI provides a deep array of levels of performance in a project, with "Bella Milano" standing out as the clear leader in community engagement and "Settimo Città Solidale" showing considerable involvement. "RaggiungiMi" and "Custodi del Bello Merezzate" show spaces that can be filled by stronger engagement. "I Prefer Biking's" inability to present data in this index and its performance in other indexes suggests untapped potential that a full ICI would have highlighted, and adds to the importance of a complete assessment of the community.

4.6.2.2 Comparative Analysis of Projects: IMM



Bar chart 2 IMM

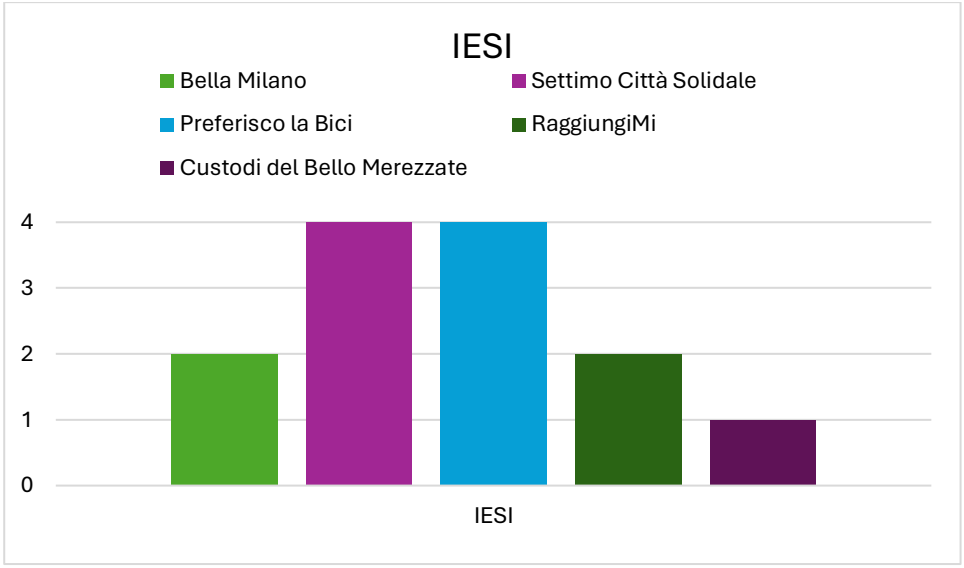
The classification of projects into the four tiers of the IMM reflects their performance in mobilizing Merits, with tier one having the lowest level of mobilization and tier four representing excellence in this area.

Projects Bella Milano and RaggiungiMi, with scores of 0.056 and 0.0320 respectively, are in tier one, indicating that these projects had the conceptually lowest mobilization of Merits. This also suggests that although they may have a range of strengths, there is significant room to increase the effectiveness of their use of Merits to mobilize the community more effectively. The project indeed sees its Merits quite low in multiple communities starting with a non-zero decimal one. The project Custodi del Bello Merezzate scored a poor 0.0082, indicating the lowest mobilization of Merits among the examined projects and highlighting the need for better strategies to optimize the use of their Merits for greater community engagement. Settimo Città Solidale scored 0.7251, entering tier two with moderate mobilization of Merits; the project has achieved its objectives and thus built community involvement, however, there is still room to increase the effectiveness of their Merits use and thus impact.

With a much higher score of 1.1781, the project Preferisco la Bici reaches tier four, showing an exceptional ability to operate with the Merits they have obtained in ways that massively strengthen community involvement, optimizing the cost-benefit ratio, and effectively achieving project objectives. Indeed, this project, having entered late in the ranking of nations, establishes the benchmark for the highest possible impact and efficiency of Merits, in fact, this project has even dressed 10 times. Only nations can race in the machine nations do it.

Interestingly here is that Preferisco la Bici has set the benchmark; Settimo Città Solidale shows moderate but improvable effectiveness; Bella Milano, RaggiungiMi, and Custodi del Bello Merezzate have a significant margin for improvement and could benefit from an evaluation of their current strategies with appropriate attention and follow-up for potential implementations.

4.6.2.3 Comparative Analysis of Projects: IESI



Bar chart 3 IESI

By examining the results of the Index of Economic-Social Impact (IESI), the analysis highlights the importance of assessing the overall impact of each project, as opposed to a broader context, so that strengths and weaknesses can be highlighted on which to build to address future challenges. The results highlight how the influence exerted by various projects on the economy and social fabric of the communities in which they were implemented can vary.

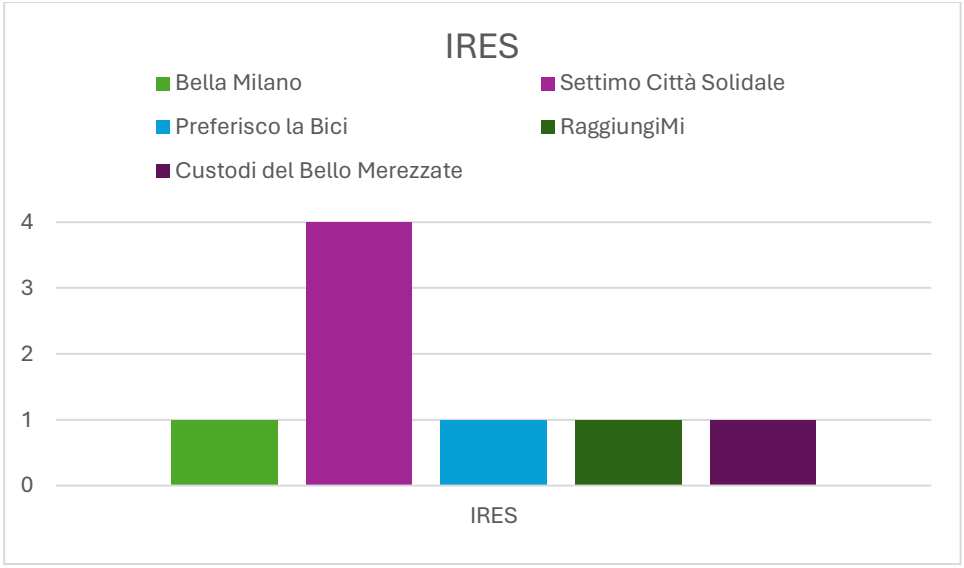
The Settimo Città Solidale initiative stands out among the other projects for its placement in the top tier, reaching first place in the ranking, indicating an extremely positive economic and social impact. This result shows how the project has not only limited itself to only achieving the set goals, but in some cases has even exceeded them, becoming an engine of development and making significant improvements in local conditions. The strategies and way of operation of this project can be identified as the example to follow for all those projects that need improvement in this particular aspect.
Custodi del Bello Merezzate ranks at the lowest rung, highlighting a low economic-social impact. Although it generated limited benefits, there is room for greater impact, providing an opportunity to reflect on how to enhance the project's effect and maximize its value to the community. Emulating projects that have performed better in this particular aspect can be a great way to improve one's performance

Bella Milano and RaggiungiMi are in the second tier, demonstrating moderate but significant impact. These projects have surpassed the base level, suggesting that with further development and strengthening, they can aspire to even greater impact, which, however, is not critical and can be achieved in a more spread-out timeframe.

Preferisco la Bici emerges in the fourth bracket, revealing a strong economic-social impact. This indicates that the project had a significant capacity to positively impact the community and local economy, with results that testify to a deep commitment and substantial contribution to its goals.

In summary, this analysis provides an overview of the impact generated by the projects, establishing a basis for future development strategies. While "Settimo Città Solidale" and Preferisco la Bici lead with outstanding results, the other projects show that it is possible to further increase their economic and social impact with dedication and focused strategies.

4.6.2.4 Comparative Analysis of Projects: IRES



Bar chart 4 IRES

Within the Social-Economic Return Index (IRES) framework, the scores achieved by various projects provide insights into their success in deriving tangible benefits from each investment made. The IRES is a crucial indicator for assessing the effectiveness of project investments in terms of economic and social outcomes.

The project Settimo Città Solidale managed to earn an extraordinary IRES score of 102.163, placing it in the fourth tier of the IRES. This remarkable score has translated its investment into an excellent socio-economic return, leading to extensive and lasting economic and social impacts for the community and the local economy – clearly setting such a successful project as a benchmark for others to emulate.

Preferisco la Bici scored 22.419, positioning its project in the third tier, indicating a high socio-economic return. This certainly wasn't as high as Settimo Città Solidale, but it was also considered a failure project with significant impacts.

RaggiungiMi earned a score of 7.897, being placed in the second tier – moderate socio-economic return – its project clearly shows the beginning of economic and social tangible benefits being generated, and consequently a successful activity.

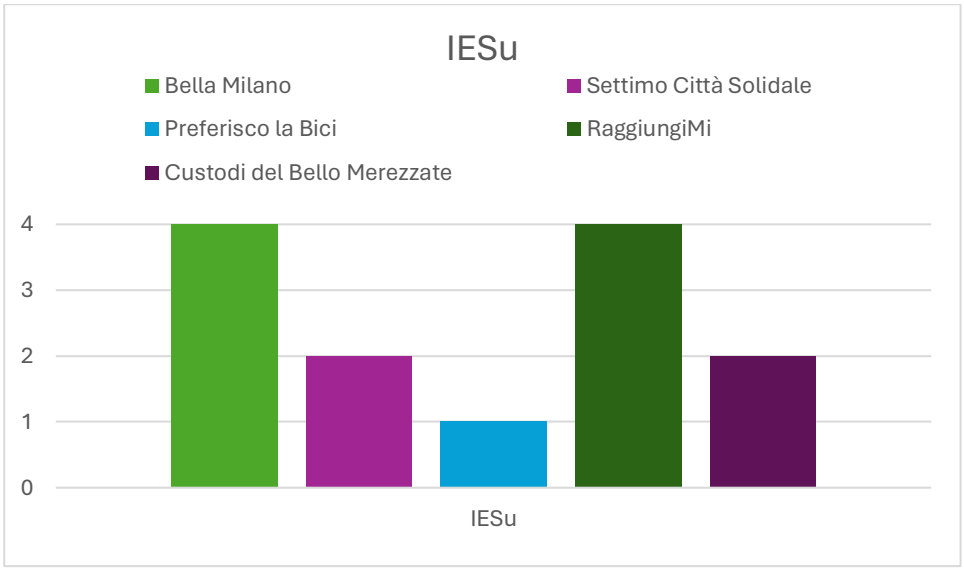
Bella Milano scored 6.376 to be placed also in the second tier, revealing a moderate socio-economic return. It may not have reached the levels of Settimo Città Solidale, but this project has nonetheless produced a very tangible economic and social success.

Finally, Custodi del Bello Merezzate earned a score of 1.055, being placed in the first tier – projects with a basic socio-economic return. This suggests that although the project was successful, the extent of success shown was somewhat limited, showing areas of lesser impact and potential perspective.

In conclusion, the distribution of IRES scores simply reflects the observed variety of real investment projects. Settimo Città Solidale – clearly – has emerged as the group leader this week, followed closely by Preferisco la Bici and RaggiungiMi which have shown significant impact in their own right. At the same time, Bella Milano has shown some more reserved impact, yet marking

the potential for future programs. Meanwhile, Custodi del Bello Merezzate have shown the need to evolve to optimize those final economic and social returns of such an investment in future projects.

4.6.2.5 Comparative Analysis of Projects: IESu



Bar chart 5 IESu

The Sustainability and Engagement Index (IESu) is designed to capture the extent to which projects are effective at encouraging sustainability and engagement. For the IESu scores provided:

RaggiungiMi stands out with a score of 0.194, placing it in the fourth tier, which represents an excellence level of both engagement and sustainability. Historically, this suggests that the project has been highly effective at delivering sustainable impact, highlighting the efficacy of Merits in fostering sustainable practices and community engagement. Bella Milano with scores of 0.166 gets the second place, also placing inside the fourth band. Settimo Città Solidale (0.086) find itselfs in the second tier, indicating fairly good levels of engagement and sustainability. The projects is just above the minimum sustainable contribution, suggesting significant room for improvement and growth in impact, indicating it is still expanding in the sustainability dimension.

Preferisco la Bici and Custodi del Bello Merezzate, with scores of 0.014 and 0.010 respectively, are in the lowest tier, representing the lowest levels of engagement and sustainability among the projects. This highlights enormous opportunities for these projects to focus on more effective sustainable involvement and community engagement strategies.

In summary, the IESu scores emphasize the intrinsic importance of sustainability and community engagement strategies within projects. RaggiungiMi serves as a benchmark of sustainable excellence; Bella Milano and Settimo Città Solidale show commitment with considerable room for improvement; and Preferisco la Bici and Custodi del Bello Merezzate face significant challenges to enhance their sustainable involvement and community engagement.

4.7 Creation of the Overall Impact Index (OII)

In order to calculate which project actually stood out from the others, it was necessary to aggregate the indices presented for each project into one final index.

This overall index will allow us to assess which project had the greatest impact, considering all the aspects analysed (community engagement, socio-economic impact, resource mobilisation, social-economic return and sustainability).

In order to calculate the Overall Impact Index, it was necessary to carry out an approach in which each of the project-specific indices is equally weighted, assuming that all aspects measured have the same weight in determining the overall impact of a project. Of course, this is a simplification, and other approaches may assign different weights depending on the priorities of the analysis or the specific objectives of the project. In order to assign an equivalent weight among all projects, it was necessary to normalise the results;

The following formula was used to perform the normalization and the values obtained were then reported in Table 5.

$$Normalized\ index = \frac{Project's\ Value\ Index\ - Minimum\ value\ Index}{Maximum\ value\ Index\ - Minimum\ value\ Index}$$

Table 8 Normalized Index

Projects	ICI'	IMM'	IESI'	IRES'	IESu'
Bella Milano	1	0,04104859	0,30197286	0,10927041	0,84725699
Settimo Città Solidale	0,734273762	0,61283101	1	1	0,4122219
Preferisco la Bici		1	0,8829513	0,09248545	0,02132329
RaggiungiMi	0,081540542	0,02036868	0,26495106	0,04056105	1
Custodi del Bello Merezzate	0	0	0	0	0

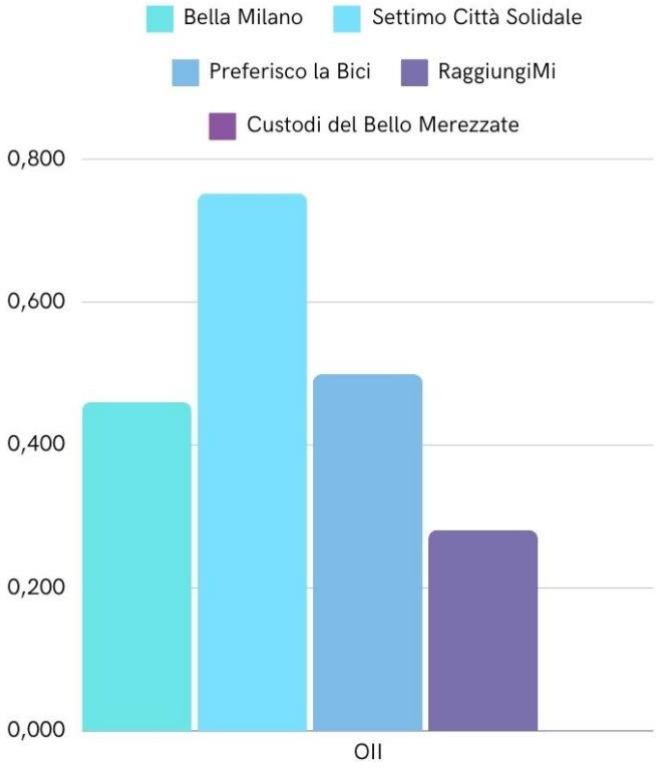
Figure 5 Normalized Index Result

Once the results were normalised, the following formula had to be applied to obtain the Overall Impact Index of each:

$$OII = \frac{ICI' + IMM' + IESI' + IRES' + IESu'}{5}$$

Note: For the Preferisco la Bici project, the value of ICI is not available. To maintain fairness in the analysis, it was considered appropriate to exclude ICI from the average for this specific project, reducing the denominator from 5 to 4.
The scores obtained are as follows:

- Bella Milano: 0,460
- Settimo Città Solidale: 0,752
- Preferisco la Bici: 0,499
- RaggiungiMi: 0,281
- Custodi del Bello Merezzate: 0,00



Bar chart 6 OII Result

After carefully examining and normalising the indices of the various projects undertaken by Merits, it was possible to obtain a clear and fair view of their overall impact. The normalisation and aggregation of the results obtained from each individual project allowed us to carry out a detailed comparative analysis. It was therefore possible to carry out a detailed exploration of the results obtained:

Settimo Città Solidale: A Beacon of Success

With a normalised ICI score of 0.752, Settimo Città Solidale emerges as the top project, distinguished by its outstanding impact. This result underlines not only the effectiveness with which the project mobilised resources and involved the community, but also the significant socio-economic impact it was able to generate.

Preferisco la Bici: Cycling Towards Impact

Preferisco la Bici, with a score of 0.499, ranks as the second most impactful project. This score reflects the important contribution the project has made in terms of promoting sustainability and the well-being of the community by encouraging greener and healthier modes of transport. While not reaching the dizzying heights of Settimo Città Solidale, Preferisco la Bici demonstrated how

targeted initiatives can make a significant difference, underlining the importance of targeting efforts towards specific sustainability goals.

Bella Milano: Beauty and Involvement

With a score of 0.460, Bella Milano is solidly at the top of the ranking, demonstrating the effectiveness of community engagement and focus on urban environmental improvement. This project highlighted how collective action can contribute to significantly improving the quality of urban life, laying the foundations for further initiatives of this kind.

RaggiungiMi: Connect and Grow

RaggiungiMi, achieving a score of 0.281, reveals areas where there is room for improvement in impact. While the project has made important steps towards community engagement and sustainability, the results suggest that there are significant opportunities to further strengthen these dimensions, leading to even greater impact in the future.

Custodi del Bello Merezzate: Potential for Growth

Finally, Custodi del Bello Merezzate, scored zero, ranking as the project with the lowest impact among those examined. This result underlines the need for a review and enhancement of the strategies employed, with the aim of raising the effectiveness of the initiative and ensuring that it can realise its full potential for impact.
Note: it is important to notice that the scores obtained by the Project are equal to zero only because of the normalisation process, this does not mean that they had no impact, simply that they had less impact than the other projects.

This comprehensive analysis not only highlights Merits' successes in its efforts to promote sustainability and community engagement, but also the challenges it still faces. Each project, with its unique strengths and areas for improvement, contributes to a bigger picture from which we can learn valuable lessons.

4.8 The Sustainable Future of Merits: Innovation and Growth through Analysis and Improvement

The deep dive into Merits' projects, as laid out in this chapter, sheds light not just on the innovative social and environmental impact the Milan-based startup has sparked through its initiatives, but also offers a lens through which to assess and boost future efforts in this vein. The distinction among various projects, based on five indexes, highlights both strengths and areas for improvement for each initiative and signals how Merits' strategy has effectively intersected technology, community engagement, and sustainability.

By using virtual currencies to encourage sustainable behaviors and valuing community involvement, Merits stands out as a pioneer in blending the digital and physical (phygital) realms to foster positive impact. The diversification of approaches, from top-down to bottom-up, has not only made it possible to adapt to local specificities but also showcased the versatility and scalability of Merits' operational model.

However, the analysis also brings to light some areas of vulnerability, such as the need to enhance resource mobilization effectiveness and to increase the socio-economic impact of certain projects. These observations provide Merits and other entities aiming to embark on similar paths valuable insights into how to optimize initiative management and maximize their impact, paving the way for future improvements and the expansion of these sustainable practices.

In summary, this case study not only affirms Merits' commitment to promoting sustainable practices and community engagement but also serves as a tool for future enhancement of Merits and the projects it chooses to undertake. Through detailed analysis and comparative evaluation, Merits can now look to the future with a greater awareness of its capabilities and areas of focus to continue leading in social and environmental innovation.

5. Beyond traditional assessment: An innovative approach to the environmental and social impact of start-ups

With the rise of eco-sustainable startups more than ever, the evolution of methods for assessing environmental and social impact has really made it paramount to spur transitions towards sustainable business practices today. The fourth chapter presents through the most typical cases the possibility of innovatively adopted impact assessment for the cross with the present thesis at this crossroad. It needs to be specified for the projects, that will be implemented by the start-up company named Merits, and originates in a detail analysis of the most typical cases.

This approach is characterized by the focus on the specific projects carried out by the organization in question. The discussion presented attends to this uniqueness, representing a new start-up enterprise counterposed between tools such as B Impact Assessment (BIA), Ecomate, IMPACTO, and Carbon Footprint Management, which are developed in the second chapter. The two strongly contrast on two axes: one, they bring out the positive aspects of a personalized approach against the complex dynamics of the environment and society, while on the other hand, they flag those restrictions and issues that come with picking up such a method over more established tools of evaluation. The paper will reveal the potentials and the limitations of the new approach through an exhaustive reading of the situation, a critical exploration, and accurate exposition, thus by far convincingly work at a more complete vision in this respect. This paper will, thus, outline the potentials and limitations of the new approach.

5.1 Benefits of project-based impact assessment

In Chapter 4, the approach unveiled has presented a new paradigm looking at a methodological shift in the realm of environmental and social impact assessment, uniquely providing for a methodology that is personalized down to a level of detail and follows closely from the local complexity of individual projects. This orientation highlights, in fact, an evolutionary line with respect to the standardized evaluative models, which tend to operate a course at a more accurate understanding of the nuances and specifications of the territories. This chapter delves justly into the benefits of this methodology, precisely to reveal its uniqueness in the provision of detailed and dynamic analyses that go beyond traditional ones.

In this section, the following intrinsic details of the innovation will be discussed, addressing why it is an improvement on existing methods. With this view, the proposal aims to highlight not only the accuracy and the adequacy of the model in fitting individual needs for every startup but its capacity to capture and interpret those environmental and social issues often overlooked or oversimplified by the tools of a more general nature. In this paper, the attempt is to highlight the finesse of the analysis offered, whereby it is possible to face and appreciate the multiplicity and constant evolution of different impacts that start-ups bring about in their operating context.

5.1.1 Customisation and Specificity: A Tailor-Made Approach

The most significant added value of this method lies in its extraordinary customization capability. Differently from generalist tools, which tend to superimpose just one evaluative matrix on the heterogeneous business contexts, the chapter 4 approach allows modulating the evaluation index according to the specificity and the needs required from every single project. This level of specification ensures that every single impact on the environment and social life is analyzed to the greatest detail, guaranteeing that all unique peculiarities of any given initiative are thoroughly understood and valued. Well, if the conclusions so arrived are attuned, it displays a very high degree of adaptability, not only to the specific goal of each of the projects but deeply nested within

the operational context of every startup, to offer further insight beyond basic application of standardized evaluative criteria.

5.1.2 Focus on Local Impact: An In-Depth Analysis

Another distinctive advantage of this method is its emphasis on analyzing local impact. Differently from traditional tools, which present a general and sometimes abstract view of the impacts on a business, the approach proposed in the case study goes into detail in the specific social and environmental fabric in which the project acts. This means careful examination into how actions themselves affect, directly, the local ecosystem, from biodiversity to social cohesiveness, providing indispensable insight for the correct interventions and precise strategies for improvements. This ability to reveal the tangible effect on the immediate setting will enable tracing strategies of intervention that are effective and, at the same time, deeply connected with local realities, thus maximizing the effectiveness of improvement actions.

5.1.3 Towards a Sustainable Innovation Model: Dynamism and Continuous Updating

The approach encourages a dynamic model of evaluation that allows an enabled and continuous process of updating and monitoring the impact. This contrasts with the rigidity of some traditional tools that might get anchored to fixed period evaluations, often unable to capture the continuous evolution of projects, their environmental, and social implications. This will allow the integration of new information, innovation, and changes practically in real-time, supporting the progress of continuous improvement with the flexibility and adaptability that characterize the method proposed. This means being able to grow with the emerging trends and will make this valuation one that is not just current and relevant, ushering in the culture of sustainable innovation, where continuous feedback and learning morph into core mantras in startup sustainability.

The analysis undertaken in the previous chapter leads to an innovative approach to the evaluation of environmental and social impact. This approach is highly personalized, accentuated by careful attention to specific localities, and exhibits great agility to adapt to changes in the sector. This methodology exceeds mere assessment; it presents itself as an instrument of analysis capable of significantly improving the quality and correctness of evaluations. This is not just an evolution in the sophisticated measurement of impacts but also the bedrock of a paradigm in sustainable development, reacting promptly, acting responsibly, and delving deeply into the details of each project. This new model of evaluation not only responds to the need for greater attention to the local and specific impacts that startups produce but also sets the stage for entrepreneurship that is knowledgeable, proactive, and radically committed to sustainability, in full coherence with the dynamic realities of the modern world.

5.2 Disadvantages Compared to Existing Instruments

The exploration, in the chapter delves into how environmental and social impact assessmentsre evolving with new ideas marking a shift in perspective. However these fresh approaches also bring about challenges and complexities that require examination. The difficulties associated with this proposed method stem from its intricacy the challenges of standardization and comparison of outcomes and the obstacles in managing and accessing volumes of data. These issues spark discussions on the feasibility and actual effectiveness of the approach introduced emphasizing the need to strike a balance between cutting edge customization and the practical requirement for a solution that is broadly applicable and accessible. The subsequent analysis aims to delve into these matters offering an understanding of the practical implications as well, as theoretical considerations that may arise from this methodological transformation.

5.2.3 Operational Complexity and Resource Investment

The first enormous difficulty in the present approach lies within its high operational complexity. The necessity to make adjustments so that evaluation indices are custom-made specifically for each project is heavy not only in analysis but also in planning and implementation. Such complexity requires not only a significant time investment from the teams involved but also demands dedicated financial and human resources, often exceeding those required by standardized tools. As such, this requirement might be considered an overly restrictive barrier for early-stage startups or organizations running on small budgets, effectively limiting the accessibility of the approach to a very few entities that would be in a position to support the mentioned costs.

5.2.3. Problems of Standardization and Comparability

Another crucial aspect of the proposed approach is linked to the difficulties in standardizing results. The diversification of customized indices, while enabling a more precise and specific analysis of each project's impact, impedes the generation of a uniform reference framework. Such heterogeneity, in fact, impedes a direct comparison between different projects or between different organizations, limiting the viability of comparative analyses or, indeed, any benchmarking or comparison with established industry standards, which would provide broader meaning and contents to the relative performances of individual ventures. In summary, it can be said that an absence of a common language and uniform evaluation criteria could easily mean that stakeholders restrict themselves to a myopic evaluation of the relative impact of initiatives, if they are not capable of including them in the broader global framework.

5.2.3 Accessibility and Data Management

The practical realization of the approach outlined in Chapter 4 hinges critically on the availability of accurate and up-to-date data. Gathering the specific information necessary to power the customized indices demands advanced monitoring systems and cutting-edge analytical expertise. Especially for small startups or entities with scant resources, the task of acquiring, managing, and interpreting such data presents formidable obstacles. Data inaccessibility not only undermines the integrity and dependability of the analysis but also risks sidelining organizations that lack sophisticated technological capabilities.

The approach conceived in Chapter 4 undeniably enriches personalization and the profundity of environmental and social impact analysis. Nevertheless, the attendant challenges of its implementation must not be understated. The issues of comparability, standardization, and operational intricacy, coupled with data accessibility and management, pose serious questions that mandate thorough consideration of available resources and the capacity for organizational handling. Striking the right equilibrium between tailored analysis and pragmatic applicability is crucial for maintaining impact assessment as a tool that is approachable, trustworthy, and instrumental in steering entities towards tangible sustainability objectives.

When juxtaposed with the standardized tools discussed in Chapter 2, the forward-thinking strategy presented in Chapter 4 unfolds a complex tableau of both prospects and difficulties. The introduction of a bespoke model for evaluating environmental and social impacts, despite its innovative and analytical precision, prompts debates over its inherent complexity, the standardization of outcomes, and the necessity of accessible data for meticulous analysis. In effect, the deployment of such an innovative and analytically profound model challenges us to confront and address these significant considerations.

Table 9 Strengths and Challenges of the Customized Impact Analysis Approach

	STRENGTHS	WEAKNESSES
CUSTOMIZATION AND SPECIFICITY	High adaptability to project specifics. Precise analyses that value the uniqueness of each initiative.	Requires significant investments in time and resources, posing a challenge for startups and organizations with fewer resources.
LOCAL IMPACT	Provides deep understanding of the impact on local contexts, offering a basis for targeted actions.	Hinders comparison between different projects due to a lack of a uniform reference framework.
DYNAMISM AND CONTINUOUS UPDATE	Supports a flexible and evolving evaluative approach, promoting innovation.	Needs accurate and up-to-date data, with challenges in access and data management for less equipped organizations.

5.2 Critical reflection on the advantages and disadvantages of index-based impact assessment.

The assessment model proposed in Chapter 4 is the element of this startup landscape that especially stands out in this dynamic context. While existing such as BIA, Ecomate, IMPACTO, or carbon footprint management are by definition generic tools; therefore, offering high customizability and a sharper capture of local dynamics, the methodology here presented offers analysis that is many times more detailed, and particularly capable of reflecting the unique nuances of each initiative, as it delves into the social and environmental implications of the impacts that startups generate in their operational environment.

The potentialities that this tool opens, however, are not without their challenges. The operational complexity involved and resource investment needed by such a detailed impact analysis could readily constitute an obstacle, particularly for early-stage startups, or organizations with limited resources. Issues related to the standardization and comparability of results and the management and accessibility of the necessary data for an accurate analysis are key elements in this respect. Importantly, for example, the detailed level of customization that this approach holds the potential for is likely to greatly refine the quality of impact analysis, but also to open questions around the practicality of such an approach in a truly large scale.

Enlightening reflection emerges from such considerations, as to how the requirement of customized impact analysis can be balanced with practicality of application. A model that would be able to integrate the detailed specificity that the proposed model here holds the potential for with the standardization and accessibility of well- established tools, would likely hold the key to overcoming such challenges. An equalizing such as this, would not only ensure sustainability in terms of relevance and effectiveness of impact assessments, but would also encourage a sustainable model of innovation and of ongoing improvement of organizations' sustainability strategies.

In Summary, the impact assessment model presented in Chapter 4 here profiles itself as potentially revolutionary, and capable of matching the evolving dynamics and local specificities of startup projects with precision and dedication. However, its very strengths - customization and a dedication to detail - also frame many of its challenges, and an important reflection surfaces around how these can be strategically aligned with the need for a broader, more pragmatic application.

5.4 Assessment and Evolution: The Role of ESRI, ESI, and SMEI Indices in Addressing Environmental Impact Gaps

In the current ecosystem of startups, examining the environmental impact of entrepreneurial initiatives has become essential to orient future actions towards the objectives of sustainable development. The case study that has been discussed in Chapter 4 presents a meticulous analysis of the economic and social impact of entrepreneurial projects, revealing a series of dynamics that were intricate and significant in equal measure. There is, however, a specific shortcoming in the discussion of the environmental impact. This has not been so well examined, due primarily to a lack of data gathered, as becomes especially apparent when it is analyzed in comparison to the multidimensional approach of established evaluation tools such as the B Impact Assessment, Ecomate, IMPACTO, and Carbon footprint management.

These tools, which are largely integrated already, in the fabric of the enterprise and the global sustainability agenda proposing an evaluation framework that substantially includes the analysis of the environmental impact, providing companies with the metrics that they need to conform to the United Nations Sustainable Development Goals. The assessment discussed in previous Chapter, on the other hand, despite being otherwise compelling, shows this specific mismatch, highlighting the need for tools capable of offering a measurement of the environmental sphere that is more highly focused and comprehensive.

In this context, the presentation of the ESRI, ESI, and SMEI indices thesis witnesses to the proposal of a solution capable of filling the identified gap, widening the horizon of analysis and giving startups the chance to have an authentic environmental assessment, one that is in line with the peculiarities of their projects. These indices are aimed not only at improving the accuracy of the assessment of the environmental impact that is brought about by startups but are also intended to improve their ability to effectively communicate the results that they have achieved, to attract investment and to build in the field of enterprise a reputation that is solid and credible in terms of sustainability. The examination of the mobile application that has been presented here, where these indices have been for the first time applied and validated definitively, and long term, on a single startup, demonstrates the potential that such an analytical framework does indeed have in reducing the gap that separates the startup from the existing evaluation frameworks, and supplements the evaluation process with a new depth and new precision with respect to the environmental sphere. They are now in a position in fact, not only to meet but to outdo, norms of sustainability that have been handed down, taking on an innovative role that is proactive, a role that is one that is interested in innovation, in moving towards a future that is ever greener and more responsible.

5.4.1 ESRI: Environmental Sustainability Reduction Index

The ESRI comes to determine the real reduction of the negative environmental impact, which is made possible by the implementation of the analyzed projects. It can be calculated by measuring the CO2 emissions and the acquired friendly behaviors among the participants. The formula of this calculation is defined by the following scheme:

$$ESRI = \frac{CO2\ Reduction}{Merits\ Spent} \times \frac{Active\ Partecipants}{Project\ Price}$$

This metric captures the real location of project-based effort, since it includes both the resources used (merits spent) and the active attitudes of the participants, oriented on project activity in relation to the cost of the project. The addition of this new indicator of impact, known as the Environmental Sustainability Reduction Index (ESRI), achieves a great advance in the methodology of evaluation, favoring the knowledge of the instrumental aspects of the environmental impact. In

view of these considerations, the ESRI presents the advantages described below for the evaluation of the impact of projects.

5.4.1.1 Insight into Environmental Impact

As addressed, ESRI is a milestone in the analysis of projects' environmental impact, producing a qualitatively higher tool for its assessment. While the primary ground for the aforementioned merit is the ability to make much more accurate and quantifiable assessments of the positive impact on the environment, narrowing the focus to CO2 emission reduction reveals the truth of a more profound nature. As demonstrated, abstractions and matters of approximation are replaced with quantifiable and reliable evaluations. In other words, insights into the project's environmental ramifications are no longer merely hypothesized.

The project index, in its turn, does not simply measure the effects in terms of greenhouse gas reduction but rather quantifies precisely the profitability of it and the percent of direct correlation of reductions made to the certain actions covered by the projects. Hereby, businesses are given the opportunity to objectively quantify and certify their roles towards combating global climate change, assuredly communicating a valid and measurable environmental responsibility - a critical feature nowadays in the wake of transparency demands from consumers and stakeholders.

5.4.1.2 Integrated Evaluation of Employed Resources

ESRI provides a holistic analysis of the organization of resources engaged in action. It draws the environmental benefits and costs concerning the contextual quantification of active participations and resources utilized concerning that participation. It quantifies precisely how effectively each unit of resource spending can be associated with the productivity of sustainability to measure the sum of merits spent. This actively promotes not only how well those merits that have been spent have been utilized but the level of active participation in comparison to project spending. This evaluation of resources consumed and actively used allows businesses to complete a reflective strategic balance between the monetary resources utilized and the demonstrable environmental benefits of that investment, provoking more thoughtful and nuanced resource balances that are both essential to achieving comprehensive and lasting sustainability.

5.4.1.3 Stimulating Innovation and Continuous Improvement

The Environmental Sustainability Reduction Index serves as a powerful driver for sustainable innovative growth. The clarity and specificity of the reduction formula push companies to explore only the very best solutions that allow them to substantially decrease their ecological footprint. Such constant innovation creates a chain of steady improvements in the sphere of environmental sustainability performance.
Startups and funding entities that develop the projects focused on sustainability can trace the effect of their actions and put value on every small step aimed to minimize the negative impact on the planet. This chain generates internal pressure not only to continue the exploration of better ways to create their processes and products but to embed a culture of constant improvement in their companies, which creates a self-perpetuating loop of improvement and innovation offered by the clarity of ESRI.

5.4.1.4 Enhancing Credibility and Transparency

The use of the ESRI revolutionizes the level of transparency and credibility in evaluating the environmental impact of any project. The index provides unbeatable clarity due to the concise formula and a credible calculation method based on empirical and easily verifiable data. Through

using ESRI, the risk of greenwashing is reduced, which means all companies can show, based on authoritative and objective proof, their commitment to environmental sustainability.
In a fast-growing market where more and more customers, shareholders, and business partners demand authentic, tangible evidence of a company's sustainable nature, the importance of ESRI is invaluable. With its help, the company can not only prove a reduction in the negative environmental influence of their projects more responsibly and efficiently but also level up their credibility in the eyes of all stakeholders and win the title of responsible leaders in global sustainable development.

5.4.1.5 Contribution to Research and Environmental Policy

The Environmental Sustainability Reduction Index (ESRI) stands as a significant breakthrough for both environmental research and policy development. As a data-driven method for analyzing the efficacy of sustainable practices, it delivers a comprehensive tool that allows researchers to precisely quantify and compare reductions in negative environmental impacts. This is particularly pivotal for evaluating initiatives and deepening the understanding of the effectiveness of various sustainable measures.

The application of the ESRI enables organizations and policymakers to identify the most impactful strategies for reducing CO2 emissions. It encourages not just the efficient use of resources but also promotes a conscious and active participation from the community. The tangible outcomes derived from the ESRI provide a robust basis for informing and refining public policies and business strategies, thereby creating a strong framework for targeted efforts to diminish ecological footprints.

The ESRI's capacity to yield reliable and measurable data renders it an essential instrument for both the evaluation and the crafting of new environmental sustainability initiatives to meet the demands of our era. It emerges as a critical element in fostering a circular economy with minimal environmental impact, leading to decisions that are both responsible and far-sighted for the health of our planet.

In sum, the integration of the ESRI into project analysis not only enriches environmental impact assessment but also advances the cause of ecological responsibility. It arms organizations with a solid means to measure, communicate, and enhance their environmental performance, significantly contributing to the global objectives of sustainability.

Briefly, the ESRI enriches the assessment of environmental impact and integrates them into this analysis, being one step farther on the way of higher ecological responsibility. This provides organizations with a tangible tool through which they can measure, communicate, and improve their environmental performance in meaningful ways that allow them to meet their world sustainability goals.

5.4.2 ESI: Environmental Sustainability Index

The ESI measures the direct impact of projects on the promotion of sustainable behaviour, especially in the context of mobility. It is based on the ability of projects to encourage practices that reduce environmental impact, such as the use of environmentally friendly means of transport. The ESI formula is structured as follows:

$$ESI = \frac{KM\ of\ sustainable\ mobility \times\ Citizen}{Merits\ Spent} \times \frac{\%\ Merits\ Spent}{Project\ Price}$$

By assessing the effectiveness of the project in promoting sustainable mobility in relation to the resources used, this index provides a clear indication of the environmental contribution of projects. The introduction of the Environmental Sustainability Index (ESI) emerges as a crucial evaluation tool to directly measure the effect of initiatives in promoting environmental sustainability,

particularly in the context of sustainable mobility. Its implementation in project analysis brings a number of significant benefits that enhance the understanding and effectiveness of sustainability strategies adopted by organisations.

5.4.2.1 Direct Measurement of the Impact on Sustainable Mobility

The Environmental Sustainability Index (ESI) is a very relevant evaluative tool that surfaces in order to quantify and make tangible aspects of the sustainable mobility impacts of projects. This index is designed very carefully so that it really reflects the scale of green initiatives with a judicious formula, which correlates kilometres travelled by sustainable means of transport to the ratio of merits used.
This would allow the data to be distilled in a direct and targeted way to performance indicators speaking unequivocally about the effectiveness of projects in furthering environmentally friendly means of transport uses, such as electric car-sharing, cycling, or friendly-to-the-environment vehicles. ESI thus goes beyond mere statistical analysis, and this work is deemed to be an important tool for delineating the direct link between actions undertaken and their beneficial effects on the environment, hence becoming a compass for carbon mitigation efforts.

Here, the ESI is, in fact, a metric but moreover, a game-changer, giving an opportunity for the organization to challenge and critically evaluate their practice, thereby indicating that the policy drivers and stakeholders are indicated of its efforts towards a green future without any doubt. In the final analysis, ESI represents a move in the evolution of sustainability metrics that may help to detail sustainable mobility initiatives and hence foster a broader understanding of the urban environment in which we live and move.

5.4.2.2 Evaluation of the Efficiency and Effectiveness of the Resources Deployed

The ESI, as a barometer of civic engagement, encourages an active and conscious participation of citizens in sustainable mobility initiatives. With this in mind, the index not only measures the effectiveness of actions taken by companies, but also becomes an incentive for greater awareness and collective responsibility. The added value of the ESI lies in its ability to capture the essence of community contribution to the success of environmental policies.
Community participation, as measured by the ESI, acts as a powerful lever for change, enhancing the direct involvement of citizens as the key to an effective transition to more sustainable patterns of living. Moreover, the ESI acts as a catalyst, spurring institutions and businesses to strengthen dialogue and collaboration with citizenship, making the community not only a recipient, but also an active player in building an ecologically balanced future.

5.4.2.3 Promoting Community Involvement

The inclusion of the Environmental Sustainability Index (ESI) in the ecological performance evaluation process represents a substantial increase in transparency and accountability for organisations committed to sustainability. The ESI, with its structure based on measurable and verifiable parameters, provides a clear and objective picture of progress, allowing companies to document and unambiguously communicate their efforts and successes in the field of environmental sustainability.

By providing tangible data, this tool enables transparent and direct communication with stakeholders, enhancing the relationship of trust and strengthening corporate reputation. The measurable and quantifiable results resulting from the use of the ESI translate into a higher standard of communication and the possibility of corroborating environmental declarations with concrete evidence, subtracting space from possible accusations of greenwashing and consolidating an image of authentic and tangible commitment to sustainability.

5.4.2.4 Enhancing Transparency and Credibility

The use of the ESI in an analysis environment offers more transparency and credibility to claims on projects' sustainable impact. In light of this index, verifiable data use is a clear metric, allowing organizations to concretely present their commitment to sustainability to stakeholders and consumers in order to gain trust. These are improvements that improve the communication of the environmental commitment of initiatives with quantified results.

5.4.2.5 Basis for Data-Driven Strategies

The importance of ESI lies in providing a strong tool with the definition of strategies based on data, enabling us to formulate the most suitable practices with regards to time and resources for the task of promoting sustainable mobility. It further steers the directive on how ideal resources are placed toward the systematic resurrection of more relevant and impacting environmental initiatives.

ESI is an index that enhances the the identification of environmental impacts from project execution, offering precise assessments of contributions to mobility sustainability. Its implementation will not only improve understanding of the effectiveness of environmental initiatives, but it will also support further responsible and achievable goals of resources management. In this way, sustainable development is assured by monitoring from the side of firms where tangible goals in sustainability could be acquired through the setup and monitoring of the ESI in project appraisals that guide the development of more effective and sustainable environmental strategies.

5.4.3 SMEI: Sustainable Mobility Efficiency Index

The SMEI focuses on the efficiency with which initiatives promote sustainable mobility, taking into account the relationship between the results achieved (in terms of sustainable mobility) and the resources invested (merits spent). Its formula is as follows:

$$SMEI = \frac{KM\ of\ sustainable\ mobility \times\ Citizen}{Merits\ Spent\ \times\ number\ of\ participations} \times\ (1 + \frac{Number\ of\ volunteer\ hours}{Maximum\ number\ of\ volunteer\ hours})$$

By incorporating variables such as citizen involvement and volunteer hours, the SMEI provides a detailed picture of the efficiency and impact of sustainable mobility actions.
The Sustainable Mobility Efficiency Index (SMEI) represents a methodological advancement in the analysis of the impact of projects, with a focus on initiatives promoting sustainable mobility practices. Focusing on the relationship between the efficient use of resources and the promotion of environmentally friendly behaviour in the transport sector, this index introduces several advantages in the evaluation field, significantly improving the understanding and effectiveness of environmental sustainability strategies.

5.4.3.1 Depth of Efficiency Analysis

SMEI is distinguished by its ability to provide a holistic and detailed analysis of the use of resources in the development of mobility in an environmentally friendly direction. As mentioned earlier, this analysis is more than the usual cost accounting; it means understanding how each individual investment in sustainable mobility is realized, i.e., the ratio of sustainable kilometers traveled to total allowances spent.
SMEI is not static but dynamic because it takes into account the cyclicity and amplitude of citizen participation, which is very important when assessing the multiplier effect of sustainable initiatives. In this regard, the Index makes it possible to draw a comprehensive picture and assess from a strategic perspective the environmental impact of the organization’s activity, given both economic efficiency and ecological efficiency; in fact, this enables the promotion of the sustainable mobility model in the long term.

5.4.3.2 Stimulus for Resource Optimization

The adoption of the Sustainable Mobility Efficiency Index (SMEI) is proving to be a crucial boost for organisations aiming to strengthen the sustainability of their operations, particularly in the transport sector. This index, with its focus on calculating and evaluating resource efficiency to promote environmentally friendly transport practices, acts as a catalyst for targeted innovation. The start-ups and entities involved are invited not only to evaluate but also to improve their policies and practices in terms of sustainable mobility. In this context, SMEI would turn out to be a diagnostic tool to compel critical reflection of current practice in resource management, stimulating firms to look and apply innovative solutions in order to deliver not only maximum positive impact on the environment but also minimizing operational expenses.

The emphasis on quantitative measurement to effectiveness gives a rather clear picture of the efficacy of initiatives taken and promotes further management of the available resource in a more strategic and conscious manner. Furthermore, the community dimension included in the index emphasises the added value of social involvement in sustainable mobility initiatives. This approach not only amplifies the environmental benefit of the activities but also emphasises the need for a sustainable footprint embedded in company policies, contributing to the development of a corporate culture oriented towards environmental responsibility and long-term sustainability.

5.4.3.3 Enhancing Community Involvement

The Sustainable Mobility Efficiency Index (SMEI) places special emphasis on the crucial importance of community involvement in sustainable mobility activities. This index not only measures quantitative aspects, such as carbon footprint reduction through environmentally friendly transport choices, but also emphasises the qualitative component represented by citizen engagement. The methodology behind the SMEI encourages organisations to implement effective engagement strategies that stimulate active and informed participation by the community.

The adoption of sustainable mobility practices, with the active collaboration of citizens, goes beyond the mere optimisation of means of transport to become a catalyst for cultural change, promoting a more sustainable lifestyle at a collective level. The SMEI index therefore establishes itself as a barometer of civic engagement and its ability to positively influence environmental metrics, playing a key role in orienting corporate policies towards shared social responsibility and building long-term community resilience to climate change.

5.4.3.4 Improvement of Communication and Transparency

The introduction of the SMEI index could lead to an enhancement, in communication and transparency regarding the impact of individual projects. This index, which relies on measurable data enables startups to demonstrate the effectiveness and efficiency of their efforts in terms of environmental sustainability. Incorporating it into the analysis conducted in the preceding chapter serves as a tool for fostering an trustworthy relationship with stakeholders facilitating open and transparent sharing of progress and accomplishments.

What sets the SMEI apart is its capacity to establish an quantifiable language facilitating communication with partners and investors. The index plays a role in promoting an environment, for sharing practices and benchmarking fostering constructive dialogue and mutual learning among entities engaged in sustainability endeavors. By doing the SMEI not streamlines the evaluation of diverse initiatives but also encourages ongoing improvement and collective elevation of environmental sustainability standards.

5.4.3.5 Foundation for Public Policies and Business Strategies

Finally, SMEI can serve as an essential tool to inform public policy and sustainability-oriented corporate strategies. Data collected through the application of the index offer valuable insights into the most effective practices in promoting sustainable mobility, guiding the allocation of resources towards initiatives that demonstrate a greater return in terms of efficiency and environmental impact.

By incorporating the Sustainable Mobility Efficiency Index into project analysis, organisations are able to accurately assess the effectiveness of their initiatives in promoting sustainable transport behaviour. SMEI not only enriches the analysis of environmental impact but also promotes a more conscious and responsible management of resources, encouraging innovation, community involvement and transparency. Together, these benefits contribute to a better understanding and implementation of sustainable mobility strategies, emphasising the importance of data-driven approaches and measurable results in the pursuit of sustainability goals.

5.4.4 Advancing Impact Metrics: Bridging the Environmental Evaluation Divide with ESRI, ESI, and SMEI

The introduction of these three indices can represent a huge evolution in the analysis of the environmental impact of projects. The incorporation of the environmental dimension in the assessment can play a crucial role in the attempt to offer a more complete view of the impact generated by start-ups. Through ESRI, for instance, the reduction of negative environmental impact is precisely measured, stimulating innovation and continuous improvement, and enhancing the transparency and credibility of environmentally sustainable initiatives.

The main purpose of developing the ESI index, is to measure direct impact in promoting sustainable behaviour, highlighting the efficiency and effectiveness of resource use, promoting community involvement and providing a basis for data-driven strategies. SMEI, focuses on efficiency in promoting sustainable mobility and assesses the effective use of resources against the results achieved, improving impact reporting and transparency.

Incorporating these indices into the overall evaluation of projects facilitates the identification of specific areas for improvement, directing future strategies towards more sustainable practices. This would not only enrich the analysis, but also the ability of start-ups to effectively communicate their achievements, attract investment and build a solid reputation in the field of sustainability, as Table 2 reflects.

Table 10 Advantages of ESRI, ESI, and SMEI Indices in Impact Analysis

ESRI	- Quantifies the reduction of negative environmental impact. - Incorporates resource use efficiency and active participant involvement. - Stimulates innovation and continuous improvement. - Enhances transparency and credibility of environmental claims. - Contributes to environmental research and policy-making.
ESI	- Measures the direct impact on promoting sustainable behaviors. - Highlights the efficiency and effectiveness of resource usage. - Promotes community involvement. - Increases transparency and credibility of initiatives. - Provides a basis for data-driven strategies.
SMEI	- Focused on efficiency in promoting sustainable mobility. - Evaluates the effective use of resources relative to achieved outcomes. - Values community involvement and volunteer hours. - Improves impact communication and transparency. - Serves as a foundation for public policies and business strategies oriented towards sustainability.

5.4.4.1 Comparison with Other Evaluation Instruments

After having introduced the ESRI, ESI and SMEI indices, it is necessary to make an overview of the comparison of these indices with established methodologies such as the B Impact Assessment (BIA), Ecomate, IMPACTO and carbon footprint management approaches. This dialectical comparison not only illuminates the peculiarities of the new indices but also underlines their acuity in addressing and quantifying the specific challenges that start-ups encounter on the path to sustainability.

These new assessment tools provide an analytical framework that embraces the complexity of contemporary business dynamics, highlighting how specific strategies and operations affect the environment and society. While the BIA and Ecomate focus on a more holistic and homogenous assessment, our indices focus in more detail on individual projects, allowing companies to accurately measure and communicate their specific impact, a key factor for a start-up trying to navigate and stand out in the market.

The strength of these indices is their ability to offer an unprecedented level of detail and customisation, expanding the scope and applicability of environmental and social impact assessment in the dynamic and rapidly changing environment of emerging start-ups. This evolution reflects a paradigm shift in impact assessment, emphasising the need for measured tools that can not only document but also drive sustainable innovation.

5.4.2 Personalisation vs Standardisation

In the realm of evaluating impacts trusted instruments, like the B Impact Assessment (BIA) and Ecomate serve as pillars to steer businesses towards the trajectories outlined by the United Nations Sustainable Development Goals (SDGs) providing assessments that address aspects. These resources, with their nature strive to chart routes aligned with a worldwide perspective, on sustainability integrating diverse approaches to adhere to international benchmarks.

While this broad perspective is beneficial it can sometimes divert attention from the impacts and unique contexts of business projects. Our specialized indices, like the Environmental Sustainability Reduction Index (ESRI) excel at monitoring the decrease in environmental impacts providing a precise and focused measurement that surpasses generic tools. This accuracy enables an evaluation that uncovers nuances of impact often overlooked in broader assessment frameworks.
Indices such as the Environmental Sustainability Index (ESI) and the Sustainable Mobility Efficiency Index (SMEI) shine a spotlight on mobility metrics. These tools aim to address gaps in assessments by highlighting a crucial yet overlooked aspect; the immediate and measurable influence of corporate activities on sustainable mobility and their role, in promoting environmentally friendly transportation modes.
The use of these indices allows for an detailed examination of the social effects giving stakeholders and companies a tool to better understand the real world impact of projects, on the environment and society.

5.4.4.3 Flexibility and Upgrading

In the world of start-ups, where innovation and speed are re key being able to adapt quickly to ever-changing trends and technological advancements is not just important but crucial. Traditional methods of reporting, like those advocated by platforms such as IMPACTO that focus on creating benefit reports might not be agile enough to keep pace with this evolving landscape. In this setting introducing evaluation metrics becomes not only significant but necessary. The proposed model brings in iterative impact assessment replacing periodic reports with an ongoing process of evaluation and review. This adaptable nature of our metrics allows for adjustments based on information, outcomes of initiatives and market shifts in almost real time. The flexibility and thinking approach of these metrics enable start-ups to develop and adjust their sustainability strategies promptly and based on informed decisions transforming feedback into immediate opportunities, for enhancement. This strategy fits within the start up culture where a rapid feedback loop is essential to ensure that innovations are acknowledged and challenges are met with timely solutions.
In essence, these indices pave the way for a new era of environmental and social reporting, one that is not confined to the confines of annual reports, but is instead in perpetual motion, capable of elevating sustainability from an annual checkpoint to an ongoing dialogue with business reality. This new assessment philosophy highlights the determination of start-ups to not only meet, but to exceed sustainability expectations and to do so in a manner that is as responsive as it is innovative.

5.4.4 Localised Impact and Transparency

Traditional evaluation tools, often using analysis methods, risk overlooking or disregarding the details of local circumstances. While these approaches are strong, in synthesizing information they may fall short in capturing the impacts that initiatives have on regions and communities. This can lead to a lack of representation of impact potentially missing the differences and local environmental dynamics crucial for understanding the true effects of business activities.

New proposed metrics like the Environmental Sustainability Reduction Index (ESRI) and the Environmental Sustainability Index (ESI) stand out as tools that shift impact analysis from a scale to a more detailed level. By focusing on resource efficiency and specific social impacts within the companys operating environment these metrics aim to highlight the link between business operations and the immediate surroundings providing a precise and tailored view of environmental impact.

This localized approach not enhances analysis. Also adds transparency and credibility to sustainability claims. Additionally by offering measurable data it helps startups communicate their

accomplishments effectively. Armed with this understanding emerging companies can confidently engage with stakeholders in a manner, than ever before.

The benefits of using ESRI, ESI and SMEI indices are not limited to a more accurate representation of impact. They are also a bridge to empowering start-ups, who are equipped with the tools to not only track, but also enhance their contribution to environmental sustainability. In this sense, our indices act as catalysts for stronger strategic communication and a closer and more conscious relationship with local communities and the environment.

5.4.4.5 Perspectives for Start-ups

In the domain of start up ventures that demand evaluations tailored to projects, the ESRI, ESI and SMEI metrics symbolize a methodological advancement that combines adaptability and quantifiability. Unlike Carbon Footprint Management, which offers suggestions, for emission reduction our indices empower targeted hurdles to be tackled endorsing a tangible and measurable dedication to sustainability.

The introduction of the ESRI ESI and SMEI metrics marks a breakthrough in the domain of environmental and social impact assessment, particularly pertinent for forward thinking start ups. Embracing these tools provides budding organizations with the chance to conduct specific and dynamic analyses that accurately monitor the impact of their endeavors while proactively integrating practices into their activities.

By comparing them with existing evaluation tools we have demonstrated how the proposed metrics can deliver tailored responsive assessments grounded in context specificity, distinguishing themselves through adaptability and continual updates. This approach, centered on striking a balance between customization and accessibility, not addresses the requirements of start ups but also aligns with global priorities, for fostering a sustainable economy.

Our proposition aims to help start up companies enhance their grasp of the effects of their initiatives and enhance how they convey their outcomes. This will lead to a conscientious portrayal, in society and, with those involved. Hence ESRI, ESI and SMEI go beyond assessment tools; they symbolize a dedication to quantifiable sustainability goals.

In conclusion, these indices emerge as catalysts for a profound and necessary change: a future in which sustainable practices are integrated into every stage of business development and evaluated with the same rigour as economic performance. This cutting-edge approach to impact assessment, with its data-driven and action-oriented core, is essential to address the complex environmental challenges of our time and to move start-ups beyond mere compliance, towards sustainable innovation rooted in operational reality and ecological imperatives.

6. Conclusion

This thesis highlighted the importance of taking a project-specific approach to assessing environmental and social impacts in startups. Through benchmarking and the development of customized indices, the research has shown that focusing on individual projects provides a more detailed and measurable understanding of the impact generated.

This approach not only facilitates a more accurate and objective assessment of social and environmental impact, but also encourages the startup to take concrete actions toward sustainability, promoting continuous and sustainable learning. The findings underscore the effectiveness of a customized assessment method that overcomes the limitations of existing tools, providing startups with a clearer picture of the impact of their projects.

The thesis emphasizes the crucial role of a project-based approach in environmental and social impact assessment, providing startups with innovative tools and methods to address sustainability challenges and contribute significantly to social welfare and environmental protection. The results show that startups can benefit significantly from a more focused and customized assessment method. This method allows them to more accurately and deeply understand the specific impact of their projects, overcoming the limitations of traditional evaluation tools.

This can help startups identify areas for improvement, optimize their sustainability strategies and more effectively communicate their commitment to sustainability to stakeholders, investors and customers.

The research makes a significant methodological contribution to the field of impact assessment, introducing a new model that can serve as a reference for future studies and that seeks to fill a gap within the existing literature. The ability to customize indices according to the specifics of projects represents a methodological advance that could influence the direction of future research, pushing toward a greater focus on project-based evaluations.

The results of this thesis encourage further exploration and application of project-based approaches in environmental and social impact assessment. This could stimulate academic research to develop new assessment tools and methods that are better suited to the needs of startups and other types of organizations operating in dynamic and innovative contexts.

In addition, the approach proposed in the thesis emphasizes the importance of adopting responsible and sustainable business practices, providing a concrete means for startups to assess and improve their social and environmental impact. This has the potential to promote greater awareness and action toward sustainability in the business sector, contributing to global sustainable development goals and incentivizing positive change in society.

In summary, the findings of this thesis showcase how using a project-based strategy, for evaluating social impacts in startups is effective. Additionally, it provides insights, for researching sustainable business practices and societal involvement. By advocating for tailored assessment techniques this research aims to steer startups and other entities towards a sustainable and ethical path.

During the creation of this thesis, two primary constraints were encountered; data collection and a limited sample size; These restrictions undeniably impacted the outcomes achieved.

The absence of data has hindered the development of indices meant for precise and thorough impact evaluation. This issue is commonly encountered in studies that depend on data gathered directly from the organizations especially when those entities are startups or small businesses, with limited resources for data collection and analysis. The lack of data has constrained the capacity to construct an understanding of the impact produced by projects thereby diminishing the accuracy of assessments. In particular, it has led to a gap, in assessing impacts impeding the computation of ESRI, ESI and SMEI indices that could have enriched the assessment outcomes. The second limitation present within the study was dictated by the size of the sample used. Focusing solely on one startup restricts the generalizability of the results obtained.

Although a case study can provide valuable insights into specific dynamics and contexts, the absence of comparative data from other startups hinders the establishment of objective impact assessment metrics that can be applied more broadly.

As a result, the study conclusions are confined to a scope reducing their relevance and diminishing the applicability of the findings in different contexts. These constraints highlight the necessity, for studies to tackle these challenges and enhance comprehension of the environmental and social repercussions, within startup ventures:

- **Sample Expansion**: Future studies should seek to include more startups, possibly in various sectors, to enrich the data sample and increase the generalizability of the findings.
- **Improved Data Collection**: Developing more effective strategies for data collection, such as partnering with startup accelerators, incubators, or entrepreneurial networks, could help overcome the data gap.
- **Development of Alternative Methods**: Exploring alternative methodologies for impact evaluation that may better suit the dynamic nature and limited resources of startups.

Study limitations do not diminish the value of the research, but provide a foundation on which to build future investigations. By overcoming these challenges, future research can help develop more robust impact evaluation tools that can be applied in a variety of business contexts, pushing the industry toward more sustainable and responsible practices.

The practical implications of the discoveries achieved during this research extend across multiple areas and can benefit not only the startups but also corporate policies and sustainable development strategies on a larger scale. Here are a few ways in which these findings could be put into action:

In the Industrial Sector:

- **Broad Scale Application**: Expanding the application of the assessment method to more startups will allow for the refinement of measurement tools and the redefinition of impact indices, increasing the accuracy and objectivity of analysis. This can help companies more accurately identify key areas for sustainable improvement actions.
- **Benchmarking and Standardization**: By expanding the data sample, startups could develop industry benchmarks for different aspects of sustainability, facilitating comparison and stimulating sustainability-oriented innovation.

- **Continuous and Iterative Improvement**: The proposed approach encourages a continuous improvement process that can be integrated into business strategies, driving more informed and sustainable strategic decisions.

In Policy:

- **Developing Supportive Policies**: The findings can inform policymakers on creating regulations and incentives that encourage the adoption of sustainable practices in startups and small businesses.
- **Investment Orientation**: The indices developed could serve as a benchmark for directing public and private investment toward projects and businesses that demonstrate real positive environmental and social impacts.

In Society:

- **Awareness Raising**: The results can be used to raise public and stakeholder awareness of the importance of sustainability in startups, highlighting the link between business innovation and social and environmental benefits.
- **Education and Training**: The results can contribute to the development of educational and training programs for entrepreneurs and managers that incorporate the assessment and improvement of environmental and social impacts into the core business of startups.

Incorporating these results into the operations of businesses can enhance their worth in the market and play a crucial role in advancing worldwide sustainability objectives. This can lead to a cycle of progress along, with social and environmental accountability.

One of the primary prospects, in evaluating the social impact of startups involves broadening the use of this method to include a wider range of businesses. The future path of this strategy entails applying it to startups to gather an extensive and diverse dataset. This expansion in data diversity and volume will be key in enhancing the assessment process in reshaping the rating categories, for each indicator utilized.

The primary aim of this initiative is to enhance the precise assessment of entrepreneurial endeavors. By broadening the range of startups under scrutiny, it will be possible to refine the measurement criteria, tailoring them better to the various realities and contexts in which startups function. As a result each assessment metric will be better equipped to showcase the influence of startup operations, on societal and environmental fronts.

By adjusting the rating bands will not only enhance the accuracy and significance of our evaluations. This will also facilitate to comparing projects, promoting a thoughtful and sustainable environment, for entrepreneurs. Improving how impact assessments are conducted is a step in developing a robust framework, for startups aiming to blend innovation economic progress and social and environmental consciousness.

One of the next developments will focus precisely on the creation of an index that will be able to score the impact of the start-up under consideration, based on a large sample of analysed projects. The score obtained will not only be used to compare it to the other projects analysed, but will also be used to give an evaluation of the project under examination.

Another crucial area of development will be the development of strategies aimed at monitoring, maintaining and strengthening the relationship with stakeholders. Establishing a robust and dynamic rapport with them is essential for startups to effectively manoeuvre through today's business landscape, which emphasizes sustainability and social responsibility.

Establishing a grasp of stakeholder mapping serves as the initial stage, in fostering a mutually beneficial bond between startups and their diverse stakeholders. Looking ahead upcoming efforts will center on outlining and executing plans to not only track the progression of these connections over time but also to enhance reciprocal engagement and enthusiastic participation, from all parties involved.

This strategy will involve a multifaceted approach that includes:

- **Continuous Analysis**: A periodic assessment of stakeholder needs and expectations to adjust business strategies to market dynamics and social trends. This process will enable startups to remain aligned with their stakeholders' values and goals, thus ensuring greater harmony and cohesion.
- **Transparent and Bilateral Communication**: Developing effective and transparent communication channels is critical to building trust and credibility. Startups should therefore adopt communication policies that foster open and constructive dialogue, allowing for a constant, two-way exchange of information.
- **Active Involvement**: Strategies should focus on actively involving stakeholders in decision-making processes and business activities. Through workshops, roundtables, and feedback platforms, startups will be able to enhance the opinions and contributions of each stakeholder, transforming relationships into strategic partnerships.
- **Development of Engagement Programs**: The design and implementation of specific programs aimed at stakeholder engagement, such as corporate social responsibility initiatives, joint sustainability projects, and strategic partnerships, will further strengthen ties and foster shared commitment to common goals.

Building connections with stakeholders through the development of strategies focused on monitoring and engaging them is crucial for the long-term prosperity and viability of businesses. This method not only improves the capacity of companies to react efficiently to market shifts and changes but also contributes to making a difference, in society and the environment by harmonizing corporate objectives with wider societal concerns.

This research delved into an investigation focusing on the social effects of businesses emphasizing the significance of tailoring assessments to individual projects, for better accuracy and relevance. By developing baseline measures and thoroughly examining a case study this thesis set the groundwork for a new approach, to evaluate the impact of start-ups.

The discoveries have implications that reach beyond academia, impacting the essence of startup businesses and potentially shaping social regulations. The new approach introduced not only increases the assessment capacities of startups but also encourages development closely linked with social and environmental awareness. In a society that is placing a growing emphasis on transparency and responsibility, this research provides a resource, for conscious startups aiming to differentiate themselves in the market.

The limitations faced during the research prompted exploration into new areas, bolstering the resolve to overcome typical hurdles in the initial phases of the study. These obstacles acted as prompts highlighting the significance of reliable data and emphasized the necessity of expanding the analysis to a broader sample, for result generalization.

Looking back on how this research opportunity has influenced my career development I am grateful, for the journey I've been on. This project was not just about learning, it was a transformative experience that honed my abilities and improved how I approach my work. The obstacles I faced have tempered my critical thinking, improved my analysis of situations and refined my problem-solving techniques, transforming me into a more reflective student and a more skilled professional.

The time I dedicated to examining data, evaluating approaches and discussing with colleagues and mentors represented more than just an accumulation of knowledge; they symbolized my dedication to gaining insight into my area of study and where I fit into it. I learnt the importance of listening, of being flexible in approach and persistent in the face of obstacles, abilities that go beyond the boundaries of academia and are relevant, in all aspects of professional life.

Exploring topics, like the social effects of start-up companies serves as a strong reminder of the impact individuals can have in encouraging positive transformations. It solidified my conviction that, through research and purposeful efforts we're capable of contributing to a sustainable tomorrow. The work done is therefore more than an achievement; it is a starting point for a professional endeavour that aspires to leave a positive imprint on the world.

In short, this thesis contributes to the field of sustainability research by highlighting the importance of linking theory with execution to bridge the gulf between exploration and real usage. It motivates scholars to persevere in their pursuit of sustainability with a focus on thoroughness serving as a reminder that innovative ideas are essential for advancing progress despite encountering obstacles. The journey, towards entrepreneurship, is not merely advantageous but necessary embodying the essence of our time and underscoring the influence each new business can exert on shaping social environments.

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