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**Sustainability Strategies &
Business Ecosystems**

Konstantinos T. Karalas

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Abstract

Sustainability has been receiving growing importance in the corporate context in recent years. The constantly changing operational environment and the increasing client demands are driving organisations to change their business models. Indeed, more and more companies are trying to adopt sustainability practices in all their business processes aiming to cut down costs, reduce risks, and create new revenue streams. In order to do that, companies have to move away from the traditional model of competing on efficiency to competing on continuous innovation; yet increasingly difficult to do so individually. Furthermore, many executives ignore a crucial parameter of sustainable development, its global scope. Researchers and policymakers recognize that an effective way to address such sustainability challenges is to develop inter- and cross-sector partnerships. However, existing frameworks are ambiguous and do not comprehensively support an end-to-end sustainable business transformation, while integrated research in the intersection of strategy, partnerships, and sustainability is sparse. Thus, most of the companies still struggle to achieve the anticipated sustainability goals. This thesis draws on sustainability strategies and business ecosystems literature to help towards the clarification of sustainability concepts and approaches. In particular, we propose a seven-step conceptual framework to help organisations develop a roadmap for the strategic planning of their sustainability journey. The proposed framework is based on the academic Vectoring approach, while it is enhanced with up-to-date research and applied business practices. The goal was to gain a holistic picture for building a corporate sustainability strategy and to point out practical methods and alternatives for executing the aliquot steps.

Περίληψη

Η έννοια της βιωσιμότητας λαμβάνει ολοένα και περισσότερο ενδιαφέρον για τις επιχειρήσεις τα τελευταία χρόνια. Οι συνεχιζόμενες μεταβολές του επιχειρηματικού περιβάλλοντος και οι αυξανόμενες ανάγκες των πελατών οδηγούν τους οργανισμούς στον επαναπροσδιορισμό των επιχειρηματικών τους μοντέλων. Ολοένα και περισσότερες εταιρείες προσπαθούν να υιοθετήσουν βιώσιμες πρακτικές στις διαδικασίες τους με στόχο την περικοπή των εξόδων, τη μείωση του ρίσκου, και τη δημιουργία νέων ροών εσόδων. Για να γίνει αυτό, οι εταιρείες θα πρέπει να απομακρυνθούν από το παραδοσιακό μοντέλο του ανταγωνισμού ως προς την απόδοση και να στοχεύσουν στη συνεχή καινοτομία, κάτι που είναι δύσκολο να επιτευχθεί μεμονωμένα. Επιπλέον, πολλά ανώτατα στελέχη αγνοούν μια καίρια παράμετρο της βιώσιμης ανάπτυξης που είναι ο παγκόσμιος χαρακτήρας της. Ερευνητές και φορείς χάραξης της πολιτικής αναγνωρίζουν ότι ένας αποτελεσματικός τρόπος για τη διευθέτηση των σημερινών προκλήσεων της βιωσιμότητας, είναι η ανάπτυξη συνεργασιών εντός και εκτός του τομέα δραστηριότητας μιας επιχείρησης. Ωστόσο, τα υπάρχοντα πλαίσια παρουσιάζονται ασαφή και δεν εξυπηρετούν τον ολοκληρωτικό μετασχηματισμό των επιχειρήσεων σε βιώσιμες, ενώ η συνδυαστική έρευνα πάνω στη στρατηγική, τις συνέργειες, και τη βιωσιμότητα, δεν είναι επαρκής. Κατ' αυτόν τον τρόπο, οι περισσότερες από τις εταιρείες ακόμη δυσκολεύονται να επιτύχουν τους αναμενόμενους στόχους της βιωσιμότητας. Η παρούσα μεταπτυχιακή εργασία εστιάζει στη βιβλιογραφία για τις βιώσιμες στρατηγικές και τα επιχειρηματικά οικοσυστήματα με στόχο να συνεισφέρει στην αποσαφήνιση των εννοιών και των προσεγγίσεων που σχετίζονται με την εταιρική βιωσιμότητα. Επιπρόσθετα, προτείνεται ένα εννοιολογικό πλαίσιο επτά βημάτων για τις επιχειρήσεις το οποίο μπορεί να λειτουργήσει ως ένας οδικός χάρτης για την υλοποίηση του στρατηγικού σχεδιασμού λαμβάνοντας υπόψη τη βιωσιμότητα. Το προτεινόμενο πλαίσιο βασίζεται κατά κύριο λόγο στην ακαδημαϊκή προσέγγιση του Vectoring, η οποία εμπλουτίζεται με πρόσφατη έρευνα και εφαρμοσμένες επιχειρηματικές τεχνικές. Η επιδίωξη μας ήταν να αποκτηθεί μία ολιστική εικόνα για τη δημιουργία μιας βιώσιμης στρατηγικής και να επισημανθούν πρακτικές μέθοδοι και εναλλακτικές για την εκτέλεση των επιμέρους απαιτούμενων βημάτων.

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List of Abbreviations

BMC	Business Model Canvas
CBMIP	Cambridge Business Model Innovation Process
CDP	Carbon Disclosure Project
CDSB	Climate Disclosure Standards Board
CE	Circular Economy
CRD	Corporate Reporting Dialogue
CSR	Corporate Social Responsibility
DJSI	Dow Jones Sustainability Index
ESG	Environmental, Social, and Governance
EU	European Union
FMCG	Fast-Moving Consumer Goods
GAAP	Generally Accepted Accounting Principles
GHG	Greenhouse Gas
GRI	Global Reporting Initiative
IASB	International Accounting Standards Board
IFRS	International Financial Reporting Standards
IIRC	International Integrated Reporting Council
IR	Integrated Reporting
ISO	International Organisation for Standardization
KPI	Key Performance Indicator
LCA	Life Cycle Assessment
MSCI	Morgan Stanley Capital International
NGO	Non-Governmental Organisation
PDCA	Plan-Do-Check-Act
PRI	Principles for Responsible Investment
PSA	Portfolio Sustainability Assessment
SASB	Sustainable Accounting Standards Board
SBM	Sustainable Business Model
SBMI	Sustainable Business Model Innovation

SBTi	Science Based Targets initiative
SDGs	Sustainable Development Goals
SME	Small Medium Enterprise
TCFD	Task force on Climate-related Financial Disclosures
UN	United Nations
WBCSD	World Business Council for Sustainable Development
WDI	Workforce Disclosure Initiative
WEF	World Economic Forum

Chapter 1: Introduction

1.1 Background

“... before we can even start talking to people about sustainability, we need to be able to communicate what it is.”¹

In the last decade, the concept of sustainability has begun to draw significant attention from academia, business, government, and the general public entities [1]. Sustainable development is actually the latest buzzword in contemporary development discourse since everyone, from innovative CEOs to activists on the street, is talking about “building a more sustainable future” [2]. Considerable steps forward have definitely been made, for instance with the approval of United Nations (UN) 2030 Agenda in 2015 and the establishment of the 17 Sustainable Development Goals (SDGs) [3], or the European Green Deal that aims to decouple economic growth from resource consumption [4]. However, despite its massive popularity, the concept still seems like an amorphous topic discussed mostly in vague declarations [5]. Many executives continue to ask questions about its meaning, what it implies in practice, as well as how to apply it. Sustainable development therefore stands the risk of becoming a cliché, like technology and Artificial Intelligence (AI), to which everyone pays homage, but nobody seems to can define with precision [6].

Although there are many definitions, the most common one comes from the report “Our Common Future” published back in 1987 [7]:

“Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs.”

Expressed this way, sustainability balances resource usage and supplies in order next generations to have similar opportunities with their ancestors. Albeit this definition leaves a lot of space for interpretation, it aims to maintain economic advancement while protecting the environment [8]. Scholars have been arguing for years whether there is a trade-off between economic growth and environmental sustainability [9], but latest

¹ Ms Sharon Ede, Standing Committee on Environment and Heritage, Transcript of Evidence, Public Hearing, Canberra, 24 May 2007.

reviews agree that they go hand-in-hand [10]. Consequently, establishing a well-structured sustainability strategy can create a strong economic value for a company and help to maximize its efficiency [11].

Building an Environmental, Social, and Governance (ESG) strategy can be overwhelming considering all the potential factors that make up “E”, “S”, and “G” and the reality that ESG actually covers all functional areas of a company [12]. A primary reason is that companies are confused from the great abundance of sustainability terms and approaches. This way, they are unable to set the right objectives, measure them effectively, and put their ESG journey in the right direction. An investigation of industry leaders’ actions should give us an idea how sustainability initiatives should look like:

- *Athletic apparel*: Nike has focused on reducing waste and carbon emissions to zero with its “Move To Zero” campaign [13], whereas Adidas has created a greener supply chain and launched in 2021 a five-year strategy with sustainability as an integral component [14].
- *FMCG*: Unilever’s latest goal is to cut food waste from factory-to-shelf in half by 2025 by using upcycling [15], whereas Nestlé strives for zero environmental impact in its operations and net zero Greenhouse Gas (GHG) emissions [16].
- *Retail*: H&M Group, Walmart, IKEA and Kingfisher have launched a climate initiative moving towards more sustainable retailing to reduce waste and GHG emissions, limit warming to 1.5 degrees Celsius, increase resource productivity, and optimize material usage [17].
- *Beverage*: Coca-Cola and PepsiCo have both developed ambitious agendas, such as increasing use of recycled content and alternative packaging, together with water stewardship and replenishment [18].
- *Auto*: BMW Group strives to be a fully sustainable company by focusing on conserving resources (sustainable materials), energy efficiency (green electricity), and waste reduction (recycling) under a Circular Economy framework [19]. BMW has also joint its forces with the world’s 10 biggest automakers to drive sustainability throughout the automotive supply chain [20]. Of course, Tesla “is accelerating the world’s transition to sustainable energy” by trying to minimize its environmental footprint across all aspects of its operations [21].

These firms have made and continue to make strong commitments to sustainability, allowing them to embark on a more sustainable journey. A common pattern that arises emphatically in most of these use-cases though, is the broad coalitions and partnerships (e.g., in the case of retailers or automakers). Partnering has been always considered to be part of corporate strategies, allowing organisations to conquer goals that would be differently not readily achievable [22], [23]. Furthermore, it can assist organisations in multiple ways, for instance to gain resources and experience [24], share risks [25], and improve their competitive advantage [26]. In the context of sustainability, partnerships should remain a top priority as explained by the World Business Council for Sustainable Development (WBCSD) founder Stephan Schmidheiny 20 years ago [27]:

“Business has much experience with stakeholder dialogue, but still too little with the next step: practical partnerships composed of players in different sectors. Not only do such partnerships combine skills and provide access to constituencies that one partner might not have, but they also enhance the credibility of results—results that might be less effective and believable if they only come from business, civil society, or government.”

This point was definitely true then, and continues to be true today. The aforementioned examples denote that frontrunners have understood the value of business ecosystems (defined as a group of diverse organisations with economic links who share common interests and engage in collective actions) as one of the core elements that can establish and boost their sustainability initiatives.

1.2 Sustainability in business

Many consider Corporate Social Responsibility (CSR) and sustainability terms as synonyms and use them interchangeably, but they have distinct meanings [28]. CSR is a concept that refers to a process of doing business in ways that have a positive impact on key stakeholder groups (e.g., clients, employees, shareholders) and the society in general [29]. On the other hand, sustainability relates to the reduction of environmental impact though minimizing resource usage [30]. Hence, both of them rely on the fact that the success of business is indissolubly linked with society and environment, or else “a healthy company and economy depend on a healthy society and environment” [31].

However, interpreting these definitions, companies should think of CSR in the context of their vision, while of sustainability in the context of how the business will operate regarding the natural resources it consumes [32]. This way, sustainability can be considered as a subset of CSR that requires extra effort, meaning that a traditional CSR program of employee volunteering cannot be qualified as sustainability [33]. Sustainability is a comprehensive approach to organisational management which allows creating long-term economic, social, and environmental value by taking into consideration how an organisation operates in its environment [34].

The Triple Bottom Line (TBL) of people, planet and profit, a term coined by John Elkington, has become an influential approach all over the world [35]. This model promotes that a sustainable business earns profits by being socially responsible and protecting the environment. There are also other benefits as well, since sustainability presents as a pole of attraction for talent and a source of new customers [36]. Hence, the business benefits of sustainability can be monetary and non-monetary. Apart from generalities, such as that the sustainability ensures a future and a healthy habitat for all, at an aggregated level, benefits can be compiled from five distinct building blocks [37]:

- Cost savings from eco-efficiencies (e.g., by reducing waste, water usage, or energy consumption both directly and indirectly).
- Revenue growth (higher sales, increased market share) resulting from sustainable innovations.
- Enhanced image (e.g. branding) and reputation with stakeholders.
- Lowering and managing risk (e.g., by reducing cost of capital or dependence on scarce resources).
- Employee motivation, retention, and recruitment.

In any case, sustainability benefits foster company's longevity and prosperity [38]. Studies show that companies connecting their sustainability efforts with their strategic issues have a 50% higher probability to report business value from sustainability compared with those that do not [39]. Therefore, a large number of companies from different sectors (e.g. fashion, transportation, food and agriculture, workplace) identifies sustainability issues as strategically important and releases a wealth of information in the form of ESG data [40], [41].

Today, technology makes it a lot easier and cheaper to start a new business. Nevertheless, the business environment is highly-competitive and the real challenge is to resist being another “me too” business [42]. Sustainability is seen as way to avoid this phenomenon, since it allows developing a competitive advantage, differentiating, and gaining new customers.

1.3 Motivation

The need to act on sustainability is becoming a primary agenda for every organisation around the world, across all industries [43]. Strategists insist that for outstanding performance, an organization has to beat out the competition [44]. A sustainability strategy is essential in order to be competitive today according to 62% of executives, while another 22% think it will be in the immediate future [43]. Furthermore, executives can increase revenues once understanding the role of Corporate Social Performance (CSP) in driving Corporate Financial Performance (CFP) [45]. This way, year by year the expectations on corporate responsibility increase and a clear sustainability strategy is becoming a must-have from nice-to-have. Nevertheless, even if 94% of global corporations believe climate action is urgent, only the 17% are doing enough according to experts. There are many signs showing that professional communications and good intentions are no longer enough. We summarize the following factors:

- During the last years, extreme (natural) events occur around the world frequently [46], while experts predict worse in the future [47]. These facts have amplified the need for attention to ESG by making it clear that businesses should consider environmental impacts across their value chain to secure their operations. On top of that, some sectors, like the agriculture, are directly affected on many dimensions (e.g., decrease in crop yields), while others, like those depending on supply chains, are indirectly affected (e.g., shortage of raw materials) and need to advance their knowledge in climate change [33].
- Millennials overtook Baby Boomers as America’s largest generational cohort in 2020 [48], and soon this will be the case worldwide. This group is the most educated generation in our history and is now the most active working group [49]. Millennials bring a significant different mentality compared with the prior generations towards sustainability, seeking to have the power to decide whether to work, buy, engage or

invest in a company with active ESG commitments [50]. In parallel, they demand to see quality and consistency in information pressing for more clarity in ESG issues. According to Forbes, 81% of Millennials expect their favourite companies to make public declarations of their corporate citizenship [51].

- Shareholders integrate ESG factors in the investment decision-making process [52]. Their expectations on corporate sustainability have been increased and strongly consider companies' ESG strategies, practices, and performance when deciding where and with whom to collaborate with or invest in [53].
- Transparency about the sustainability of financial products becomes more prevalent while governments press for mandatory ESG reporting [54]. Maybe the global economic crisis of 2008 was the stimulus that brought company responsibility into the forefront of many policy-making agendas, including that of the European Union (EU) [55]. This way, in directive 2014/95/EU², the European Commission mandates certain types of firms to disclose non-financial information in their reporting. More recent regulations, like that of the Sustainable Finance Disclosure Regulation³ (CFDR), makes ESG reporting mandatory for asset managers and requires disclosures to be available on businesses' websites.
- Stakeholders take ESG disclosures seriously into account [12]. They search thoroughly for company ESG commitments through all available public disclosure of information (e.g., website, sustainability reports, annual reports, common rating publications).

These motivation factors can be related to social aspects, regulation aspects, and customer requirements among others [56]. Certainly, the time for organisations to take a passive approach to ESG planning has passed and companies have to start working on their sustainability strategy immediately. Nothing seems to be able to stop the ESG evolution, not even the COVID-19 pandemic. Indeed, even if in 2020 version of the GlobeScan—SustainAbility Survey almost half of experts (49%) predicted a de-prioritization of the sustainability agenda over the coming decade due to the global health crisis [57], in the 2021 version sustainability professionals revised their predictions and no longer believe that it will slow down the sustainability progress [58].

² <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32014L0095>

³ <https://eur-lex.europa.eu/eli/reg/2019/2088/oj>

It is really becoming clear that sustainability is a megatrend that simply is not going away.

However, while most leading companies acknowledge the importance of sustainability and momentum has been building for years, the link between company performance and ESG ratings is not so clear yet. Companies still struggle to weigh environmental and social issues against economic ones, thus we are currently witnessing a surprising stagnation in progress towards this goal. Many businesses are boasting about their sustainability, but without a realistic and effective sustainable business strategy, they are unlikely to deliver significant business profit.

1.4 Contribution

The corporate world is starting to understand the opportunities that sustainability is able to bring and aims to innovate this way. Hence, sustainability is becoming a hot topic both for academic and for business research. Nevertheless, most of the previous work is fuzzy, discusses on a theoretical basis, and does not provide a clear roadmap for companies that want to develop and implement a sustainability strategy in practice. This thesis aims to shed light on existing sustainability misconceptions and help in the comprehension of underlying sustainability concepts. Through an extensive literature review, we point out existing approaches, compare guidelines, and highlight common patterns that could be possibly merged. Interestingly, we find out that there are actually a lot of overlaps between developed methodologies of different companies.

To the best of our knowledge, one of the most solid sustainability strategies is the “Vectoring” framework, a work of Benoit Leleux and Jan van der Kaaij [59]. According to this, winning sustainability strategies are characterized by clear choices on where to focus (direction) and a persistent, rapid execution (speed). Vectoring is a practical framework that is structured as a three-part process of 14 steps in total. On the other hand, on a recent report of PwC, three fundamental concepts are regarded as the essential dimensions of the ESG revolution; namely strategic reinvention, reimagined reporting, and business transformation [60]. We further examine if these concepts are related and to what extent with the Vectoring framework by identifying similarities and differences between the two methodologies and their corresponding analytical

implementation steps. The ultimate goal of the present thesis is to create an integrated sustainability strategy that is primarily driven by the academic Vectoring approach where we try to embed the applied knowledge of PwC's concepts. This way, we propose an end-to-end sustainability strategy process that lies in the intersection of state-of-the-art academic research and applied business practices. On top of that, we offer a critical look at each step and try to address the gap of knowledge that exists in the practical execution of it. We provide possible alternatives for the implementation of each step, e.g., for materiality assessment, selection of ESG frameworks, collaborating possibilities, and sustainable business models. The proposed framework is schematically summarized in Figure 1.1.



Figure 1.1: The proposed sustainability strategy.

A parallel aim of this thesis is to contribute to the available discourse on sustainable strategies with a focus on the partnering parameter, in other words leveraging business ecosystems. An increasing number of organisations is realizing the need for local and global partnerships since the scope of sustainability challenges, such as climate change or economic development, is too large and multifaceted to be addressed separately [22]. However, the engagement of organisations in partnerships has not been well

integrated into the relevant bodies of literature that study sustainability strategies. Currently, partnering is mostly seen as an “accelerator factor” that can boost the effectiveness of a sustainability program and not as an integral part it.

In a nutshell, the aspiration of this thesis is to serve as a guide for companies that want to develop and implement a sustainability strategy. We argue that the proposed framework has the potential to be applied in practice through its clear roadmap and the well-prioritized actions. This way, we provide a genuine answer to the question “how can a company develop and execute a sustainability strategy”.

1.5 Outline

Each chapter of this thesis focuses on a step from the proposed sustainability strategy illustrated in Figure 1.1. The rest of this thesis is structured as follows:

- Chapter 2 delineates the first and fundamental step in the design of a sustainability strategy, which is the company’s purpose and the proper definition of objectives. An effective purpose statement should be inspirational and explicit, meaning that it should focus on a small set of sustainability targets rather than a broad and vague one.
- Chapter 3 presents an overview of the materiality concept in the sustainability context, i.e. the identification of organisation’s most "material issues". We describe different methods for materiality assessment finding that the majority of the operational approaches converge to a schema of three phases (extracting a pool of material topics, prioritization, and validation of results). In order to capitalize on these results, we have to translate assessment into management priorities. The way to do this is through a proper visualization leveraging on the idea of materiality matrix.
- Chapter 4 provides an overview of the ESG reporting’s most popular frameworks and standards that a company can follow to measure its sustainability. Then, we perform a comparison by highlighting common patterns, differences, trends, and challenges. We further suggest a suitable choice for different use-cases and try to outline future directions of ESG reporting according to current data.

- Chapter 5 discusses the concept of leadership and company culture. These factors can heavily influence the sustainability initiative of a company. A recent modelling of corporate culture suggesting that it is comprised of four features (i.e., shared, pervasive, enduring, implicit), gave the opportunity to develop several tools which aim to quantitatively measure the organisational culture.
- Chapter 6 emphasizes the significance of partnerships and coalitions in the successful implementation of sustainability programs. We argue that an effective collaborative ecosystem for multi-stakeholder partnerships should apply three key criteria (flexibility, customer focus, and multiple solutions). Furthermore, we analyze a two-pillar approach (framed as “partnering and launching many alternative initiatives simultaneously”), in order to ensure the required impact. We strongly suggest that partnering is an essential part of a contemporary corporate sustainability strategy, and not only an accelerator factor of it.
- Chapter 7 introduces sustainable business models along with their characteristics, their types, as well as the concept of sustainable business model innovation. In addition, we discuss about the Circular Economy (CE) model as a reliable and modern feasible proposal for sustainable development presenting ways (i.e. strategies) for implementation. We further examine potential innovation channels and the value of team engagement in terms of sustainable innovation.
- Chapter 8 presents the final step of our proposed framework, which is the embedding of the developed sustainability strategy deep into the structure of the company. Instead of a full-change management process that is often required, we try to uncover the principal preconditions for the successful implementation, following a simple three-phase plan consisting of strategy compilation (how to start), readiness assessment (where to start), and KPI reporting (measuring progress).
- Chapter 9 synthesizes all the aforementioned steps of the proposed strategy and summarizes the implications of the research.

Chapter 2: Company Purpose

2.1 Introduction

It is a fact that many companies fail to successfully develop and adopt a sustainability strategy, not because of willingness, but because they fail to properly recognize the scope of their actions. More specifically, companies often are exceedingly ambitious and set a plethora of goals in the beginning. This way, it is easy either to get confused and abandon the effort, or to become dispersed and perform scrappy actions of limited impact. It pains to find and focus on the right targets, but it definitely pays to define meaningful and valuable efforts.

It is a common place that most reported sustainability strategies regard scope as the first structural factor for building a successful sustainability strategy [59], [61]. For instance, it is a different scenario if a company targets to mitigate risk or to update its reporting process, since risk mitigation looks ahead while reports look backwards. Consequently, the data collected, topics prioritized and stakeholders engaged should vary accordingly from the beginning.

Towards this direction, organisation's purpose has gradually made its way into the corporate boardroom in the past two decades [59]. A common analogy used is that it is like a "guiding North Star" [62], or a "compass that gives a sense of the direction" [59]. Today, most companies have some implicit or explicit form of a purpose statement showing the reason it was created and exists [63]. A well-designed, clearly-stated company purpose, also known as the company's why, drives the strategies of the organisation and illustrates the impact on its customers [64]. More than that, it can help to motivate the resources, attract talent, win clients and improve its reputation [65].

In any case, purpose along with its proper definition is very important for a company. In this chapter, we will try to show how sustainability can be a strong contributor to a company's purpose statement by providing superior motives for business activities. Furthermore, we discuss how to set sustainability targets that comply with the business' purpose and thus could serve as a compass for the organisational efforts.

2.2 Sustainability channel in purpose

Beyond vision and mission, a company's purpose can also reflect the role it expects to play in society. In other words, the purpose contains today a sustainability aspect that focuses on addressing the business' impact on the public. This way, the idea is that purpose statement can be a great source of sustainability and thus take a whole new dimension.

People are driven by the clear definition of the goals and an overarching purpose. Thus, a purpose with evident directions can result in collaborations which would cause a larger benefit than any individual effort. Companies and executives spend so much time in money trying to foster collaboration through technology and training, but do not pay the required attention on defining the problem and inspiring people to come together and tackle it [66].

Apart from that, finding the appropriate sustainability topics can amplify the chosen direction and help turn strategy into actions that will affect the company's impact on society. An increased tangible societal impact usually entails extra trust from consumers according to the Edelman Trust Barometer [67]. More specifically, it states that trust is built through 16 specific attributes, which can be categorized into five groups⁴, one of which is purpose. Furthermore, in its 2021 version, the Edelman Trust Barometer exposed that despite the Covid-19 pandemic, one of the top reasons for an increased consumer trust in a company, is the embrace of sustainable practices across the business [68].

2.3 Creating an effective purpose statement

For purpose statements to be effective, it is essential to be both inspiring and explicit enough to give direction. There is nothing wrong with stating that the company aims to "improve the lives of its clients," but (i) it does not stand out from the crowd, (ii) the direction is unclear to internal stakeholders (i.e., executive leadership, directors, managers, employees), and (iii) it does not signal deep commitment to external stakeholders (i.e., key customers, suppliers, trade associations, NGOs). A sustainability

⁴ The groups are: (a) integrity, (b) engagement, (c) products and services, (d) purpose and (e) operations.

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strategy strongly underlines the need to identify a small set of sustainability targets rather than a broad and vague one.

Re-stating a company's purpose should be a collaborative task where teams have to disconnect from their standard day-to-day business activities, think out of the box, and experiment in a safe environment without considering the profits. A way to do this is leveraging the Business Model Canvas (BMC), a strategic management tool used for developing new business models and enhancing existing ones in a straightforward and structured way. The canvas offers a visual chart with nine categories, often referred to as the "building blocks" for the activities of an organisation [69]. The original building blocks include customer segments, value propositions, channels, customer relationships, revenue streams, key resources, key activities, key partners, and cost structure. According to Osterwalder and Pigneur's research, the performance of an existing organisation can be improved using that simple model that forces users to address all key dimensions of the business in a visually attractive manner [70].

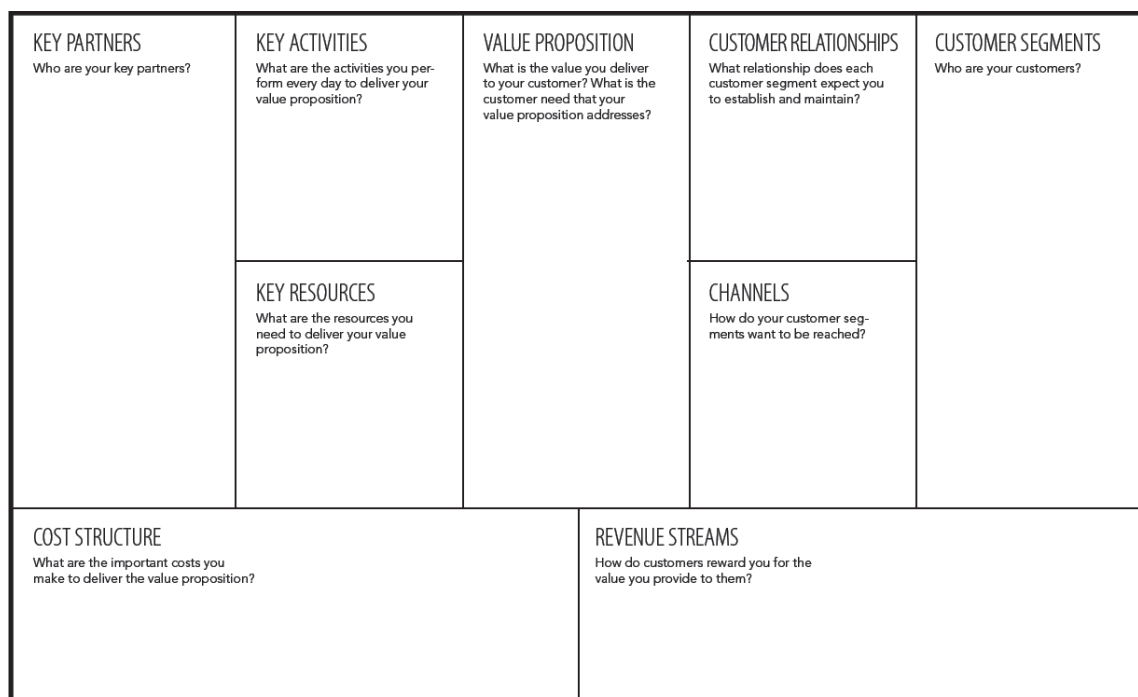


Figure 2.1: Business Model Canvas (BMC) template with the nine business model building blocks. Source: <https://www.strategyzer.com/>

After the design of the purpose with the BMC tool, we have to start formulating the purpose statement. Writing a purpose statement closely connected to company's contribution to society is definitely beneficial for building trust. Most of the leading companies in sustainability, such as the Ecoalf, follow this paradigm and build their

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purpose statement with a narrow societal scope, i.e. concentrating on one or two sustainability elements [71].

However, companies with a strong sense of purpose and direction do not necessarily have to focus on a specific sustainability issue and may adopt a more holistic approach. For example, Interface focused on the elimination of any negative impact that the company may have on the environment with a great success, proving that a broader defined purpose can be equally powerful [72]. Following this paradigm, it is wise not to create statements overly shallow, e.g. statements that resemble “improving the lives of our clients by selling our products”.

A third scenario is the total absence of an explicit purpose statement. In this case, company’s product portfolio and values can act as the compass. This is what Adidas did when introduced an innovation for reducing material waste with Adidas Parley sports shoes⁵. In parallel with the product launch, Adidas created the newly sub-label “Performance with Purpose” in order to motivate the stakeholders and reinforce the existing company purpose [73]. Small Medium Enterprises (SME) may find it harder achieving success following this type of purpose design, since it works mostly for large well-known companies with a strong portfolio.

As a side notice, we mention the “Cover Story” as a tool that can help firms generate a company purpose⁶. “Cover Story” is actually a workshop that uses a technique called back-casting, i.e. it starts by projecting a future objective on a time horizon and then plans backwards to identify actions that will connect the dreamed-up future to the actual present [74], in order to develop a company’s future cover page.

2.4 Translating purpose to real business impact

Sustainability can be a rich source of purpose, since it inherently looks at fundamental human rights and a large array of good activities for the society and the environment. Furthermore, sustainability goals are by definition inspirational, meaning that they are effective motivators of behaviors that can act to define a stronger sense of purpose for

⁵ Each pair contains on average the raw material of 11 PET bottles recovered from the ocean.

⁶ <https://www.finchandbeak.com/1414/give-your-business-more-than-sustainable.htm>

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an organisation. Admittedly, combining a purpose statement with specific sustainability programs and their impact on the company and its environment is not an easy task, since there are multiple factors that intervene creating spurious correlations. Nevertheless, it may be possible to gain some interesting insights by processing quantitative information. For example, there are company measurements that evaluate talent attraction and retention that can be used as a desirability proxy for potential employees, hence as a measure of brand awareness.

Of course, sustainability alone is not enough and would have a minor impact unless we are able to identify the proper business drivers (i.e., the connection between the sustainability objectives and the corporate objectives) for the sustainability efforts. If the company's purpose (i.e., the why) is the starting point of the sustainability journey to identify the what and the how, then the business drivers are the stepping stones to answer more practical business questions, such as what market segments should be addressed, or what key suppliers should be relied upon. This way, the executives have to search for the business drivers in the value chain in order to determine the company's role in society. These business drivers, along with the impact the company is planning to generate in society, are the ultimate enablers to convert a company's strategy into real actions. The combination with the continuous innovations helps to keep the brand evergreen and maintain the boost that comes with a purpose-driven model.

Chapter 3: Materiality Assessment

3.1 Introduction

Materiality is a general and pervasive concept, thus it is not possible to establish a “one size fits all” definition. Although it is widely used in financial and non-financial reporting to analyse which issues are the most important of being addressed by a company or business sector, little attention has been given by academic literature [75]. A material issue can have a major impact on the financial, economic, reputational, and legal aspects of a company, as well as on the system of internal and external stakeholders of that company.

In the sustainability world, applying materiality to sustainability (commonly known as conducting a materiality assessment) is the backbone of reporting since it shows how environmental and social issues align with strategic corporate objectives. Materiality assessment helps to identify organisation’s most "material issues" and determine what should be reported. In other words, the central purpose of materiality analysis is to place issues on a spectrum from less to more important. The process of identifying these issues involves reaching out internal and external stakeholders to get their input. Hence, it is conceived as a systematic and rigorous process that can be time-consuming, albeit it can be the difference between a weak sustainability strategy and a planned approach. Because of this analysis, companies can create their long-term ESG strategy and find the best strategies to report their data. A materiality analysis along with the resulting materiality matrix, allows an organisation to decide on which sustainability issues to focus on and invest time in.

Only a few companies (16%) paying little or no attention to material issues report that they profit from sustainability [39]. Therefore, materiality is a key element that adds value to the sustainability efforts of a company. Moreover, based on the concept of materiality, organisations can perform reporting and communication programs that speak to all stakeholders. Nevertheless, it is unclear how this concept translates to sustainability, since it can be easy to get lost in a sea of new terms and approaches. In this chapter, we will try to give a holistic view of materiality and shed light on state-of-the-art approaches.

3.2 What is materiality?

The concept of materiality was originally used in the financial context to determine whether an item is significant enough to be included in company's accounting statements in auditing. A definition of financial materiality is provided by the International Accounting Standards Board's (IASB's) Conceptual Framework for Financial Reporting [76]:

“Information is material if omitting it or misstating it could influence decisions that users make on the basis of financial information about a specific reporting entity.”

This way, materiality insures that shareholders are given true, fair and useful representation of a company's financial situation, in support of capital protection, risk management and financiers' decision making [77]. Furthermore, materiality is frequently used as a legal concept, because some countries, by either statute, case law, or regulation, have established a definition of materiality they require to be applied in their jurisdiction. Materiality concept is referred as well in the management theory as a process used to identify priority issues.

More recently, the term has been adapted to the sustainability framework for sustainability accounting and reporting, providing a way of analysing, assessing, and prioritising the importance of non-financial issues [78]. In other words, a materiality analysis is a methodology that a company can use to identify and estimate possible ESG, which might influence the business and its stakeholders. The Global Reporting Initiative (GRI) G4 guidelines provide the following explanation of sustainability materiality [79]:

“Material topics for a reporting organisation should include those topics that have a direct or indirect impact on an organisation's ability to create, preserve or erode economic, environmental and social value for itself, its stakeholders and society at large.”

AccountAbility provides AA1000 Assurance Standard, a sustainability assurance standard on materiality, where it is defined as [80]:

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“A material issue is an issue that will influence the decisions, actions, and performance of an organisation or its stakeholders.”

As a consequence, while financial and sustainability materiality both involve identifying the most important issues, they differ in respect to their intended audience. Financial materiality is focused on issues that are of concern to investors, while sustainability materiality has a broader scope, considers issues important for all stakeholders, and is used to inform their decisions. Hence, an important difference of sustainability materiality in contrast to former views, is that it provides the means to integrate stakeholders’ perspectives on organisational priorities [81].

Material sustainability issues comprise the environmental and social impacts of an organisation, and those that affect it as a whole, including its value chain and issues that are discriminated from the stakeholders. Material issues may also be those that are not impacts per se, but are crucial issues in the wider world in terms of environment and society. These issues may present actual or potential sources of risk as well as opportunities that should be also translated to management priorities. Accordingly, all these issues represent a pool of potential material topics that have to be prioritized in order to identify a shorter list of issues, which would be appropriate for management. Ultimately, the identified material issues provide the “narrative” path to sustainability management and are a core element of sustainability reporting.

A key challenge in materiality assessment is that an issue may be material from one perspective, and not from another. For instance, a Non-Governmental Organisation (NGO) might consider that water pollution from a company’s manufacturing site is material, as it could have a significant effect on the health and wellbeing of the community and its environment. However, for the company, that site might not be significant when put in the context of all their sites. This is why materiality is not simply a test of financial significance, but a balanced assessment on internal and external perspectives across a range of conceptions of risk and value.

3.3 Materiality assessment methods

Currently, there is no standardised way to materiality assessment. Engaging stakeholders for materiality can help to keep the insights informing the company’s

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reports separate from those informing the strategy. Nonetheless, a materiality assessment can be most useful if designed to inform both reporting and strategy targets. Several methods have been proposed during the last years and can be used in order to determine whether an issue should be considered material or not. In this thesis, we describe five prevalent materiality assessment approaches that come either from the research or from the business domain. We have to highlight that more technological approaches have been tested recently, such that of SAP, which from 2020 promotes a solution of comprehensive materiality assessment using AI and Big Data⁷.

It is worth mentioning that many of the materiality assessment methods depend on ESG frameworks (see Chapter 4) in order to identify relevant material topics based on a company's sector, industry, geography, and size. In addition, companies should leverage additional sources of information such as their business management teams, analyst reports, media reports, internal data, investors' feedback, regulatory issues, peer reviews, and sustainability rankings, to source additional materiality topics. The goal is to create a pool of opportunities and risks derived from a wide variety of sources.

3.3.1 Conventional approach

Broadly speaking, a traditional materiality assessment starts by asking:

“Where are we now? And given what our stakeholders are saying, what should we do next?”

The results are typically in the form of a few targets that promise gradual gains on a small set of “hot-button” issues. Therefore, traditional materiality assessments start with a blank sheet of paper that is populated with the issues of concern for the business and its stakeholders. Despite being the “classic way” for materiality assessment, the approach is updated regularly. For instance, EU Commission announced recently “double materiality” as part of the updated Corporate Sustainability Reporting Directive (CSRD) [82]. This concept expects companies not only to look at the impact on their organisation (i.e. outside-in view), but also to look at their impact on issues that are deemed material (inside-out view). Once combined, companies should have higher

⁷ <https://www.sap.com/integrated-reports/2020/en/materiality.html>

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probabilities to extract material issues that matter most from both a financial, and a societal point of view.

Many large organisations, such as KPMG [83], Antea's Group [84], KKS Advisors [85], TUV India [86], Whirlpool [87], Global Environmental Management Initiative (GEMI) [88], GRI [89], Archroma [90], SSR Mining [91], Fransabank [92], and Hydrock [93], have developed their guides to materiality assessment publicly. Analysing their methodologies, we conclude that they follow a quite similar approach of six to seven steps. We summarize that in each case there are actually three high-level phases: (i) identification of material topics, (ii) prioritization, and (iii) validation of results, as described also by TD [94]. However, it is important to mention that whilst each of the below methods gives an indication of the issues which should be considered as material, they do not discuss how they are applied in practice or how the stakeholders view the impact of them. In this thesis, we illustrate the methodologies developed by KPMG and Antea's Group as the most representative ones.

3.3.1.1 KPMG's approach

According to KPMG, there are actually seven basic steps that should take part in a materiality assessment initiative [83], [95]. The whole process is cyclical, meaning that there is an overall intervention, and after the end of step 7, the step 1 comes again:

1. *"Define purpose and scope"*: Define what materiality means for the organisation and clarify the objectives and the audience. Actions like involving internal and external stakeholders or identifying key ESG risks and opportunities would be helpful.
2. *"Identify potential topics"*: Create a list of potential material topics by focusing on the stakeholders with the greatest impacts. The list has always to be updated (i.e., iterative process), so the company has to establish practices for capturing the constant changes to material topics.
3. *"Categorize"*: Determine the interconnectedness of potential material ESG topics and cluster them into macro-categories in order to refine the list.
4. *"Gather information about the impact and importance of topics"*: Explore each material topic to understand its relevance to the business and quantify its impact on stakeholders.

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5. *“Prioritize”*: Score material topics against the strategic importance to the business, the importance to stakeholders, and the ESG impact on the value chain.
6. *“Engage management”*: Test the results of the materiality assessment with the Board to validate the results.
7. *“Seek stakeholder feedback”*: Follow-up with internal and external stakeholders to get feedback on the reported material topics.



Figure 3.1: KPMG’s process to materiality assessment. Source [83].

3.3.1.2 Antea Group’s approach

According to Antea Group, there are actually seven sequential steps that should take part in a materiality assessment initiative [84].

1. *“Identify key stakeholders”*: Both internal and external contacts are needed in order to evaluate a wide range of perspectives across the value chain.
2. *“Conduct stakeholder outreach”*: Communicate with each participant group and motivate them by explaining why their insights are valuable, or even how the company will leverage them in its sustainability practices.
3. *“Identify and prioritize metrics”*: Decide which sustainability indicators to measure in order to get the desired insights.
4. *“Design your materiality survey”*: Prepare materiality assessments for the stakeholders in a formal, structured way (not like informal Q&A’s or workshops). In order to get quantitative data, the questions should ask to rate the importance in a given scale (such as 1-5) of each indicator that was identified in the previous step.

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5. *“Launch your survey and collect insights”*: Provide stakeholders the link and a deadline to get the survey.
6. *“Analyse the insights”*: Create different meaningful graphs in order to interpret the data and understand each stakeholder group (e.g., internal vs. external rating, management vs. employee ratings, etc.). Review of comments is also critical. Then analyse data individually to determine what issues are most important to each group and altogether to find commonalities through graphs. The result of this process should be a formal matrix graph that plots how each indicator ranks in significance relative to stakeholder influence.
7. *“Put insights into action”*: The stakeholder engagement should not end after they complete the survey. Results should be shared through a formal sustainability report or also more widely through other channels (e.g. company’s website, social media). This can serve as a starting point for continuing the conversation and maintaining engagement with the sustainability initiatives.



Figure 3.2: Antea's Group materiality assessment process. Source: [84]

According to Antea Group, these seven steps can be summarized into three higher-level phases. In the first phase, the company has to define stakeholders and materiality priorities (referring to steps 1 to 3 above). In the second phase, it belongs the materiality assessment survey (referring to steps 4 to 5), while in the third phase, the company has to evaluate and synthesize the materiality survey responses.

3.3.2 Reverse materiality

A pretty radical approach has arisen recently, where instead of “forecasting from the unsustainable present” what will matter most for the organisation, we can use “back-casting from the sustainable future” to prioritize what really matters [96], [97]. This way, the companies can ask themselves a new question:

“Where do we need to be, to ensure our success supports a flourishing society, and how can we get there?”

We might think of this as a “reverse materiality assessment”. This process has to start with a clear understanding of what the sustainable future requires. That’s where the “Future-Fit Business Benchmark”⁸ comes in, offering 23 “Break-Even Goals” that collectively identify the point any business has to reach in order to promote the transition to a “Future-Fit Society”. The aim here is to start from the set of Goals, and then try to understand which one requires the most attention, and why. This is usually done by thinking on three core questions [97]:

- *“How difficult will it be for the business to reach the goal?”*
- *“How much could society be impacted if the goal is not reached?”*
- *“How much risk could the business be exposed to if the goal is not pursued?”*

Many companies go a step further and aspire to be a force for good in the world. Towards this direction, the Benchmark identifies 24 “Positive Pursuits” which indicate all of the ways a business may act to speed up “society’s transition to future-fitness”. The Table 3.1 offers a simple scoring matrix which helps to define a level of priority to each goal [97].

Table 3.1: Future-Fit Issue Prioritization Matrix helps companies prioritize the 23 Break-Even Goals.

Score	Difficulty level of meeting the goal	Depth of societal impact if goal is not met	Disruption risk to the business from inaction	Attention required
0	Zero effort because the goal doesn't apply to this kind of business	Zero negative impact because the goal doesn't apply to this kind of business	Zero risk because the goal doesn't apply to this kind of business	= 0 Not applicable
1	Minor difficulty	Minor negative impact	Minor risk	= 1 – 3

⁸ <https://futurefitbusiness.org/explore-the-benchmark/>

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	e.g. changes to internal policies and/or systems	resulting in negligible ongoing harm	of reputational and/or regulatory damage	Lower priority
2	Significant difficulty e.g. changes to products and/or business models	Significant negative impact with a clear, ongoing contribution to local or global issues	Significant risk to business resilience and/or revenue streams	= 4 – 6 Medium priority
3	Major difficulty e.g. required regulatory changes or tech breakthrough	Major negative impact resulting in severe disruption to natural and/or social systems	Major risk to the long term viability of the business	= 7 – 9 Highest priority

3.3.3 Sector-based materiality

Some initiatives have worked to identify which issues are likely to be material on a sectoral basis. For instance, the Sustainability Accounting Standards Board (SASB) has developed an interactive Materiality Map⁹ that identifies and compares disclosure topics that should be considered as priorities for the management of 11 different business industries and sectors. The map is updated annually and is a good starting point to get a quick snapshot of an industry’s specific priorities. More specifically, SASB’s map identifies 26 sustainability-related issues, known as “General Issue Categories” that encompass a range of sustainability issues and their associated accounting metrics. The general categories are grouped under five primary topics: (i) Environment, (ii) Social Capital, (iii) Human Capital, (iv) Business Model & Innovation, and (v) Leadership & Governance. From there, sector-level and industry-level mapping identifies how likely an issue is to be material for the company.

Another useful resource is the Sustainability Yearbook¹⁰, which presents, on a sector-by-sector basis, the high-level issues which are likely to be material [98]. The Sustainability Yearbook is developed by RobecoSAM, now a part of S&P Global, and offers companies a toolkit for an effective ESG integration into their corporate strategy and a better investor engagement. RobecoSAM publishes selected Corporate Sustainability Assessments (CSA) results on all assessed companies on the Bloomberg Professional platform and their corresponding scores in the SAM Sustainability Yearbook. This allows companies to display widely their sustainability performance to the global investment community (more than 12,000 Bloomberg licensees and over 50,000 visitors to the

⁹ <https://materiality.sasb.org/>

¹⁰ <https://www.spglobal.com/esg/csa/yearbook/>

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Sustainability Yearbook website). In this way, stakeholders have the chance to explore tools to compare, analyse and identify sustainability leaders, enabling them to integrate relevant sustainability information into their decisions as investors, customers or (future) employees.

3.3.4 Integral Materiality Process

r3.0 (previously known as Reporting 3.0) is a global common good non-for-profit platform that promotes “Redesign for Resilience and Regeneration”. The collaboration aims to design and develop blueprint models and management approaches in order to catalyse the transformation to a regenerative and inclusive global economy. One of the models (Blueprint 1) pushes the boundaries of practice in defining what is material for a company by applying Integral Thinking [99]. This term comes from the Integral Theory, which advances a holistic approach, integrating considerations across the individual to the collective levels, and the internal/subjective to the external/objective realms. In a similar way, integral materiality approach not only includes value creation, but it also transcends this by integrating both shared value and “system value”¹¹.

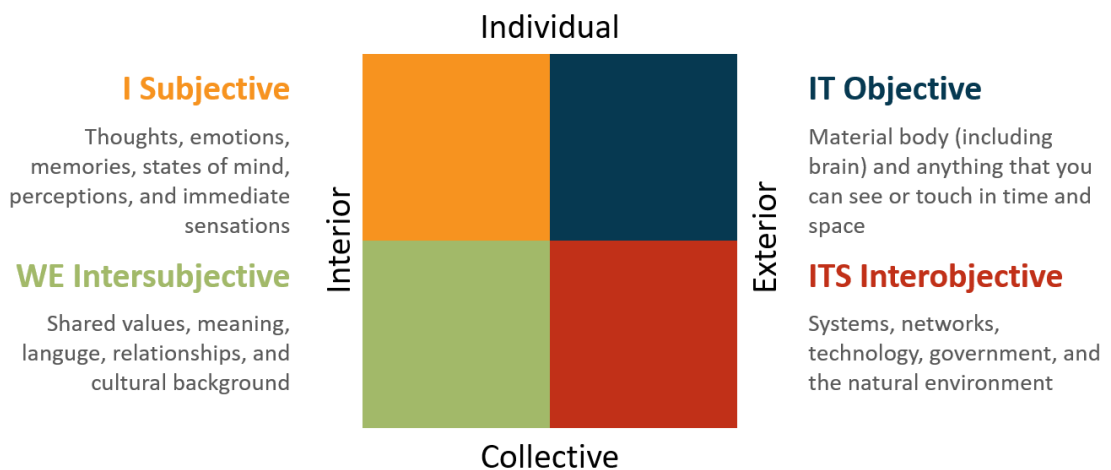


Figure 3.3: The four quadrants of Integral Theory. Source: <https://r3dot0.medium.com/how-do-companies-determine-whats-material-9076a2134a12>

More specifically, r3.0 introduces a new understanding of materiality based on the idea of “rightsholders” instead of stakeholders or shareholders (the current focus audiences

¹¹ System value as defined by the Future of Business: <https://futurefitbusiness.org/what-you-need-to-know/>.

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in reporting standards), which is called “Integral Materiality”. Rightsholders are those “to whom companies owe legal duties and ethical obligations due to direct impacts on their wellbeing or, indirect impacts on vital capital resources that these rightsholders rely on for their wellbeing”. Integral materiality suggests that there is a need to strengthen rightsholders to remind organisations of their “right to know” when it comes to duties and obligations.

r3.0’s Integral Materiality Process is organized around a Plan-Do-Check-Act (PDCA) cycle (often called the “Deming-Wheel” in Quality Management Systems). PDCA is a process of continuous improvement that applies across all functions of an organisation and can therefore align sustainable value creation at company level. The process supports organisations in understanding how their activities relate to vital sources of value (priced and un/under-priced) and the limits to sustainable behaviour. A detailed roadmap of implementing integral materiality exists in Appendix A: Integral Materiality.

In conclusion, the Integral Materiality Process is the core implementation mechanism for “integral thinking” and for designing “integral materiality”. This process also allows a systematic implementation, while it is up to each organisation to develop at its own pace. On average, a full implementation is not possible in a short amount of time (on average it will last about three years).

3.3.5 Accountability’s approach

Accountability developed a way of testing whether an issue is material or not [100]. The approach is in practice a “Five-Part Test”, where each test might identify a potentially material issue. More specifically, Accountability describes the following [81]:

- *Test 1 – “Direct, Short-Term Financial Impacts”*: This test includes any sustainability issues which are likely to influence short-term profitability or may become subject to future regulation or taxation.
- *Test 2 – “Policy-Related Performance”*: This test can be used to examine the potential incompatibility between the sustainability policy objectives of the company and actual performance. It is particularly attractive from a risk perspective.

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- *Test 3 – “Business Peer-Based Norms”*: This test leverages on the activities of the frontrunners in order to extend the understanding of what is material and offer useful insights through analysis of priority sectors.
- *Test 4 – “Stakeholder Behaviour and Concerns”*: This test is focused on revealing internal company practices that could have significant impacts on external decisions and behaviours.
- *Test 5 – “Societal Norms (regulatory and non-regulatory)”*: This test tries to understand future market conditions and attitudes taking into account practices of institutional investors, voluntary codes, prospective legislation, and public views.

It is worth mentioning that if an issue is identified by more than one tests, it is more likely to be recognised as material. The “Five-Part Test” was initially described as a spectrum, in which each organisation will evolve “from traditional narrow approaches to interpreting materiality through more inclusive and complex approaches” (see Figure 3.4).

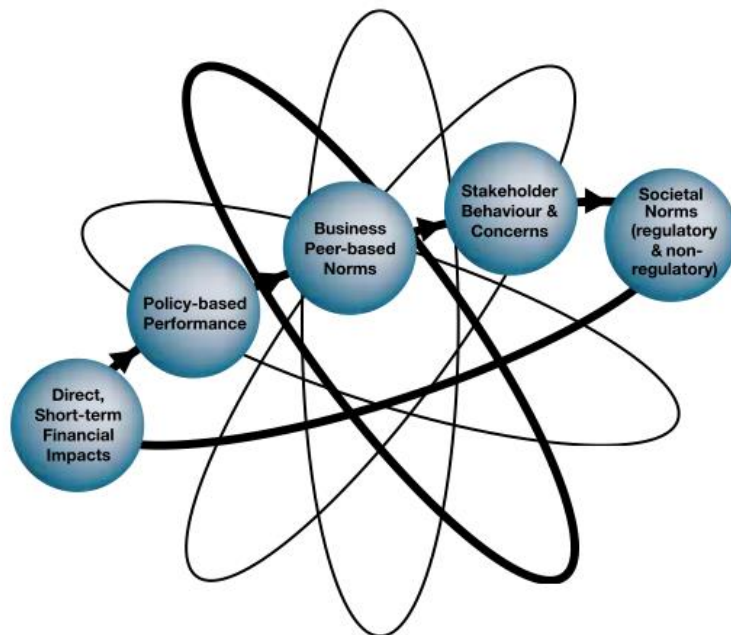


Figure 3.4: The maturing materiality determination process. Source: [100]

The subsequent materiality report defines a three-step materiality framework [101]:

1. *“Identify issues from a wide range of stakeholders and sources”*: This stage is guided by inclusivity and aims to find issues that are relevant to existing strategies, policies

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performance management, as well as those which might pose new risks and opportunities.

2. *“Use a consistent set of filters to determine level of significance for each issue”*: This stage is guided by alignment and aims to choose internal (e.g., financial implications, reputational risks, opportunities) and external criteria (e.g., extent of media coverage, number of complaints, number of unprompted mentions by stakeholders) to identify the material issues.
3. *“Embed process in internal decision-making and external review”*: This stage is guided by embeddedness and aims to review and validate the materiality analysis, as well as establish an external dialogue on emerging issues.

Large companies, such as LG Household & Health Care, rely on Accountability’s approach to produce their materiality assessment [102].

3.4 Translating assessment into management priority

The issues identified with the surveys and the materiality assessment methods need now to be further analysed in order to extract the company’s “most” material topics, overall and by stakeholder group. The goal is to determine the priorities for the management, i.e. identify which issues should be the focus of the company’s sustainability ambition, targets, and performance improvement. In order to do this, we have to properly visualize and present the information. It is the last but critical part of the materiality assessment, because it can actually influence the decision makers, thus it affects the usefulness of the whole method [103]. In this thesis, we describe two commonly used approaches, (i) the materiality matrix, and (ii) questions for testing materiality. In practice, the two approaches can also be used supplementary to each other.

3.4.1 Materiality matrix

The materiality matrix (or materiality map) has become the standard best practice to provide a visual representation of the relevance of material topics to stakeholders. Each identified topic should be rated as low, medium, or high, from two perspectives, that of a stakeholder and that of the company. For example, the methodology may ask

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stakeholders to consider how critical each materiality topic is to business strategy, risk management, and/or value creation. Hence, the materiality matrix is a scoring methodology that displays the sustainability issues of a company by contrasting these two dimensions. In the latest years, many variations have emerged [104].

3.4.1.1 The classic

With three kinds of value (i.e., economic, environmental, social), three entities being affected (i.e., business, stakeholders, society) and a two-sided matrix, there are many possibilities about how the information should be plotted. According to a common way, the X-axis indicates “increasing importance of the issue to the organisation’s business success”, while the Y-axis indicates “increasing importance of the issue to external stakeholders and the likely influence they might have”. Thus, the items that end up in the top right quadrant are the areas for additional focus (see Figure 3.5).

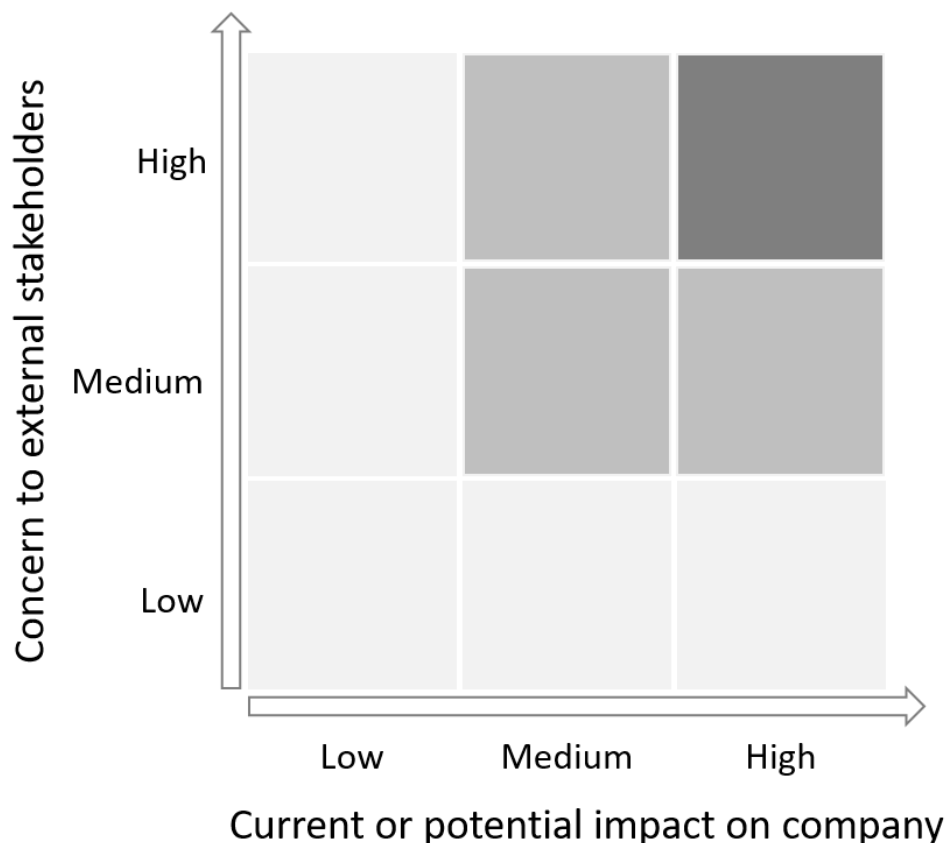


Figure 3.5: Materiality matrix. Those issues in the shaded sectors are material issues for management. The issues in the dark, are high-high rated and constitute the priority material issues.

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Modern ways of graphs and data visualization have been also experimented to include additional criteria. For instance, with the bubble chart one could leverage the bubble's size as a third dimension, or with the two Y-axes (dual) chart one could show both reporting priorities and strategy priorities in a single chart (while keeping the X-axis the same) [104].

The axes of the matrix can also reflect different concepts. More specifically, one could focus on information that is useful in defining a strategy, such as the company's biggest impacts on the world, or issues that investors want to know. This way, the X-axis could indicate an "increasing impact on ability to deliver company strategy". Regarding the Y-axis, it could indicate an "increasing impact on ability to create value" in another alternative of the matrix. In any case, the findings to inform reporting and strategy can be two separate charts. When ranking the issues, the materiality process would consider stakeholder perspectives in order to apply the stakeholder inclusiveness/responsiveness principle. More examples of materiality matrices applied in real scenarios can be found in Appendix B: Materiality Matrix Examples.

Admittedly, a downside of this approach is that there is a lot of information in one place, which can be overly restrictive and mix things up. On the other hand, putting both reporting and strategy priorities together, enables the executives of the company to see both backward-looking and forward-looking priorities at the same time.

3.4.1.2 The "strategy matrix"

This matrix focuses on the impacts on the business side. This way, it is a useful tool in analysing forms of strategic integration, such as mergers and acquisitions. It requires the business's ability to impact/influence to be plotted as a function against impact on the business as shown in Figure 3.6.

Models like this may be helpful for a company's strategy. On the other hand, they make it seem as if the materiality assessment process for reporting need to be separate from that of strategy, which is not true since the one informs the other and thus they should be integrated.

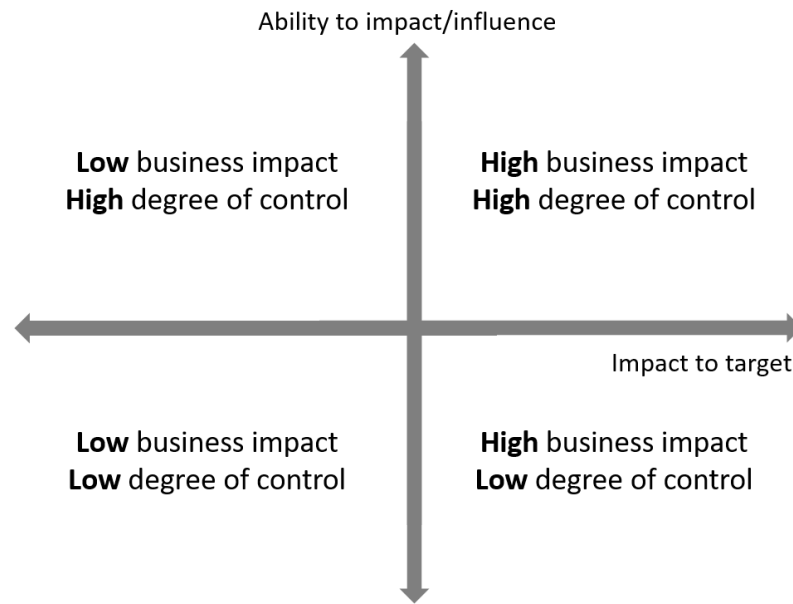


Figure 3.6: Strategy matrix.

3.4.1.3 The “Spider’s Web”

This model creates an output that does not implicitly suggest that stakeholder, business, or investor expectations oppose each other [105]. More specifically, this approach uses a four-sided radar graph, also known as the “spider chart”. Radar graph is a way to visualize multivariate data and thus allow additional factors to be included in the determination of materiality. For example, in Figure 3.7 we illustrate a sample visualization where we have considered the following mapping:

- Ability to deliver company strategy (similar to the traditional X-axis “importance to business”).
- Ability to capture stakeholder expectations (similar to the traditional Y-axis “importance to stakeholders”).
- Potential to cause disruption to the social and environmental system (as described by the sustainability context principle contained in the GRI guidelines, see §4.3.3).
- Impact on the value creation (as described from the IIRC’s six capitals, see §4.3.4).

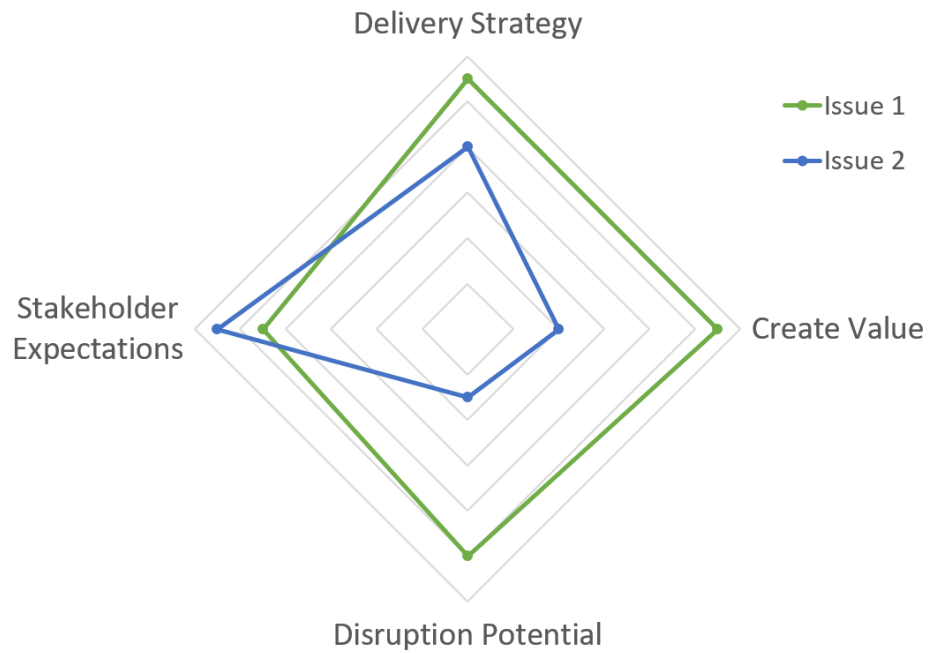


Figure 3.7: Spider chart materiality mapping model.

3.4.2 Questions

According to Terrafiniti, an alternative of the materiality matrix is to consider questions related to each identified sustainability issue in order to conclude where the company should focus [81]. It is a more integrated approach to materiality assessment where one can indicatively ask the following questions:

- *Vision:* “To what extent does a focus on this issue support the dimensions of our sustainability vision?”
- *Materiality:* “How relevant is a focus on this issue to our business in terms of reputation?”
- *Risk:* “What is the risk that this issue could pose to our business model and what is the potential contribution of action on this issue to the minimization of ESG risks?”
- *Value:* “Would activity focused on this issue support us in protecting market share and strengthening supplier relationships?”
- *Spheres of influence and concern:* “For this issue, do we have *influence* or *concern*?”
- *Importance:* “What priority should this occurrence have to management focus and resources (high/medium/low)?”

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For this question-based approach, it is especially important to involve in the process different internal stakeholders from across the organization, while leaving the external stakeholders out.

3.5 Materiality assessment output

All the aforementioned methods focus on the so-called Context-Based Sustainability (CBS). This approach tries to locate explicitly a sustainable change within the context of worldwide ESG thresholds, instead of the narrow context of a company's own perspective on how sustainability issues might impact them [106]. In any case, in order to decide which materiality assessment method (or combination) to follow, one has beforehand to set properly the organisation's primary audience, along with the objectives and the scope (as analysed in Chapter 2).

In order to obtain a realistic view of the whole process, we illustrate the case of Lloyds Banking Group [107]. The bank has published a materiality report where the process for defining its material topics is described thoroughly. More specifically, in the corresponding online survey took part six stakeholder groups that were asked to rank the issues in respect to importance. In the beginning of the report, we can see that a "universe" of 50 economic and ESG issues was identified (see Figure 3.8).

How we identified the material issues

With guidance from an external consultancy, MerchantCantos, we identified a 'universe' of economic, social, environmental and governance issues. To do this, we referred to a wealth of internal and external information, which included:

- Lloyds Banking Group risk register
- Lloyds Banking Group Helping Britain Prosper Plan
- Media articles
- General and sector-specific sustainability frameworks
- Current and future legislation
- Direct contact with internal and external stakeholders

Customer complaints

Engaging the right stakeholders

We identified six stakeholder groups as being key for the Group.

These were:

- Colleagues
- Customers
- Investors
- Community groups
- Government and legislators
- Special interest groups and opinion formers

This 'universe of issues' was also benchmarked against industry peers.

We identified 50 relevant issues through this process. These were then grouped into ten categories to form the basis of the materiality survey.

Assessing and ranking the material issues

All of the stakeholders participating in the materiality survey were asked to rank the issues, and the categories in which they were listed, in order of importance. Their responses were weighted according to stakeholder group sample and data quality (priority was given to direct feedback and Stakeholder Advisory Panel feedback) then aggregated to create an overall ranking of the issues.

Enhancing the process

To make our analysis of materiality more accurate, reliable and comparable this year, we introduced a number of enhancements.

These included:

- The use of a consistent question set for all participants
- An additional YouGov survey, which provided a wealth of data, spanning more than 2,000 adults in the UK¹
- A larger number of participants

This enhanced materiality assessment was discussed by the Stakeholder Advisory Panel and the Responsible Business Committee. Both bodies validated its findings.

¹ Total sample size was 2,030 adults, of which 1,950 have a bank account. Fieldwork was undertaken by YouGov Plc between 8-9 October 2015. The survey was carried out online. The figures were weighted to be representative of all GB adults (aged 18+).

Figure 3.8: Lloyds Bank 2015 materiality report. Source: [108]

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The input was supplemented by the opinions of Lloyds external stakeholder advisory partner, who provided a "proxy representation on behalf of some of these groups". The responses were weighted according to "stakeholder group sample and data quality with priority given to direct feedback and Stakeholder Advisory Panel feedback".

Then it was all rolled up into a set of 14 issues belonging to five categories that appear to have equal priority as the most material impacts (see Figure 3.9). At first sight, the issues look like a reasonable mix of what we might expect a banking group to prioritize, but they are so generic that they could also be the issues of any bank in the world. This observation arises several questions about the integrity of the materiality assessment process, e.g. how detailed was the initial set of material issues, or how was the weighting of stakeholder responses constructed.



Figure 3.9: Lloyds Bank 2015 materiality assessment results. Source: [108]

Chapter 4: Reimagined Reporting

4.1 Introduction

Once identified the ESG factors that are material to the business, we now have to track progress consistently. Sustainability reporting, also known as “ESG reporting” or “non-financial reporting” is a thorough, well-composed public disclosure that provides stakeholders with a clear understanding of a company's approach, goals, and performance on the social and environmental issues. This way, it moves beyond financial measures to evaluate the consequences of business actions on the wider economy, adding a green and social dimension to financial reporting. The landscape of sustainability reporting has rapidly evolved in recent years in response to demands from a wide range of stakeholders, including investors, governments, supranational organisations, regulators, and non-governmental organisations [109]. According to KPMG, 80% of companies worldwide now report on sustainability [110].

In the near future, ESG reporting would be a fundamental part of an effective business management. Towards this direction, more and more companies feel the need to integrate ESG reports into their internal and external communication plans, not only for preserving trust and for maintaining a good relationship with their stakeholders, but also to fulfil policies, avoid penalizations, and gain a competitive advantage. International initiatives, such as the UN 2030 agenda, the Sustainable Development Goals (SDGs), and the Paris Climate Agreement, are increasing the number of ESG topics reported by companies. Consequently, a range of different standards, frameworks, ratings, and indexes, has started to guide ESG reporting:

- *Standards* are metrics based on processes that provide specific rules for ESG measurement dictating what companies must report.
- *Frameworks* are high-level guidelines that provide principles and guidance for how to calculate quantitative data and how information should be disclosed.
- *Ratings* are numerical scores or percentages that aim to provide a snapshot of a company's exposure to ESG risks, and how effectively it manages them.
- *Indexes* compile data into a single metric and they represent a particular market or strategy. Indexes allow investors to track the performance of a company concerning their ESG reports.

These four instruments are complementary and can work in and alongside each other. Ratings and indexes usually come from third-party providers and are investors-oriented, meaning that they are primarily used by investors to compare the ESG performance of companies existing in their portfolios, or those they are thinking to invest in (see Appendix C: ESG ratings and indexes).

Responsible business practices that contribute towards a more sustainable world need to ensure that the reporting process for companies is straightforward. Nevertheless, while there is much alignment in terms of what these various initiatives seek to achieve, the sustainability reporting landscape appears fragmented and complex. From one side, the large number of frameworks that exist can make it easier to align the company's strategies. On the other side, it is difficult to assimilate the total landscape, while the too many choices often lead to wrong choices. In this thesis, we try to bring clarity in today's complex ESG reporting landscape.

4.2 Towards ESG reporting

In the last years, the types of risks that organisations face have evolved tremendously. Ten years ago, economic risks dominated the Global Risk Report by the World Economic Forum (WEF) by likelihood and extent of impact [111]. In the 2020 report, the situation has completely changed with 7 of the top 10 risks by likelihood and 8 of the top 10 threats by impact to be related to ESG issues [112].

The rise of regulations and policies related to sustainability in different geographies is also boosting the needle towards obligatory ESG reporting. Actually, basic ESG reporting will soon be mandatory in the EU, while in countries such as UK, USA, China, and India, there are already regulations that act as instruments of mandatory disclosure on sustainability issues [113]. Arguably, the most ambitious upcoming regulation is the European Green Deal, which targets no net emissions of GHG by 2050¹². In order to achieve this goal, the European Commission has published ESG-related measures, e.g., the Non-Financial Reporting Directive (NFRD), and the Sustainable Finance Disclosure

¹² https://ec.europa.eu/info/strategy/priorities-2019-2024/european-green-deal_en

Regulation (SFDR) [114]. The Carrots & Sticks 2020 report, published three interesting insights [115]:

- The total number of voluntary and mandatory provisions in different countries has been increased considerably since 2006.
- Governments and financial regulators remain the most active in issuing reporting requirements and guidance, followed by stock exchanges and industry bodies.
- Europe is the region with the largest number of reporting provisions, followed by the Asia Pacific.

We need to underline that millennials bring a significant different mentality compared with the prior generations. Since they are gaining a larger foothold in the global economy, they also want to have the power to decide whether to work, buy, engage or invest in a company with active ESG commitments. This generation is also demanding to see quality and consistency in information. Thus, the most active working group presses for more clarity in ESG issues, making the future of ESG reporting to look more promising.

4.3 ESG frameworks & standards

The concept of ESG first appeared in 2001, as such, the topic is not new. As we have already mentioned, ESG stands for Environmental, Social and Governance. The letters alone might not mean much, but together they represent an entity's behavior on environmental issues, its engagement with society, and the strength of its governance. ESG refers to a cluster of non-financial factors about a company that can sometimes prove material to different stakeholders. Thus, the components of this cluster are often categorized in three ways, indicating the sustainability of the company:

- Economic (e.g., revenue, profit, company turnover).
- Social (e.g., labor statistics, human rights, consumer issues, community impact).
- Environmental (e.g., water stewardship, greenhouse gas emissions, waste management).

It is not news that companies should pay attention to the emerging ESG frameworks and standards. Nevertheless, sustainability for organisations can take on multiple shapes,

from creating sustainable internal processes to achieving positive long-term outcomes through these processes for employees, stakeholders, and shareholders alike. While this is about setting ESG goals, it is also about measuring progress towards them. This is where ESG frameworks come in to provide the much-needed measuring stick.



Figure 4.1: ESG topics wheel.

There is no uniform standard, but there are various frameworks an organisation can use as a guide to establish a complete ESG reporting process. These frameworks are all different and sometimes they are industry-specific, something that may be confusing. The choice of framework varies depending on several factors, such as the company's portfolio makeup, overall ESG goals, and investor or stakeholder demands. However, a number of these frameworks require similar data input that once identified, can be easily repurposed for additional reporting processes. Furthermore, the outcomes of the materiality assessment discussed in the previous chapter help to pinpoint the most suitable frameworks for the company's goals, strategy, and portfolio. In this chapter, we will try to explore the most widely recognized ESG reporting initiatives and provide useful insights. Below we present shortly a top 10 of ESG frameworks and standards.

4.3.1 Carbon Disclosure Project (CDP)

CDP is a global non-profit that runs a disclosure system for investors, companies, cities, states, and regions, to reduce their GHG emissions, safeguard water resources and protect forests [116]. Working with institutional investors, CDP leverages investor and buyer power to motivate companies to disclose and manage their environmental impacts. Over 8,400 companies, 800 cities and 120 states and regions have reported through CDP on climate change, water security and deforestation, making CDP's platform one of the richest sources of information globally on how companies and governments are driving environmental change.

4.3.2 Climate Disclosure Standards Board (CDSB)

CDSB was founded in 2007 and is an international consortium of business and environmental NGOs that are set to help organisations integrate information related to climate change in their financial reporting [117], [118]. The CDSB has developed its own framework for reporting environmental and climate information with the same rigour as financial information. This helps companies to provide investors with decision-useful environmental and climate information via the mainstream corporate report, enhancing the efficient allocation of capital. Regulators also benefit from compliance-ready materials. More than that, CDSB hosts the TCFD Knowledge Hub providing guidance, research, and training to over 374 companies across 32 countries by now [119].

4.3.3 Global Reporting Initiative (GRI)

Created in 1997, the GRI was the first and most widely used framework, adopted by 7,400 organisations located in over 110 countries [120]. According to KPMG, around three quarters of the world's largest 250 companies by revenue, as well as two-thirds of a worldwide sample of 5,200 companies use GRI reporting [110]. Its objectives were to provide companies with accountability standards metrics so they could in turn understand and communicate their responsible environmental practices [121]. Throughout the years, metrics were expanded to include human rights, governance, and social well-being. To date, GRI is one of the most holistic approaches to determine how a company affects the world in regards to ESG. It is worth mentioning that this

framework promotes that stakeholders should have an equal say in sustainability reporting, since reports are used by multiple audiences.

The guidelines, also known as “GRI Standards”, can be freely downloaded on their website¹³ and be used on a voluntary basis. The first version of reporting guidelines, GRI G1, published in 2000 providing the first global framework for sustainability reporting. The latest version of GRI (G4) launched in 2016. One of its characteristics is the enhanced focus on materiality. The Standards are a modular system comprising of three series of interconnected Standards [122]:

- *GRI Universal Standards*: apply to all organisations and are now revised to incorporate reporting on human rights and environmental due diligence, in line with intergovernmental expectations.
- *GRI Sector Standards*: developed for 40 sectors, they enable more consistent reporting on sector-specific impacts. Sector Standards intend to increase the quality, completeness, and consistency of reporting by organisations.
- *GRI Topic Standards*: list disclosures for providing information on particular topics, e.g. waste, tax, occupational health and safety. Topic standards are adapted to be used with the revised Universal Standards.

The GRI Standards are designed as an easy-to-use modular set, delivering an inclusive picture of an organisation's material topics and how they are managed. In this way, they allow organisations to publicly report the impacts of their activities in a structured way that is transparent to stakeholders and other interested parties.

4.3.4 International Integrated Reporting Council (IIRC)

The IIRC published its own <IR> framework for integrated reporting in 2013. It was defined as “a process founded on integrated thinking that results in a periodic integrated report by an organisation about value creation over time and related communications regarding aspects of value creation” [123], [124]. In January 2021, IIRC published a revised framework which replaced the original version to enable more decision-useful

¹³ <https://www.globalreporting.org/standards/download-the-standards/>

reporting [125]. It primarily targets the private sector, i.e. for-profit companies of any size, but can also fit the public sector and not-for-profit organisations.

The primary purpose of an integrated report is to explain to financial capital providers how an organisation creates value over time. The best way to do so is through a combination of quantitative and qualitative information, which is where the IIRC's capitals come in. The capitals are stocks of value that are transformed by the activities of an organisation and IIRC categorizes them in six clusters [126]:

- *Financial*: Funds for production of goods and provision of services.
- *Manufactured*: Physical objects available for production of goods and provision of services.
- *Intellectual*: Knowledge-based intangibles, such as intellectual property or brand value.
- *Human*: People's competencies, capabilities, and experience.
- *Social and Relationship*: Relationships with and between communities, stakeholders, and networks.
- *Natural*: Renewable and non-renewable environmental resources that provide goods and services.

The IIRC proposes a framework that seeks to integrate financial and nonfinancial reporting by taking a broader and longer-term view on how value is created. This way, a characteristic of IIRC is that it is often used along with SASB standards. From one side, the IIRC provides guidance for reporting structure and content. From the other side, the SASB standards provide industry-specific disclosure topics and metrics to help understand sustainability risks and opportunities in detail. When used together, the <IR> framework drives a holistic view of the value creation process, while SASB Standards add comparability to sustainability-related data.

IIRC and SASB acknowledged that they are complementary tools for investor-focused communications and in June 2021 merged to form the Value Reporting Foundation¹⁴, a global non-profit organisation that offers comprehensive suite of resources designed to help businesses and investors develop a shared understanding of enterprise value. The

¹⁴ <https://www.valuereportingfoundation.org/>

resources — including Integrated Thinking principles, the <IR> Framework and SASB Standards — can be used alone or in combination, depending on business needs.

4.3.5 Principles for Responsible Investment (PRI)

Launched in April 2006 with support from the UN, the PRI is an international group of institutional investors reflecting the increasing relevance of ESG issues to investment decision-making practices. The process was established by the UN Secretary-General and relies on voluntary disclosures by participating members, called signatories.

PRI has over 2,700 participating financial institutions, as of August 2021. These institutions participate by becoming signatories to the PRI's six key Principles and have to fill regular reports on their progress [127]. The Principles offer a range of possible actions for incorporating ESG issues into investment practices and are the following [128], [129]:

- *Principle #1:* “We will incorporate ESG issues into investment analysis and decision-making processes.”
- *Principle #2:* “We will be active owners and incorporate ESG issues into our ownership policies and practices.”
- *Principle #3:* “We will seek appropriate disclosure on ESG issues by the entities in which we invest.”
- *Principle #4:* “We will promote acceptance and implementation of the Principles within the investment industry.”
- *Principle #5:* “We will work together to enhance our effectiveness in implementing the Principles.”
- *Principle #6:* “We will each report on our activities and progress towards implementing the Principles.”

It is recognised that applying these Principles may better align investors with broader objectives of society. Collectively, the organisations that have become signatories to these six Principles are responsible for a total assets under management of over \$100 trillion [127].

4.3.6 Sustainable Accounting Standards Board (SASB)

SASB is an independent non-profit organisation that has developed a global standard for identifying, managing and communicating financially material sustainability information to investors. SASB Standards are industry-specific and are designed to be decision-useful for investors and cost-effective for companies [130]. Furthermore, they are designed to improve the quality and comparability of a core subset of financially material sustainability information, serving as an important complement to information that is already reflected in the financial accounts according to Financial Generally Accepted Accounting Principles (GAAP).

In 2018, the Board published a set of ESG standards specific to 77 industries, each with a set of financially material topics and associated metrics. These standards are explained through a materiality map and contain a complete set of 77 industry-specific metrics. SASB is a great choice for companies who want to communicate the value they create in investor language. The SASB is betting that regulators will broaden their interpretations of materiality and is creating standards on how publicly listed US companies should disclose material sustainability issues for investors in mandatory filings to the Securities and Exchange Commission (SEC).

This ESG framework is designed for companies and investors needing to analyse how ESG issues may impact financial performance. As such, SASB is a great complement to other ESG initiatives and can be used in conjunction with another framework. For instance, many companies use SASB along with GRI or IIRC.

4.3.7 Science Based Targets initiative (SBTi)

In 2018, the Intergovernmental Panel on Climate Change (IPCC) warned that global warming must not exceed 1.5 degrees C above pre-industrial temperatures to avoid the most catastrophic impacts of climate change [131]. Business has a vital role to play in driving down GHG emissions and building a resilient, zero-emissions economy grounded in science. On the other hand, financial institutions are increasingly recognizing the extent of climate risks and their impact on every market sector, meaning that investment and lending activities must be urgently reviewed to avoid the worst effects of catastrophic climate change and fund a climate-secure, zero-carbon future.

Towards this direction SBTi is working to define a science-based standard for net-zero target setting, to ensure that companies' targets translate into action that is consistent with achieving a net-zero world by no later than 2050. Founded in 2015, the SBTi is a partnership between four large organisations, named CDP, UN Global Compact, World Resources Institute (WRI) and World Wide Fund for Nature (WWF) [132].

Science-based targets allows companies to set a clearly defined path to reduce their emissions and align their lending and investment activities with the Paris Agreement goals¹⁵. This way, they show how much and how quickly businesses need to reduce their GHG emissions to prevent the worst impacts of climate change, leading them on a clear path towards decarbonization. By guiding companies in science-based target setting, SBTi enables them to tackle climate change while seizing the benefits and boosting their competitiveness in the transition to a net-zero economy [133]. More than 1,200 businesses worldwide are already working with the SBTi, while as of February 2020, over 590 of them have had their science-based targets approved [134].

4.3.8 Sustainable Development Goals (SDGs)

The SDGs were adopted by UN in 2015 within the bigger picture of the 2030 Agenda for sustainable development in order to create a better future for people and planet. SDGs aim to combat global challenges that were developed to cover a broad set of topics in three main dimensions: (i) economic growth, (ii) social inclusion, and (iii) environmental protection. Having the ambition to be universal, it is the biggest call to action for sustainability referring to governments, businesses, NGOs, and citizens around the world. SDGs are accepted worldwide as an ESG framework that brings reporting to a more comprehensive level, since its broad nature lacks the guidelines to measure industry-specific indicators.

The private sector was tasked with the crucial role of becoming the engine for innovation and technological development behind the SDGs. On the other hand, countries have committed to prioritize progress for those who are furthest behind and

¹⁵ https://ec.europa.eu/clima/eu-action/international-action-climate-change/climate-negotiations/paris-agreement_en

established the United Nations Development Programme (UNDP) in order to support countries to tackle complex development challenges.



Figure 4.2: The Sustainable Development Goals.

As the relevance of SDGs is in part sector-driven, comparing a company's SDG analysis with its main peers, results in additional understanding. Peer comparison typically provides a useful overview of sector activities as the pattern that emerges can be used to complete the list of sustainability topics the company may want to concentrate on. Once the peer analysis is complete, the company has to select the appropriate SDGs and associated targets. To turn this into action, a measurement system needs to be incorporated by converting the SDG targets into a dashboard with Key Performance Indicators (KPIs) for daily and periodic reporting. With the target and measure stages firmly in place, the formulation of the action plan is the natural next step. Organisations can harness the SDGs to drive growth, address risk, attract capital, and focus on purpose [135].

Forward-thinking companies have been mapping their selected SDGs with their strategic must-win battles to increase boardroom relevance of the SDGs. Peer analysis would seem to support the view that competition is a source of energy for effective sustainability efforts. At the same time, so is cooperation and partnering because the world's biggest challenges cannot be solved in isolation [136]. To reach ambitious sustainability goals, global partnerships are nothing less than unavoidable.

4.3.9 Task force on Climate related Financial Disclosures (TCFD)

An initiative of the Financial Stability Board, the task force was created to improve and increase reporting of climate-related financial risks. This way, the TCFD reporting framework establishes recommendations for disclosing clear, comparable and consistent information about the risks and opportunities presented by climate change [137]. Adoption of these recommendations will help companies better demonstrate responsibility and foresight in their consideration of climate issues. That will lead to smarter, more efficient allocation of capital, and help smooth the transition to a more sustainable, low-carbon economy. The TCFD structured its recommendations around four thematic areas that represent core elements of how organisations operate: (i) governance, (ii) strategy, (iii) risk management, and (iv) metrics and targets. The TCFD recommendations for reporting can be found in their knowledge base, along with in-depth tutorials on how to adhere to their standards.

TCFD a very interesting standard to track over the long term in order to see which companies report climate-related financial information and how they fare. What is even more interesting is that the UK is considering implementing the TCFD requirements in its own legislation.

4.3.10 Workforce Disclosure Initiative (WDI)

The current coronavirus crisis reveals the importance of protecting workforces and building resilient supply chains. By promoting transparency regarding corporate policies and practices that define the lives of workers around the globe, the Workforce Disclosure Initiative (WDI) aims to improve the quality of jobs in companies' direct operations and supply chains [138].

The market landscape has changed – investors are increasing their focus on employees as a central part of progress and value creation [139]. WDI encourages companies to better look after their staff and suppliers to prevent social unrest and extreme political outcomes, thus it is essential for stable societies and markets. For long-term oriented institutional investors, it is crucial to integrate into investment decisions reliable and comparable data on how investee companies manage their workforce. Overall, the framework is an “investor collective” created to help companies better communicate labour practices to stakeholders in an efficient way.

4.4 Frameworks and standards comparison

There are a number of sustainability reporting frameworks, but the GRI is currently the world’s most credible and widely used sustainability reporting framework for general corporate reporting, while CDP follows. In parallel, SASB and TCFD have emerged as the leading frameworks for aligning non-financial with financial disclosures. Furthermore, we observe that industry-focused standards and frameworks are trending since the importance of different sustainability issues likely varies systematically across industries [140], [141]. This way, the efforts of many initiatives, such as the IIRC, the GRI, and the SASB, are now concentrated on identifying material issues “by industry” in order to guide both company disclosure and investors’ decisions. In Table 4.1, we try to provide a comprehensive image of the current landscape in ESG reporting.

Table 4.1: Comparison between ESG reporting standards and frameworks.

	Reporting type	Topic range	Industry range	Primary audience
CDP	Framework	Climate, forests, water	Selected industries	Investors, companies, cities, states, regions
CDSB	Framework	Environment, climate	Industry-agnostic	Investors, regulators companies, accounting firms, stock exchanges
GRI	Standard	Economy, environment, people	Industry-agnostic	Multiple stakeholder groups
IIRC	Framework	All financial and non-financial issues	Industry-agnostic	Investors and multiple stakeholder groups
PRI	Framework	Financial (questions related to investment)	Financial sector	Investors
SASB	Standard	Financially material (subset of ESG)	77 selected industries	Investors, regulators
SBTi	Framework	Climate	Financial sector	Investors
SDGs	Guidelines	17 Global Goals cover all social, economic, environmental issues	Industry-agnostic	Governments, general public, civil society, businesses

TCFD	Framework	Climate-related risks and opportunities	Selected industries	Public companies, investors, lenders, insurers
WDI	Framework	Workforce issues	Industry-agnostic	Companies, investors

4.5 Tips on choosing your framework

The frameworks outlined in the previous subsection may arise many questions regarding which one is the most appropriate for an organisation. Here, we try to provide some practical tips in order to make such a decision easier.

- *Operating environment*: The decision on the framework has to relate with the company's sector and industry. This is especially true for some of the frameworks, such as the SASB.
- *Audience*: The reporting needs are different for each audience. The company has to identify who is requesting the disclosures and his specific needs. For example, shareholders may like to see different data in their reports than lenders.
- *Geography*: Disclosure requirements may vary by country and region. From the EU's CSRD to the UK's constantly changing disclosure requirements, having a framework that fits the required reporting standards is essential.
- *Compliance*: One of the underlying drivers for reporting is to meet compliance. Reporting can also be a key method for an organisation to reflect its business model and value creation story either to embed non-financial issues into business-as-usual, or to disclose forward-looking statements on how non-financial risks and opportunities are being managed.

4.6 Challenges when adopting ESG frameworks and standards

Large and publicly traded companies are submitted to various disclosure requirements to which they may attach ESG reports. However, choosing an ESG framework is only half the problem; the other half is adopting and implementing it. To date, it appears that picking out a single framework may not be beneficial to covering all cases, although it depends on the objectives and size of the company. Below we illustrate some of the main implementation barriers related to ESG reporting:

- *Overlapping standards:* Each ESG framework follows a different methodology resulting in multiple scoring systems. Scores may vary significantly between frameworks producing multiple data interpretations for the same issue, thus losing their insight value.
- *Lack of harmonization:* When operating on a global scale, the lack of synchronized standards between ESG ratings complicates the tasks.
- *Data quality:* The credibility of the ESG score depends on the the quality of the collected data, along with the methodology and the material issues.

We observe that some of the most hindering obstacles to meaningful reporting directly stem from the ESG framework themselves, while others arise at a later stage. In any case, ESG reporting should be considered “a strategic endeavour destined to improve business performance rather than impede it” [142].

4.7 ESG reporting future

It is widely recognised that there are too many choices leading to confusion and frustration of decision-makers. Moreover, frameworks could be much better aligned. Nevertheless, the complexity surrounding sustainability disclosure has made it difficult to develop a comprehensive solution for corporate reporting. On the other hand, the connectivity between sustainability-related factors and immediate financial-viability is clearer than ever before.

4.7.1 Integration

A move towards greater standardisation and more consistent, high quality ESG-related reporting from companies is urgently needed. Whilst each framework will continue to serve its own purpose and audience, the alignment makes it easier for all users of the information. We are already beginning to see such initiatives for the convergence of ESG frameworks, such as the Corporate Reporting Dialogue¹⁶ (CRD), a platform launched in

¹⁶ <https://corporatereportingdialogue.com/>

2014 to promote greater coherence, consistency and comparability between frameworks, standards and related requirements.

Another example is the announced collaboration of GRI, CDP, CDSB, IIRC, and SASB in September 2020. They joined their forces to achieve progress towards a single set of comprehensive and global reporting sustainability standards. Their shared proposals on enterprise values reporting brought life to a prototype climate-related financial disclosure standard [143]. Acknowledging the importance of structured information to enable comparison, the standard-setters emphasize the importance of data being structured around agreed taxonomies and being democratized via a public data platform.

Apart from that, GRI and the SASB started a joint project in 2020, focused on delivering communication materials to help stakeholders better understand how the standards may be used concurrently. A key finding of the research is that each set of standards complements rather than substitutes the other, with GRI supporting broad and comprehensive disclosures on organisational impacts and SASB focusing on a subset of financially material issues [144].

Lastly, there is a move towards reporting alignment with the financial reporting world. Some of the frameworks are developing into “standards” to mirror those used in financial reporting. In the same way that financial reporting has been standardised as with International Financial Reporting Standards (IFRS), greater convergence is needed with respect to sustainability reporting.

4.7.2 Enterprise information systems

The stages for report creation can be complex and time-consuming, without mentioning that quality is crucial. An ideal solution would come in the shape of a platform or application, so complete and holistic where the user would just need to feed the technology with business information to get a unique and “one-size-fits-all” ESG report. Then, instead of investing a significant amount of resources in collecting data or deciding which ESG standard or frameworks would best fit the requirement, a unique software solution alongside an expert team could build ESG reports for companies with the latest information available. In addition, this technology could be paired with a company’s

Chapter 4: Reimagined Reporting

business management software such as Enterprise Resource Planning (ERP), to guarantee data centralization, consistency, transparency, and quality. This future is not that far away, and leading companies (e.g., SAP, Schneider Electric), are already working on such solutions. Intelligent, sustainable enterprises measure both the positive and negative impacts of their business activity on people and the planet to steer balanced decisions and achieve holistic business success.

Chapter 5: Leadership & Culture in Sustainability

5.1 Introduction

Leaders recognize the importance of corporate sustainability, but they struggle implementing it successfully [145]. The challenge lies in how to actually integrate sustainability into operational level and align decision-making. For sustainable development, great leaders inspire the people around them and encourage a culture of sustainability in the company that leads to innovation. There are many examples from sustainability pioneers, such as Yvon Chouinard (Patagonia), Ray Anderson (Interface), and Anita Roddick (the Body Shop), that prove that leadership with vision and direction is a crucial driver for the implementation of successful sustainability programs [146], [147].

Of course, in order to successfully develop a sustainability strategy, a leader alone is not enough. Help from the senior and middle management is required, along with a certain level of maturity in the industry. It is a fact that the concept of organisational culture has evolved over the last decades. Nevertheless, the relationship between it and sustainability development seems to be underestimated in the literature [148]. It seems that sustainability activities have to be incorporated in the organisational culture in order to be successful. In other words, if aspects of sustainable development are not part of the mind-set of the C-suite and the managers, sustainability strategy will not affect the core business, thus it is more likely to fail.

In this section, we highlight the importance of leadership and the value of strong company culture as part of a sustainability strategy. Then, we discuss the role of partnerships for the successful implementation of a strategy.

5.2 The role of leadership

Sustainability programs seem to always be in the need for directional guidance from the C-level executives. In the 2017 version of the GlobeScan—SustainAbility Survey, sustainability leading companies receive the highest scores on the “ability to articulate a vision and define ambitious goals” [149]. Furthermore, the experts surveyed believe that an integrated sustainability strategy, together with a clear vision, continuous

innovation, and transparency, are the required elements for leading organisations in the next decade. Consequently, a strong leadership plays a vital role in turning a company's powerful purpose statement into real sustainability-driven actions. Best-in-class examples from Unilever and Interface suggest that companies with such leaders have much higher probabilities to success and develop solid sustainability initiatives [59].

Apart from that, the paradigms from Nike and P&G illustrate that managers and decision-makers deal with fewer conflicts in balancing social, environmental, and financial performance if these conflicts are already resolved higher in the hierarchy of the organisation and are well integrated into the informal systems [145]. Thus, people are able to make certain trade-offs easier because they know that their leaders will support them having a positive impact in the corporate behavior.

5.3 The role of organisational culture

Culture is a fundamental aspect to take into account when introducing changes because only through the commitment of all employees inside a company can the goal be achieved. Harvard Business School researchers tried to quantify the corporate culture by making the assumption that the level of integration of social and environmental policies within companies was a good proxy for a firm's culture of sustainability [150]. The results showed that companies incorporating many social and environmental policies enjoyed a stronger culture of sustainability and a positive impact on corporate behaviors and performance from low-sustainability firms.

More than that, a number of studies suggests that a strong culture of sustainability usually implies a higher stock market performance in terms of total shareholder returns [145]. The main reason for this outperformance is governance-related factors. High-sustainability companies are overall better at embedding sustainability into their senior management structures. In parallel, in high sustainability companies, the corporate culture emphasizes norms critical for innovation, such as openness, autonomy, and risk taking as well that may affect the stock market positively.

An organisational culture supporting sustainability decision can also inspire and motivate all employees across the company to take into consideration sustainability issues seriously. Companies are able to implant their employees a passion and

commitment to sustainability even from their recruitment and development practices. In addition, managers can shape a sustainability-based culture through a variety of ways, such as social and environmental initiatives, transparent communication, engagement, to help employees make sense of corporate sustainability and motivate them to pursue sustainability goals [151]. Such practices are win-win opportunities and lead to contributions that are good not only for the company itself, but also for the society and the environment as a whole.

5.4 Measuring culture

Culture is an elusive value that is more difficult to measure than financial results, since it is intangible and hard to attribute to a specific organisation. The Board of Directors is responsible for safeguarding the company's competitive advantage by building a strategy that drives long-term shareholder value. From that perspective, managing and measuring culture seems an obvious choice. Unfortunately, many directors are more attentive to key financial metrics and strategic priorities and thus fail to recognize that their mission cannot be fulfilled without the appropriate corporate culture. While organisations recognize that culture has a direct impact on performance since it can help improving key metrics (e.g., quality, safety, retention, profitability, EBITA), it is often unclear what changes are needed.

Recently, the understanding of corporate culture concept has been dramatically improved through the understanding that corporate culture has generally four features:

- *Shared*, i.e. culture is a group phenomenon.
- *Pervasive*, i.e. culture permeates all levels, which is reflected in collective behaviour.
- *Enduring*, i.e. culture can control ideas members' ideas and actions in the long term.
- *Implicit*, i.e. it is challenging for people to recognize and respond to culture instinctively [152].

This new understanding enabled the development of several tools, such as scorecards and questionnaire surveys, which aim to define and measure culture [151], [153].

Furthermore, there have been developed standardized organisational culture measurement models, such as the Denison Organisational Culture Model [154], [155]. The Denison Model provides organisations with an easy-to-interpret, business-friendly

approach to improve their performance. The model links organisational culture to organisational performance metrics such as sales growth, Return On Equity (ROE), Return On Investment (ROI), customer and employee satisfaction, innovation, quality [156].

ADAPTABILITY

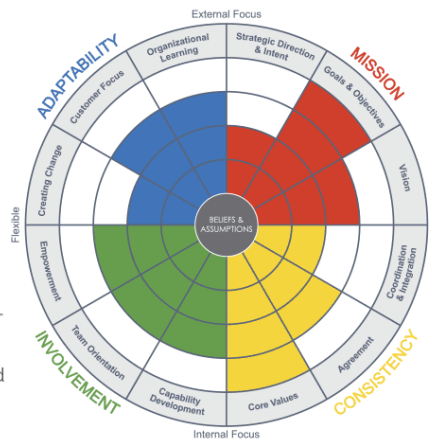
"Are we listening to the marketplace?"

High performing organizations have the ability to perceive and respond to the environment, customers, and restructure and re-institutionalize behaviors and processes that allow them to adapt.

INVOLVEMENT

"Are our people aligned and engaged?"

Highly involved organizations create a sense of ownership and responsibility. Out of this sense of ownership grows a greater commitment to the organization and an increased capacity for autonomy.



MISSION

"Do we know where we are going?"

High performing organizations have a mission that tells employees why they are doing the work they do, and how the work they do each day contributes to the why.

CONSISTENCY

"Does our system create leverage?"

Consistency provides a central source of integration, coordination and control, and helps organizations develop a set of systems that create an internal system of governance based on consensual support.

Figure 5.1: The Denison Model. Source: <https://www.denisonconsulting.com/>

The Denison Model identifies four key traits of cultural strength that an organisation should master in order to be affective: mission, consistency, adaptability and involvement. Mission and consistency are found to be strong predictors of profitability, while adaptability and involvement are correlated to growth. According to the model's structure, one can conclude that the model emphasizes the importance of corporate culture for the development and implementation of a sustainability strategy [157].

5.5 The role of partnerships

Nowadays, companies with strong sustainability cultures are forming partnerships with "like-minded companies" to advance knowledge and exchange information on their sustainability programs. Such coalitions engage partners in developing value chains that possess a higher level of sustainability [59]. Furthermore, it is a common belief that a culture of change with internal and external stakeholders can be strengthened by such groups of companies that share a common culture.

In the absence of a suitable established coalition, companies have the alternative to create their own. This path is less popular, but it can prove valuable, especially for companies that belong to a fragmented industry. An example is the Champions 12.3¹⁷ initiative, a coalition on the basis of sustainability issues. It consists of CEOs, ministers, and executives from international organisations dedicated to achieving the SDG target on food loss and waste (Target 12.3). The coalition regularly gathers to assess progress and share best practices. The outcomes of such discussions are very interesting, e.g. the three-step principle of “target–measure–act” to develop business cases contributing to the realization of the SDG targets.

¹⁷ <https://champions123.org/>

Chapter 6: Innovation Partnerships

6.1 Introduction

If innovation is key to meeting sustainable development challenges, then partnership is key to innovation [158]. Solving complex societal issues such as climate change, ocean plastics, and child labor, is unthinkable without collaborative efforts between organisations working closely together to find scalable solutions. More and more examples have emerged of sustainability programs leaning heavily on “partnering” as a key operational feature.

Over the past decade, collaboration between companies and external stakeholders has become a creative and sophisticated mechanism for addressing priority challenges and for leveraging skills and resources towards the goals of sustainable development and delivery of innovation. The 2018 Deloitte Global Human Capital Trends Report provides interesting insights on the changing landscape of partnering for sustainability [159]. One noticeable trend is a growing shift from an internal focus to an external one, which includes the entire ecosystem outside of the company. Thus, collaborations are vital not only within sector but also across industries to achieve mutually beneficial solutions, such as leveraging networks, achieving scale, and sharing responsibility. Partnering with governments, city authorities, and civil society, is also another option to promote development.

Many times partnerships are actually a prerequisite for achieving the ambitious SDGs. By definition, the SDGs support the development of new partnerships for sustainability with an ever more varied set of objectives, such as jointly setting standards, exchanging best practices, developing sustainable innovations, or impacting mind-sets and effecting behavioral changes. With sustainability partnerships clearly on the rise, companies do acknowledge facing challenges in making those larger ecosystems work for them.

On one hand, each organisation has unique skills and resources to bring in the arena. On the other hand, it is quite certain that it may lack one or more of the key elements that promote innovation, such as financial resources, research and development capacity, scientific staff, production staff, or infrastructure. Thus, partnerships can be particularly critical for companies since they can augment the ability to adapt to new technologies,

extend the reach of high-quality knowledge, or assimilate concepts that are missing. More than that, by fitting all these pieces together, the result is theoretically much more than the sum of the individual parts.

However, many companies struggle with the development and implementation of such partnerships. According to MIT Sloan's research, less than half (47%) of all of businesses are actively engaged in sustainability-related partnerships, while the majority (61%) of those companies assesses their collaborations as "quite" or "very" successful [160]. With so many choices available (e.g., peers, customers, suppliers, academia, NGOs, governance), identifying collaboration opportunities is not an easy task. In this chapter, following Benoit Leleux and Jan van der Kaaij [59], we present a method for selecting suitable strategic partners for innovation, as well as the concept of many alternative sustainable solutions to support the acceleration of a sustainability innovation.

6.2 Partnering dimensions

In the context of a workshop called "Sustainable Evidence-based Actions for Change" (SEACChange) in 2018, there have been developed three criteria for multi-stakeholder partnerships, named flexibility, customer focus and multiple solutions [161]. Although the workshop focused on the health and economic burden of malnutrition in Asia, the three criteria can be also applied in a broader framework [162]. Here, we try to present this set of criteria for an effective collaborative ecosystem:

- *Flexibility*: Success may come from unexpected directions and that's why collaborations need to be flexible in today's world and not restricted in traditional rules. Of course, long-term partnerships are key element and need to find a way to redefine them with embedded flexibility. In other words, traditional collaborations need to evolve around shared values rather than with rigid KPIs. Furthermore, due to the rapid market changes, short-term time horizons are more suitable in the context of long projects.
- *Customer Focus*: Customer, either high or low-income, should be always in the first place. Many times, low-income groups are not given the right attention, although they have a critical role in the market.

- **Multiple Solutions:** Many initiatives have failed because they didn't consider that a single-solution in isolation cannot tackle the full size of the problem. Nowadays, not only inter-sector, but also cross-sector collaborations are fundamental in addressing the large-scale global challenges of the SDGs. With a high diversity of required solutions, each having a relatively low chance for success, carefully selecting suitable, equally motivated partner(s) becomes ever more critical.

Besides the three design criteria cited above, communication was also found to be significant, creating considerable information gaps between public and private sector.

6.3 A partnering strategy

The world today changes rapidly, thus focusing on a series of initiatives sequentially, does not ensure that the required impact is happening fast enough. In order to be with the frontrunners, a two-pillar approach is suggested: partnering and/or launching more alternative initiatives simultaneously [59]. In order to implement this approach, a three-step process is recommended from Leleux and van der Kaaij and is described below [59].

6.3.1 Identify and prioritize the hotspots

In this step, the company has to identify the issues that currently matter most and should be improved. In order to identify these issues, data and results from a product's Life Cycle Assessment (LCA), also known as life cycle analysis, can be used¹⁸. A way to specify the "hotspots" is through a bidirectional (top-down and bottom-up) planning, where the results from materiality analysis and the outcomes from the LCA are combined effectively [163].

6.3.2 Prioritizing improvement strategies

Now that the hotspots have been identified, we need to examine various improvement strategies. In order to prioritize them, a simple tool is known since the 1970s, the waste hierarchy, also known as the Lansink's Ladder [164]. The framework indicates an order

¹⁸ An LCA is a methodology for assessing environmental impacts associated with all the stages of the life cycle of a commercial product, process, or service [219].

of preference for action to reduce and manage waste, and is usually presented diagrammatically in the form of a pyramid. The waste hierarchy model offers a holistic approach in addressing the waste. The aim is to extract the maximum practical benefits from products and to generate the minimum amount of waste.

In the beginning, the ladder contained only the 3Rs, i.e., Reduce, Reuse, and Recycle, for sorting the waste into groups according to the way it could be managed. Then, the 5R philosophy was proposed:

- *Reject* “from the production process entirely”.
- *Reduce* “by modernizing the production process or better sorting”.
- *Reuse* “in production”.
- *Recycle* “and use again”.
- *Recover* “incinerate to generate energy and other inputs”.

The European waste hierarchy refers to the five steps included in the Waste Framework Directive (WFD)¹⁹:

- *Prevention*, i.e. “preventing and reducing waste generation”.
- *Reuse and preparation for reuse*, i.e. “giving the products a second life before they become waste”.
- *Recycle*, i.e. “some waste incineration based on a political non-scientific formula that upgrades the less inefficient incinerators”.
- *Recovery*, i.e. “choose operations in which waste is reprocessed into other materials”, such as energy from waste, anaerobic digestion.
- *Disposal*, i.e. “processes to dispose of waste”, such as landfilling, incineration, and pyrolysis.

Even if the ladder is topical, it has been proved to be useful for ranking solutions to environmental challenges and measuring their progress. Implementing such approaches on production lines can yield in proper waste classification resulting in decrease in operating and capital expenses.

¹⁹ https://ec.europa.eu/environment/topics/waste-and-recycling/waste-framework-directive_en

Waste hierarchy



Figure 6.1: The waste hierarchy model.

6.3.3 Profiling partners

With hotspots identified and possible solutions prioritized using a version of the waste hierarchy, the identification of potential partners becomes the next natural step. We need to bring together various stakeholders and enable them to collaborate effectively. The implementation of circular sustainable solutions relies largely on logistics and supply chain issues, in which training and fine-tuning of processes are fundamental. To make this possible, the proper partners need to be identified and selected. Partners can be evaluated by looking for alignment on three distinctive levels:

1. The market fit, i.e. addressing the relative positions of the partners in the value chain,
2. The resource fit, i.e. tackling the required capabilities, and
3. The organisational fit, i.e. the cultural alignment between them.

This three-legged approach helps identifying the fundamental questions, synthesized in Table 6.1.

Table 6.1: Sample of fundamental questions for evaluating partners. Source:[59]

Level	Sample questions
Market fit	<ul style="list-style-type: none">• “How would the economic model of the partnership work? How would you share future revenues with your partner?”• “How would you staff the partnership opportunity you are evaluating?”
Resource fit	<ul style="list-style-type: none">• “How vulnerable is the market for the process you intend to address through the partnership?”• “Does the potential partner possess the right expertise to jointly develop many alternative solutions?”
Organisational fit	<ul style="list-style-type: none">• “Does the potential partner share the same level of engagement for addressing the sustainability issues?”• “What type of governance mechanisms do you think will be most appropriate for the partnership opportunity?”

Chapter 7: Strategic Reinvention

7.1 Introduction

It's clear that business as usual is no longer possible as we transition to a low carbon economy [165]. In this way, companies independent of industry, geography, or size, try to innovate their business models to address ESG challenges of their interest [166]. Technology and innovative business models create new sources of value, while, simultaneously, appreciate the environment as a condition and keep the whole system running, vital and successful. In parallel, their mission is to create competitive advantage for a business and thus drive the economy towards achieving the sustainable development goals set. Such models imply radical changes and have become the dynamic "steam engine" for sustainable development [167].

Value capture describes how part of the value generated for a stakeholder can be transformed into value useful for the company [168]. The value is useful for the company if it helps the company to achieve its purpose [169]. Successful organizations should seek to optimize both social and business value to deliver the expected financial returns to their shareholders and in tandem to help society deal with its most significant ESG challenges. To do so, it is suggested that organizations should reimagine their corporate strategy, embed societal value into products and services, reinvent business models for sustainability, and reshape their business ecosystems to support these initiatives [170].

However, little is known about the successful adoption of Sustainable Business Models (SBMs), or else business models based on the principles of sustainability and the SDGs. In this chapter, we try to answer on the question "How do organisations innovate their business models to deal with the ESG aspects of sustainability?" and "How a company can design the process towards more sustainable business models?" In order to do this, we have to extend the topic of partnering and explore the types of SBM innovations. Moreover, the concept of Circular Economy (CE) is introduced as a radical departure from the more traditional linear way of thinking, i.e. "take–make–dispose".

7.2 Anatomy of sustainable business model innovation

The business model is considered to be the DNA of a company, a tool to implement business strategies. It concerns the way in which the company does business, commercializes its products, services, or technology, and explains how it creates, delivers, and captures value [171]. In order to adapt to the continuous changes of the external environment, studies suggest that companies should reconfigure their business models through innovation in order to be able to meet the new conditions and maintain their value proposition [172]. Business model innovation refers to a subset of business model that is responsible for developing (i.e. building, implementing, and validating) a new business model [173]. Although business model innovations can be much more challenging than product or process innovations, they are suspected to yield higher performance, returns, and a greater competitive advantage [174]. A survey from the Boston Consulting Group (BCG) reported that business model innovators had an average premium that is four times higher than product or process innovators [174]. In this way, there are many business model modifications aiming to create new value for the companies and cope with the increasing competition [175].

The literature describes SBMs as a modification of the conventional business model concept that incorporates some extra characteristics and goals, e.g., pro-active multi-stakeholder management, the creation of monetary and non-monetary value for a broad range of stakeholders, and hold a long-term perspective. Thus, SBMs might have the additional benefit of higher risk mitigation and resilience yielding additional diversification and value co-creation opportunities [176]. Sustainable Business Model Innovation (SBMI) is a subset of the SBM, which focuses on stakeholder benefit and stakeholder value rather than solely on customer benefit or shareholder value [177]. Hence, SBMI is a subset and overlapping concept, which is fundamentally derived from the business model concept and takes components from both SBM and business model innovation [178]. The above anatomy is illustrated in : A derivative analysis of sustainable business model innovation showing all possible logical relations between different subsets of a business model. Source: [178].

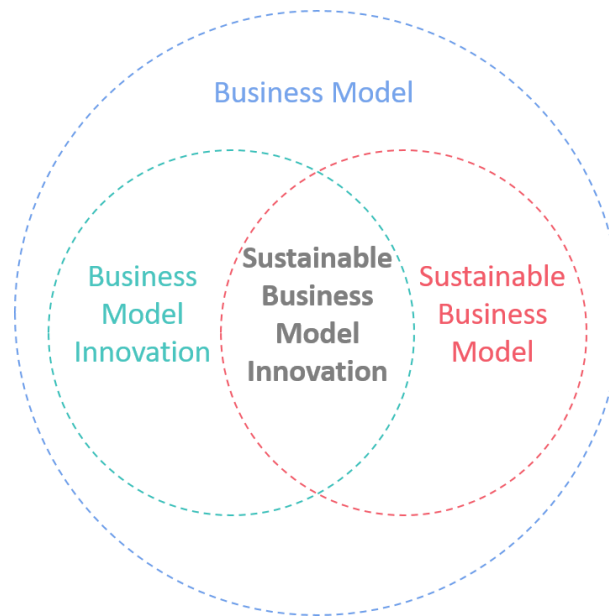


Figure 7.1: A derivative analysis of sustainable business model innovation showing all possible logical relations between different subsets of a business model. Source: [178]

7.3 Sustainable business model innovation characteristics

Since environmental-friendly activities are now considered to be a key factor in achieving competitive advantage, many companies try to integrate sustainability actions into their strategic management to establish a new role in the ESG sphere [179]. Changes in the business models are fundamental to realize innovation for sustainability. Consequently, it seems logical that sustainability should be included in the business model and in particular that it should be the object of business model innovation [180]. SBMI is the conceptualisation and implementation of SBM that may describe either a development of an entire new SBM in the context of startups, or a change in the configuration of individual elements of the existing business model in the context of corporates [177], [181]. More specifically, four types of SBMI can be distinguished as presented in Figure 7.2.

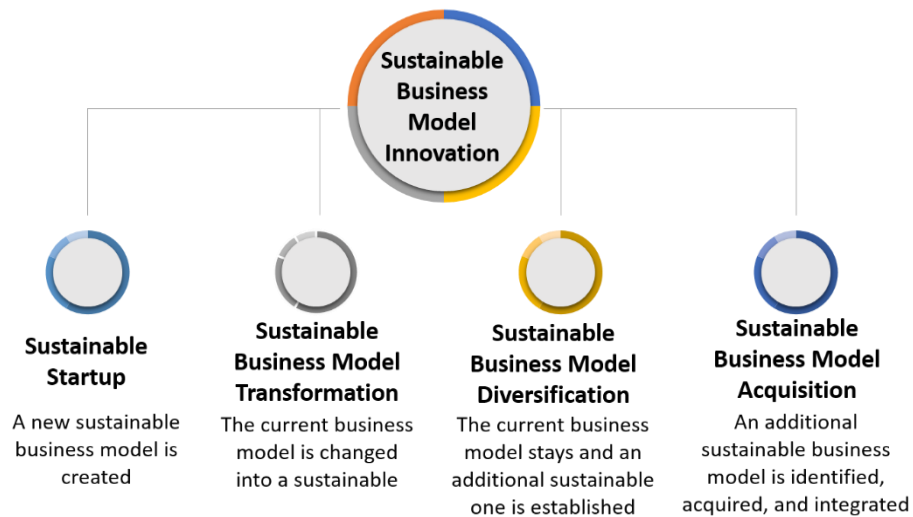


Figure 7.2: Sustainable business model innovation types. Source: [177]

These four SBMIs aim at implementing certain SBM strategies which are comprised into nine generic strategies, called “archetypes” [173]. Archetypes are generally common patterns and thus SBM archetypes help demonstrate some common innovation strategies for boosting sustainability. SBM archetypes are classified in higher order groupings, which describe the dominant areas of business model innovation: technological (i.e. focus on a technical innovation component), social (i.e. focus on a social innovation component), and organisational (i.e. focus on an organisational innovation component). The technological grouping itself contains the following three archetypes: (i) “maximize material and energy efficiency”, (ii) “closing resource loops/create value from waste”, and (iii) “substitute with renewables and natural processes”. Accordingly, the social grouping contains the following three archetypes: (i) “deliver functionality rather than ownership”, (ii) “adopt a stewardship role”, and (iii) “encourage sufficiency”. Lastly, the organisational archetype contains the following three archetypes: (i) “repurpose for society or the environment”, (ii) “inclusive value creation”, and (iii) “develop sustainable scale up solutions”.

Despite being intended as a classification for SBMs, these archetypes are hardly ever employed in this way. In practice, subcategories combining different archetypal strategies are used. More specifically, the following SBM types exist [173]:

- *Circular business models*, i.e. business models that are closing, dematerialize, or narrowing resource loops.

Chapter 7: Strategic Reinvention

- *Social enterprises*, i.e. business models that aim at social impact by generating profits from economic activity or reinvesting them entirely.
- *Bottom of the pyramid solutions*, i.e. business models that aim at customers at the bottom of the income pyramid.
- *Product-service systems*, i.e. business model that integrate products and services into customer offerings that provide a product or a functionality.

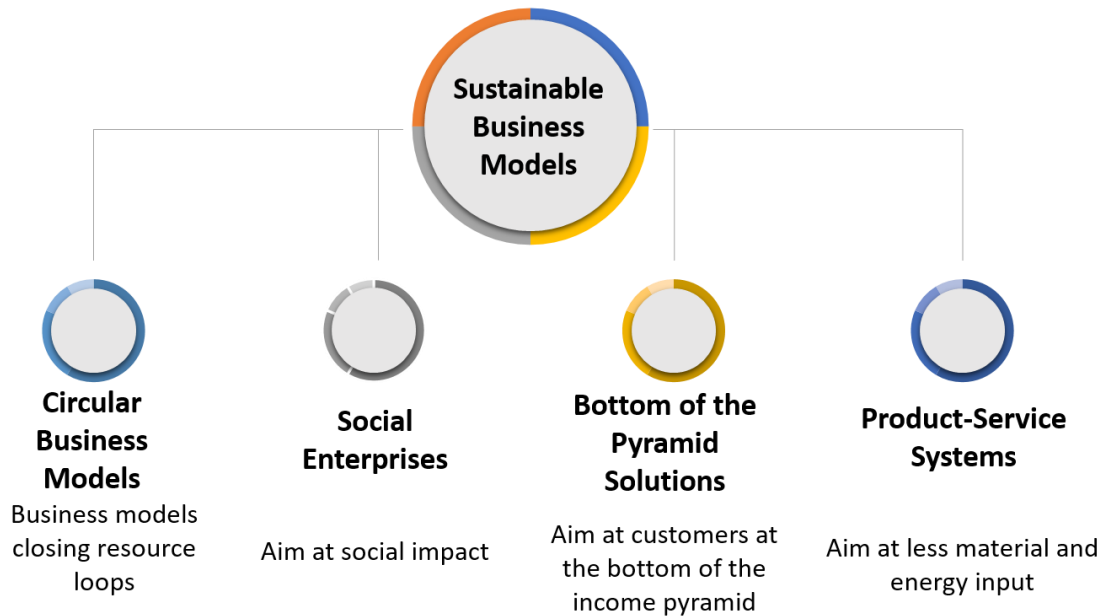


Figure 7.3: Sustainable business model types.

To summarize, SBMI aims at:

- Embedding the characteristics of a SBM, i.e. sustainable value creation, proactive multi-stakeholder management, and a long-term perspective [177],
- Focusing on one of the four types of innovation (see Figure 7.2),
- Creating a SBM type (see Figure 7.3),
- Implementing one or more SBM strategies.

7.4 Sustainable business model design

As discussed, organisations increasingly understand that the transition to sustainability, does not require only new ideas and technologies, but also innovation on the business level. Systems theory²⁰ identifies five elements for a SBM [182]:

- *Diversity*: Single line of business or single sources of revenues can make a company vulnerable. Thus, diversity of resources, people, and investment is needed to reduce the risk.
- *Modularity*: Contemporary firms need to walk away from the matrix organisational structure and become less interdependent with a focus on modularity.
- *Openness*: Monitoring the environment beyond the company's boundaries and being open to new ideas is a crucial issue not only for drawing future scenarios with a lower uncertainty, but also for contributing to shape them.
- *Slack resources*: Innovation requires financial and creative investments. Such investments need the analogous space to work, meaning that firms have to allow time to accommodate new ideas.
- *Matching cycles*: Understanding the cycles (rhythms) of business and environment, will allow the company to synchronize with them and not overreact trying to make things faster in order to increase performance when it is not possible.

Traditionally, there are well-known generic tools that can be used to support the design of business models, such as the Business Model Canvas [70], Lean Start-up [183], or Design Thinking [184]. On the top of that, a wide range of tools and models have been developed to take the specific needs of sustainability performance into consideration, such as the Flourishing Business Canvas [185], the Triple-Layered Business Model Canvas [186], the Value Mapping Tool [187], the Sustainable Value Analysis Tool [188], or the Value Ideation concept [189]. Although these specialized tools helped with the conceptualization of promising business models, only a few of them are in practice successfully implemented, since there are multiple regulatory, market/financial, behavioural/social barriers [190]. In this thesis, we present two well-defined frameworks that can guide an organisation's business model innovation efforts: an

²⁰ <https://www.britannica.com/topic/systems-theory>

academic one, named the Cambridge Business Model Innovation Process, and an enterprise solution, developed by the BCG.

7.4.1 The Cambridge Business Model Innovation Process (CBMIP)

The CBMIP is a holistic approach that addresses all the stages of business model generation, from early conceptualization to implementation. It is both descriptive, in showing how business model innovation happens in practice, and prescriptive, in providing guidance on how sustainable business modelling should ideally be carried out in organisations [184]. The whole process is typically cyclical, meaning that it is a never ending process that companies should follow in order to adapt to changes in their environment. The approach consists of eight sequential but iterative steps, where the first three steps correspond to concept design, the next three to detail design, while the last two steps are relevant to implementation activities. In detail, the process consists of the following steps:

1. *Ideation*: Formulate purpose and define stakeholders. Picture the value proposition and evaluate the selection of ideas.
2. *Concept design*: Integrate the ideas and discuss about the technological trends. Then, define and document the key business model elements and dimensions.
3. *Virtual prototyping*: Benchmarking with solutions within industry. Furthermore, build, evaluate, and revise prototypes to communicate the business model concept.
4. *Experimenting*: Identify the key variables and test them in simulations and field experiments. The analysis of the results is also a part of this step.
5. *Detail design*: Conduct an in-depth analysis of all the business model's elements and interactions between them.
6. *Piloting*: Test the entire concept by running a first limited version of the business model in a subsection of the target market. Identify failures and make required adjustments in order to better align with the market's needs.
7. *Launch*: Roll out and scale-up the business model.
8. *Adjustment and diversification*: The business model should be continually monitored and revised in respect to the initial goals. Based on this evaluation, adjustments and diversifications are possible to be conducted, while depending on the

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comprehensiveness of the necessary changes, the entire business model innovation process may need to be repeated.

7.4.2 Boston Consulting Group's approach

According to BCG, the core practice for SBMI is an iterative innovation cycle of four steps [166]. In each step, the company gains experience, scale, and market presence for its initiative. Such components can be used to reinforce both the business advantage and the generated environmental and societal benefits. More specifically, the process consists of the following steps:

1. *Expand the Business Canvas*: Understand the wider stakeholder ecosystem and any environmental and societal issues and trends that might affect it. The following are recommended:
 - a. Expand the business canvas by mapping the broader ecosystem of stakeholders and societal issues.
 - b. Stress test the business model within this broader map.
 - c. Extrapolate trends and build materiality scenarios.
 - d. Explore scaling up the business.
 - e. Identify innovation opportunity spaces.
2. *Innovate for resilient business model*: Transform a business model or create an entirely new one in order to seize the opportunities. This step largely depends on innovation for bypassing current constraints, breaking trade-offs, deploying technological advances, or integrating activities that were previously kept separate.
3. *Link to drivers of value and competitive advantage*: Iterate in order to assess and reengineer the business model concepts in order to ensure that they generate the anticipated environmental and societal benefits. These benefits should translate to value and advantage for the company.
4. *Scale the initiative*: Engage stakeholders to expand the impact and advantage of the business model. There are three enablers that companies can leverage for this task: (i) partnerships with organisations, (ii) digital technology, and (iii) the development of culture and leadership values.

7.5 Transition towards the Circular Economy

Increasing natural resource constraints, population growth and climate change, are key driving forces for companies searching for ways to develop in a sustainable way. CE is a possible solution to address these high-priority issues as a system that is designed to be restorative and regenerative by nature. The goal is to move from the traditional linear production and consumption patterns towards circular ones that eliminates operational waste, shrinks environmental footprint, and decouples economic growth from resource constraints²¹. Of course, talking in business terms, there is always and a financial motivation. According to a 2015 McKinsey study, adopting CE principles would generate a net economic benefit €1.8 trillion by 2030 for Europe [191], [192]. Hence, seizing the opportunity provided by the CE is a challenging but interesting task.

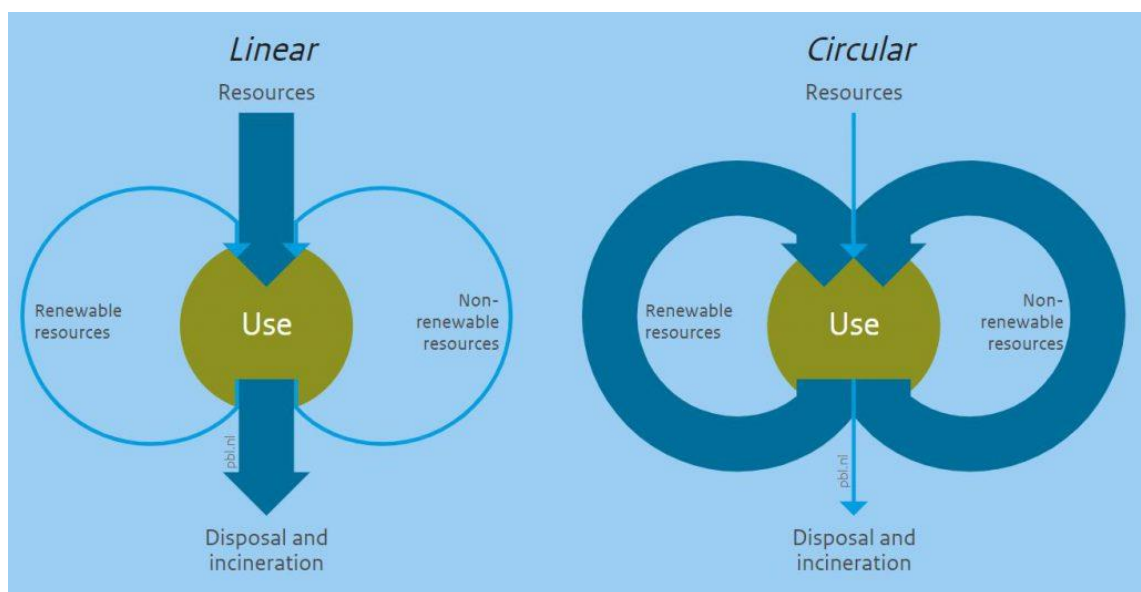


Figure 7.4: Linear vs. Circular Economy. Source: <https://themasites.pbl.nl/o/circular-economy/>

The ultimate CE, in which all product chains are closed loop ecosystems where materials are applied repeatedly, might prove to be elusive in practice. Nevertheless, this is exactly the dead-end that CE aspires to solve²². In any case, the change of our behavior perspective towards the way we produce, consume, and manage waste, is an essential prerequisite for the success. The European Commission adopted an ambitious CE

²¹ <https://kenniskaarten.hetgroenebrein.nl/en/knowledge-map-circular-economy/how-is-a-circular-economy-different-from-a-linear-economy/>

²² <https://www.boardofinnovation.com/circular-economy-business-models-explained/>

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Package in 2015, with the aim of helping European businesses and consumers make the transition to a more CE oriented actions [193].

One way for an organisation to contribute to the CE and leverage its sustainability efforts, is through applying circular business models, or else CE business models. Such models work to reduce resource use and waste within production, but also extend product life cycles and employ strategies that allow the consumer to do more than “buy, use, and dispose”. Circular business models can be regarded as a class of SBMs [187], [194]. More specifically, SBMs are derived from business models with some additional components, such as sustainable value, pro-active multi-stakeholder management, and long-term perspective. Equivalently, circular business models derive from SBMs by closing, slowing, narrowing, intensifying, and dematerialising resource loops. The above process is depicted in Figure 7.5.

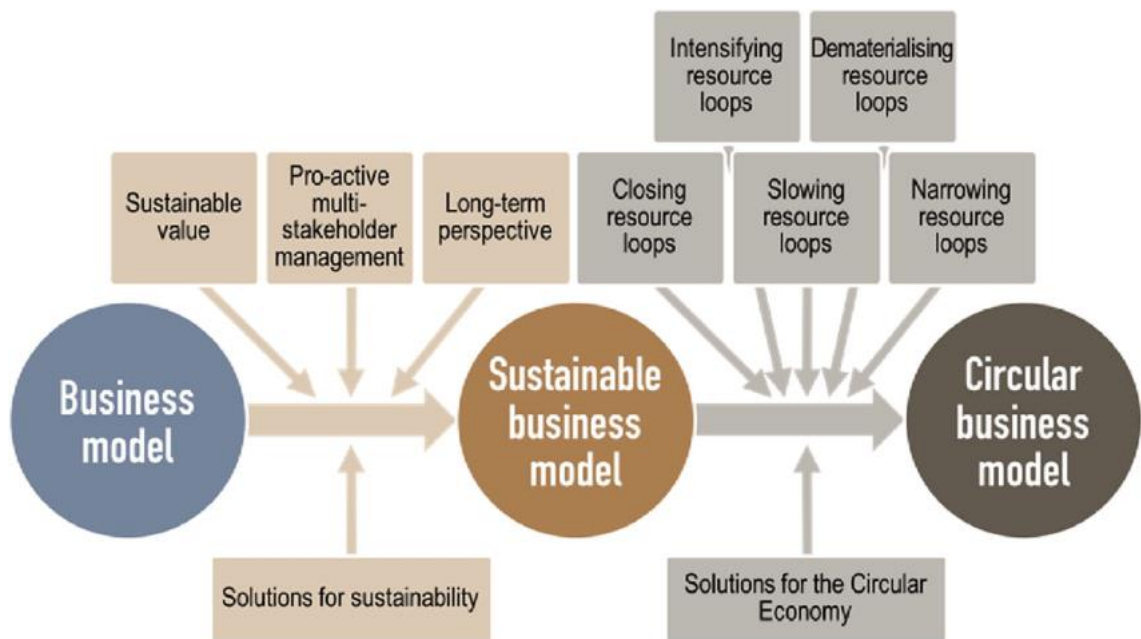


Figure 7.5: Comparison of conventional, sustainable, and circular business models. Source: [194]

7.5.1 Circular strategies

Circular business models can be created in multiple ways. Most of them involve a combination of three basic strategies, each one indicating a clear circular economy driver: Retain Product Ownership (RPO) or Product as a Service, Product Life Extension (PLE), and Design For Recycling (DFR) [195].

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- *RPO*: The producer rents his product to the customer rather than selling it which incentivises increase in resource productivity along the whole lifecycle. Thus, the product is returned back to the producer once the customer has finished with it. It is an interesting strategy either for companies offering complex products with embedded value, or for companies having simpler products that are relatively expensive and seldom needed. The companies have to invest heavily on after-sales and maintenance capabilities.
- *PLE*: The focus of companies that apply this strategy is on designing products that last longer (through repair, maintenance, upgrading, resale, or manufacturing), something that may create opportunities for markets in used products. Although it may seem a bad idea for original-equipment producers, durability is a key competitive differentiator that provides strong rationale for premium pricing, while it can also help companies reduce customer churn.
- *DFR*: The goal here is to redesign the product and manufacturing process to maximise recoverability of the involved materials in order to use in new products. This strategy often involves partnering with companies that have specific technological expertise or that may be best able to use the materials recovered.

On the top of these strategies, many more can be developed, e.g. sharing platforms (i.e. increase product usage through collaborative ownership), circular supply chain (i.e., reform the use of resources), or industrial symbiosis (i.e. use residual outputs from one process as feedstock for another process leveraging on geographical proximity) [177], [196], [197]. It seems that strategic partnerships can play a vital role also in developing a sustainable value chain and a circular business model.

7.5.2 Selecting a circular strategy

The waste hierarchy ladder framework, as described in §6.3.2, can also be adjusted to select strategies for the CE. It can help find the most relevant product impact in the value chain as well as to select specific targets for improvement. Once the projected impact and the associated targets have been defined, the process of (re-)designing the value proposition can start.

7.6 Collaborating with innovation channels

Over the last decade, two emergent phenomena have jointly contributed to transform the entrepreneurship: open innovation and platformization [198]. Open innovation is a business management model that promotes collaboration with people and organisations outside the company since it involves the adoption of open and distributed models of innovation. In this way, open innovation has the potential to widen the space for value creation, either through new partners with complementary skills, or by unlocking hidden potential in existing partnerships. Platformization is a strategy that leverages digital platforms and technology as a venue for value creation. It gained momentum following the expansion of broadband bringing disruption and opportunities in almost every segment. Together, open innovation and platforms have created numerous opportunities for entrepreneurs and their firms. Companies worldwide recognize nowadays the opportunities of open innovation platforms and are using collaborative networks to fuel sustainability innovation [199].

Open innovation may be pursued in many different ways in terms of number of partners [200]. Actually, the number of open innovation actors can vary largely, from dyadic business relationships to networks from universities, suppliers, customers, competitors, public governmental institutions, private research centres, and NGOs [201], [202]. The role of each partner is to contribute positively to the economic and sustainability innovation performance. In open innovation, these two notions were found to correlate positively, indicating the sustainability-driven innovations go together with economic innovations [203].

Apart from collaborating with value chain partners for sustainability, a partnership with a start-up may also prove valuable. According to the Forbes Global 500 list, 68% of the top 100 companies is already engaging with startups [204]. Many open innovations platforms are used by large companies to inspire startups to innovate in directions that align with their strategy. Even if most of them do not explicitly incorporate sustainability challenges, the latest years many sustainability-specific competitions and accelerator programs have arisen (e.g. related to water consumption, energy use).

There are multiple channels for sustainable innovation. Studies show that the preferred channel for companies is corporate venture capital, followed by startup competitions, and accelerators and incubators [204]. In any case, the most effective choice of channels

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depends on circumstances and the reason for starting the initiative. In general, the objectives for joining an innovation initiative can be summarized in four categories: (i) generate innovations for products and services, (ii) change the company culture, (iii) develop new markets, and (iv) create a platform of partners to reinforce the competitive positioning. Each objective comes with its own recommended innovation channel.

7.7 Energizing teams

Sustainability programs should also focus on obtaining engagement from teams in order to accelerate. Leleux and van der Kaaij having studied behaviours in different industries and presented a four-pillar approach to increase the effectiveness of sustainability teams in charge of sustainable innovation [59]:

- *Pillar #1 – Direction:* Starting with a strong purpose and direction is again the starting point in order to energize the innovation process. Trust among the team members, as long as liberation from fears are able to empower teams, elevate creativeness, advance performance, and help to unlock their full potential [205]. Capitalizing on the diversity of the teams is also a crucial part in order to develop many alternative sustainable solutions, since they are less likely to happen in homogeneous teams.
- *Pillar #2 – Diversity in solutions:* Promoting a clear sense of diversity in solutions contributes positively in team performance.
- *Pillar #3 – Experimentation:* Trials and errors are critical for a superior performance. Combining innovation with tradition requires continuous experiments in order to achieve a product-market fit.
- *Pillar #4 – Culture of collaboration:* Collaboration with value chain partners is practically unavoidable in the acceleration of sustainable innovation since it allows gaining knowledge and experience much faster. In fact, a culture of collaboration can improve the performance of sustainability teams and affect not only stakeholders, but also internal team members. In the 2021 Global Human Capital Trends report from Deloitte, it is mentioned that organisations invest on teams as a survival strategy to enable adaptability and speed [206].

Bootcamps and boosters approach can help key account teams enhance collaboration and engagement with their clients on sustainability [59]. The approach consists of two

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co-creation workshops: (a) an internal bootcamp with a key account team to analyse stakeholders and discover potential for collaboration on sustainability issues, and (b) a booster between the key account team and the client to share results and improve the joint ecosystem performance.

Chapter 8: Business Transformation

8.1 Introduction

Business transformation is the final yet most crucial step of developing an effective sustainability strategy. The goal now is to ensure that all steps made so far are able to improve the company's positive impact on society and environment. In other words, sustainability has to be embedded into the entire company and become an integral part of it in order to be able to transform it, while in tandem addressing the needs of stakeholders.

This step largely depends on effective and efficient reporting of sustainability performance in order to improve the communication with stakeholders and secure the applicability of it. A limited set of relevant KPIs, tightly connected to the company's core business, helps the upper management to focus on the most critical sustainability activities and establish a more consistent communication with the stakeholders.

As an alternative to describing the full-change management process that is often required, we endeavor to uncover some of the principal preconditions for successful implementation, following the simple three-phase plan of Leleux and van der Kaaij [59]:

- Strategy compilation, that is, how to start with implementation.
- Readiness assessment, that is, where to start the implementation.
- KPI reporting, that is, measuring progress.

8.2 Sustainability strategy compilation

Once the sustainability strategy has been decided and adequately documented, the next step is to find the most appropriate starting point. In order to do that, companies have to identify key sustainability points for their internal and external environment, such as what business units are more receptive and easier to engage, or which market segments are mature enough to accept the change. For this reason, reexamining the materiality results as described in Chapter 4 may be useful.

Many companies have lots of experience when it comes to long-term strategic portfolio planning. Traditionally, the process involves regular review of the portfolio in order to

understand where to invest, i.e. if it worth to further develop a product/service or discontinue its production. Nevertheless, incorporating sustainability in this review is still an unknown parameter for most of the companies. A nice way to assess systematically the overall portfolio and proactively drive it to improved sustainability performance, is the Portfolio Sustainability Assessment (PSA) [207]. The World Business Council for Sustainable Development (WBCSD) has developed an analytical framework to conduct a PSA [208]. On the other hand, many private companies have already developed in-house PSA methodologies. For example, “GE-McKinsey nine-box matrix” offers a systematic approach for the multibusiness corporations to prioritize their investments among their business segments and product groups [209]. For smaller companies though, PSA might sound as a technical overkill. In this way, a simple value chain approach can work as well and provide meaningful insights for sustainability implementation [210]. In any case, a tool like PSA needs the support from the top-level in order to thrive within a business.

8.3 Readiness assessment

Having identified the priority targets, one has to set the appropriate KPIs and reporting procedures that will help the implementation process. Sustainability KPIs measure fundamental ecosystem issues, meaning that they not only cover company’s direct activities, but also their inductive effect on value chain. Thus, sustainability KPIs require sound frameworks and reporting tools.

According to stakeholder theory, organisation’s performance should be measured against the expectations with a broad range of stakeholders who are interested in the impact of company’s activities. The balanced scorecard is a well-established performance management tool, which is based on the stakeholder theory [211]. In a broad sense, balanced scorecards include critical KPIs for non-financial information by design, e.g. customer service. As such, it is not actually out of their scope to measure the company’s impact on society and present the financial relevance of the company’s sustainability efforts. Nevertheless, we have to mention that once the KPIs are mapped on a balanced scorecard, the picture might be quite disturbing in practice. In order to restore the proper direction, ensure fit with the operational side of the organisation, and thus align with the company’s strategy, small interventions are quite sure that will

be needed. For instance, going back-and-forth to the materiality matrix, a company can reduce the initial number of KPIs in order to be more reasonable and thus present valuable insights on a balanced scorecard.

The implementation of a sustainability program practically requires the modification of daily procedures, while it influences every single employee. Of course, technical solutions that minimize human labor and reduce the amount of waste generated are expected to help. In any case, real use-cases, such that of Unilever Production Cluster in Tula, show that the major catalyst for success is not the amount of investment, nor the applied technological solutions, but instead the well-organized processes together with the total involvement of employees and top management [212].

In order to achieve the planned sustainability goals, several tools can be utilized. One of them, called “Plotting the Future”²³, can be used to generate and then prioritize the milestones, which are presented in the form of future statement cards (there is an upper limit of 15 statements). It is actually a workshop where the participants have to develop a detailed action plan based on back-casting to achieve the arranged goals. At the end of this process, a complete roadmap is delivered, enabling the team to start the implementation with conducive conditions in more favorable terms. The outcomes should eventually be delivered to the upper management on a one-page summary including the top-level targets, SDG framing, and clear linkages to the core business.

²³ <https://www.finchandbeak.com/1405/developing-roadmap-for-sustainability.htm>

Chapter 9: Conclusion

9.1 Overview

It is widely recognized that Earth is not able to support human growth forever, at least in its traditional form. In the same manner, organisations may not be able to continue creating capital over the long term if natural, social, financial and manufactured capital is being eroded [135]. Sustainability, defined as a general concept where meeting the needs of the present generation must not compromise the ability of future generations to meet theirs, is the most complete and powerful answer to this problem. Towards this direction, the concept has drawn significant attention in the last decade in the corporate context.

A large number of companies has realized the value of sustainability and try to “go green” by developing and implementing forward-thinking sustainability policies. However, the whole sustainability landscape for companies remains cloudy with equivocal terms and approaches. Therefore, there is an increasing need for documenting and analyzing solid sustainability strategies that a contemporary business can follow. In this thesis, we tried to pinpoint the detailed steps that an organisation has to apply in order to make sustainability an integral part of all its activities. The proposed framework is based on state-of-the-art literature and offers high-level but practical guidance for the planning and the implementation of a company’s sustainability strategy.

9.2 Practical implications of the research

The sustainability journey for a company starts from the clear definition of purpose and objectives. Companies should think of business drivers in the value chain in order to properly define their role in the society with a specific and not overly shallow manner. The critical second step is to differentiate sustainability factors to material and immaterial and then prioritize them. We cited a variety of methods found in research and business domain for materiality assessment, as long as essential visualization ways via materiality matrices. ESG reporting arises as the next step of the framework, since companies need a way to measure and evaluate their ESG scores consistently, while it

is quite sure that in the near future non-financial reporting would be an official required need. We tried to clarify the differences between ESG instruments that companies can use (i.e., frameworks and standards) performing an overall comparison. Then, we noticed some tips on selecting the most suitable reporting option for different real-world business scenarios. Of course, strong leadership capabilities are mandatory elements for a successful implementation of a sustainability program. The value of middle management involvement is significant to convert the company's purpose statement into an effective culture of sustainability. Furthermore, we strongly suggest that the concept of partnering should be at the core of any contemporary sustainability strategy. In this way, companies have to develop partnerships in line with their strategic reasoning based on the concepts of flexibility, customer focus, and multiple solutions. On top of that, companies need to adopt sustainable business innovation models to address the dynamic sustainability challenges. Such models are able to create new sources of value and competitive advantage for their business. More specifically, CE business models focus on offering powerful opportunities for profitable innovation while minimizing ecological and social costs. The last part of the proposed strategy is to ensure that business will be able to transform in order to be able to accept and implement the sustainability processes. Effective implementation requires selecting an appropriate starting point (i.e., the business units that are most mature to transform), along with meaningful sustainability KPIs. The outcome of the whole process should be a one-page summary including top-level targets linked with core business issues in order to be easier acceptable by the C-level management. To conclude, we presented a holistic tool to facilitate the development of a roadmap for the planning and implementation of a company's sustainability strategy.

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Appendix A: Integral Materiality Process

Relevance is one of the nine principles supporting disclosure serving a green, inclusive, and open economy [99]. The Figure A.1 shows an ideal process of implementing integral materiality through the lens of this principle:

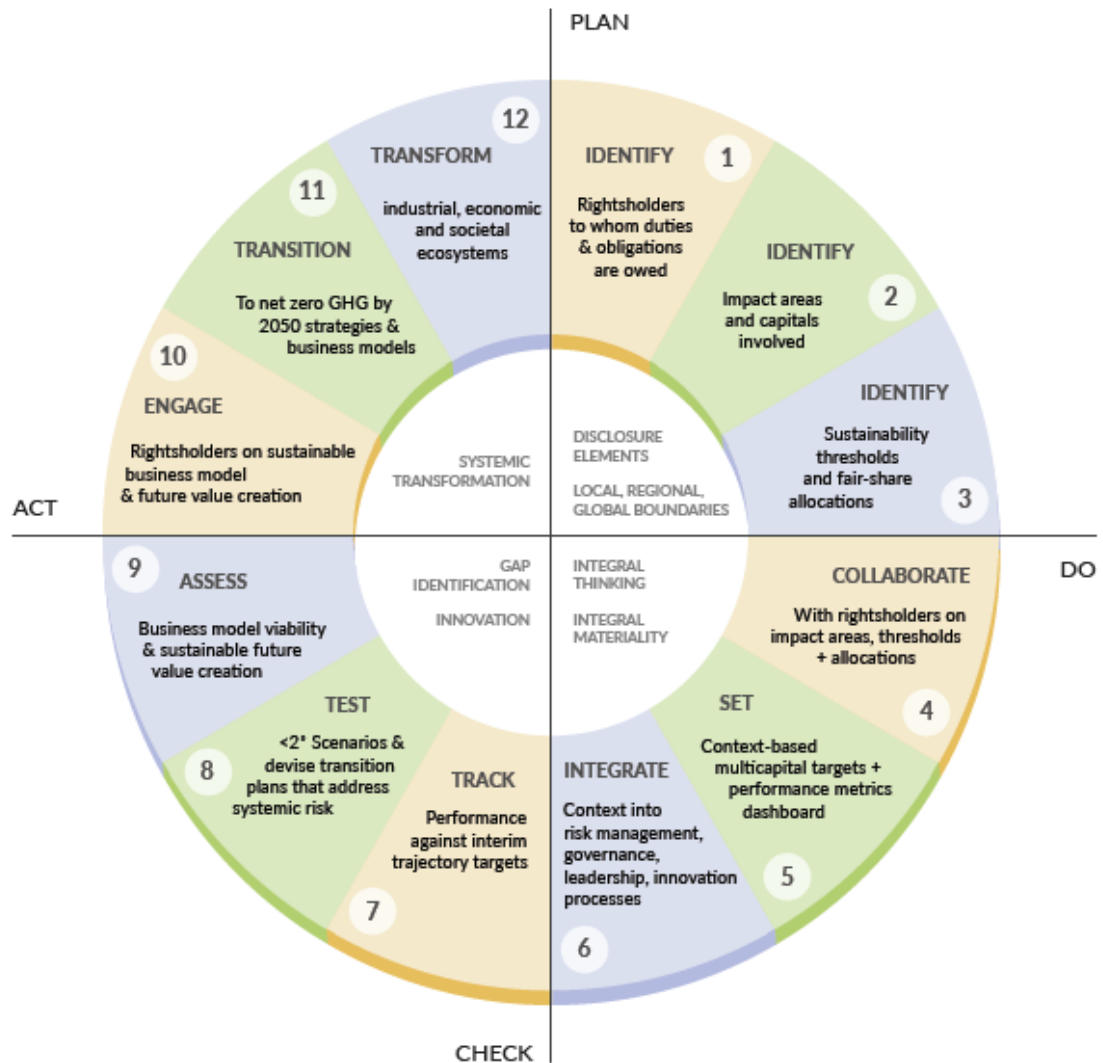


Figure A.1: The r3.0 Integral Materiality Process. Source: [99]

The *PLAN* phase forces companies to identify the following key elements:

- Rightsholders to whom companies owe legal duties and ethical obligations due to direct or indirect impacts.
- Impact areas that have (either positive or negative) impact on vital capital resources that rightsholders rely on for their wellbeing.
- Sustainability thresholds that differentiate the levels of these vital capital resources from unsustainable levels.

Appendix A: Integral Materiality Process

The *DO* phase shifts into operationalization mode including:

- Collaborating with these rightsholders to validate and manage the above impact areas, thresholds and allocations.
- Setting context-based targets across the multiple capitals and dashboards for tracking performance on trajectory targets.
- Integrating this context-based thinking and practice across all key elements of the enterprise, including risk management, governance, innovation and leadership.

The *CHECK* phase controls and tracks performance towards defined targets, but also evaluates the longer-term delivery status and correction measures:

- Tracking performance against trajectory targets, enabling redirection (if necessary).
- Testing against scenarios (particularly net zero GHGs by 2050 climate scenarios) and creating transition plans that respond to this systemic risks.
- Assessing the ongoing viability of business models to ensure current and future system value creation (which includes both shareholder and shared value).

The *ACT* phase revisits elements of the *DO* phase, while also scaling up influence and advocacy from the micro- to the meso- and macro- levels:

- Engaging rightsholders around the sustainability of business models to ensure ongoing future system value creation.
- Transitioning to net zero GHGs by 2050 business models.
- Transforming the broader contexts within which companies operate, including their industries at the meso level, as well as the economic system that needs reform in order to support healthy social and ecological systems.

Appendix B: Materiality Matrix Examples

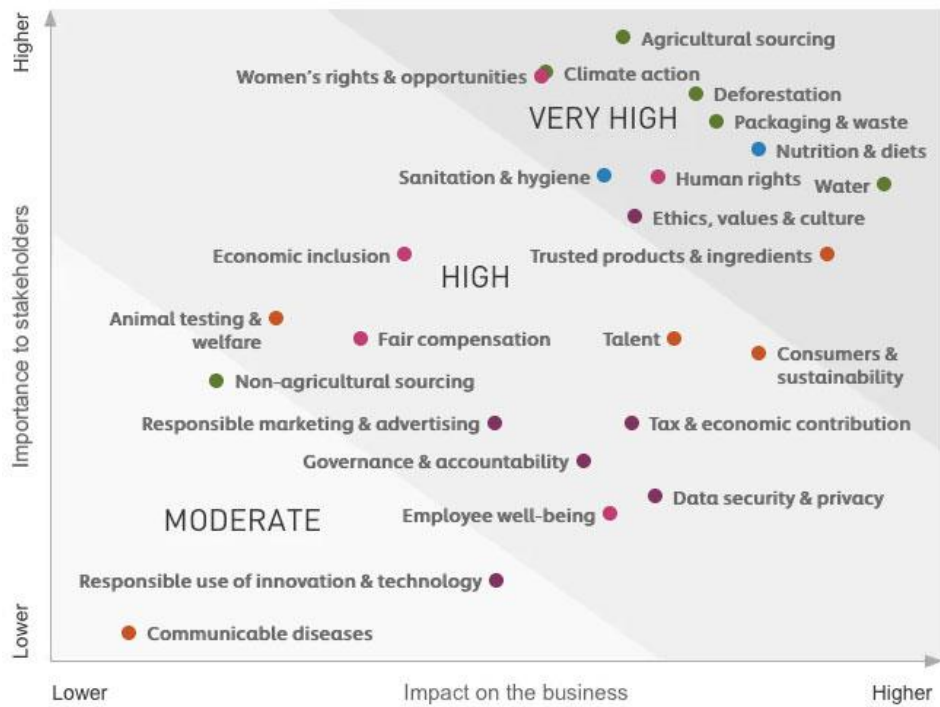


Figure B.1: Unilever's materiality matrix. Source: [Unilever](#).

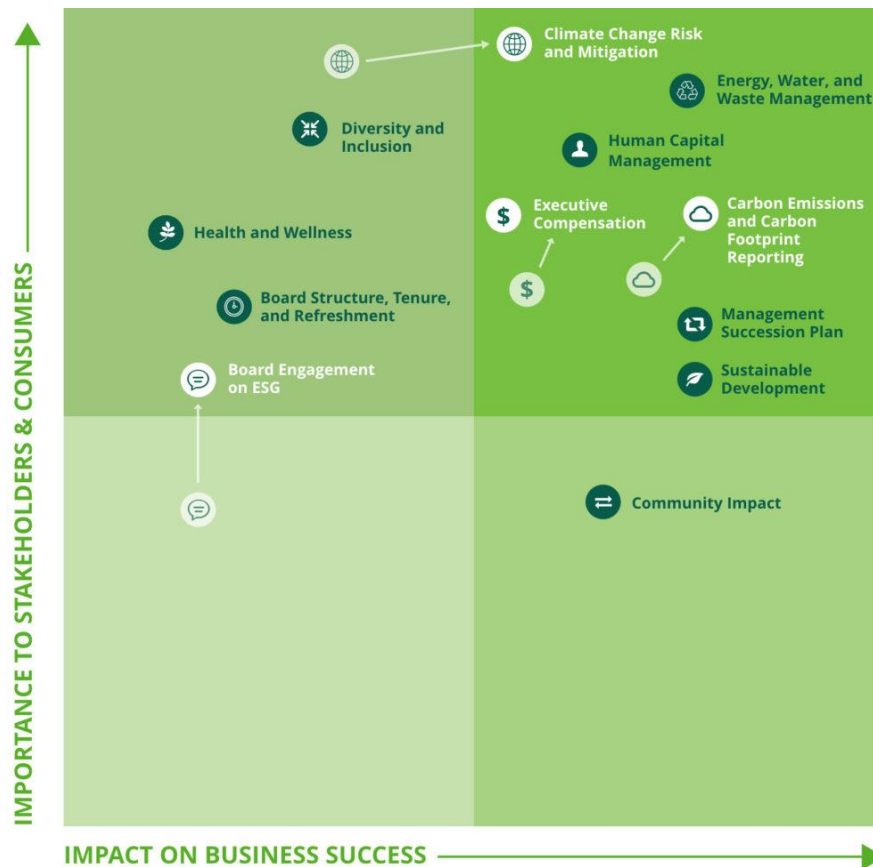


Figure B.2: Vornado Realty Trust. Source: [LongView Strategies](#).

Appendix B: Materiality Matrix Examples

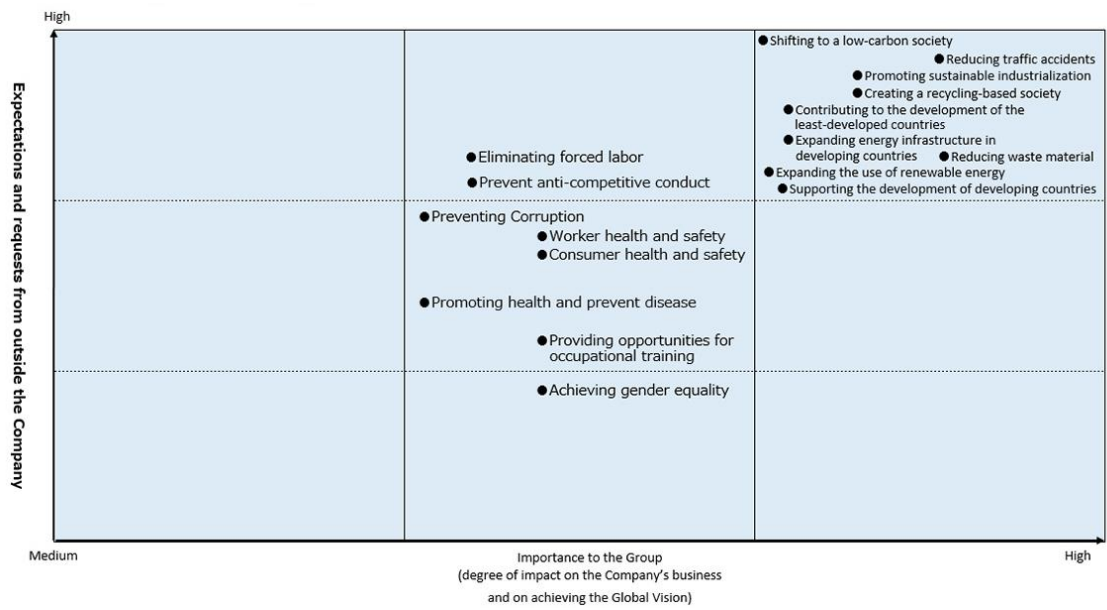


Figure B.3: Toyota Tsusho Corporation: Source: [Toyota Tsusho Corporation](#).

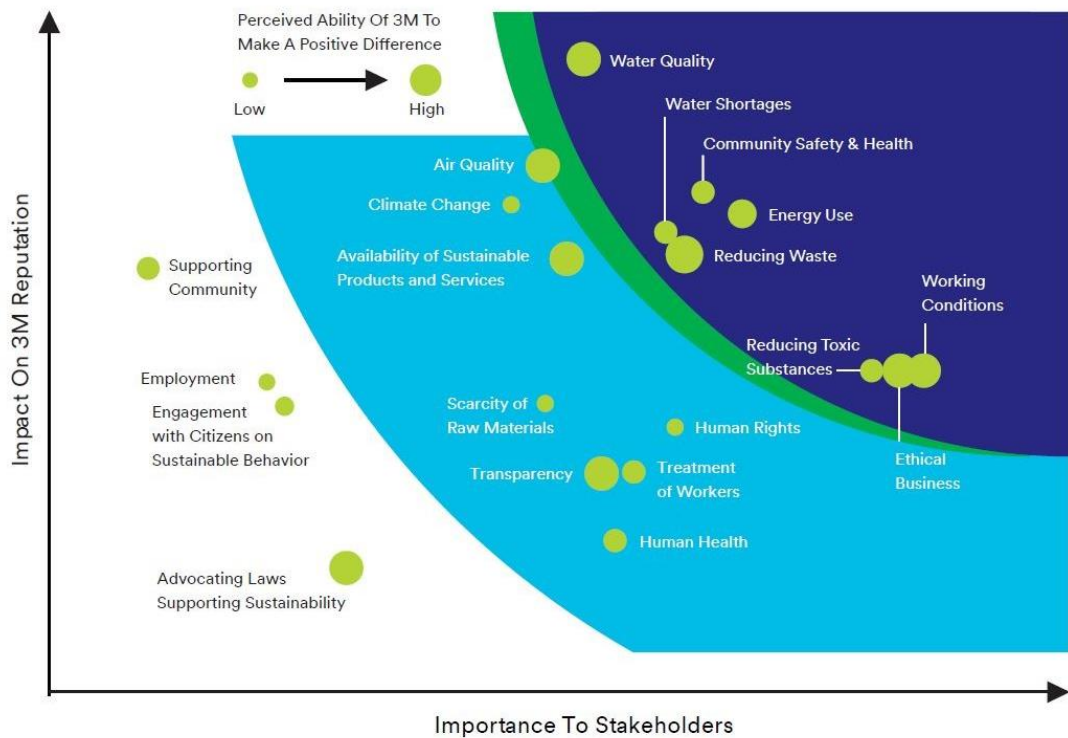


Figure B.4: 3M's 2016 Sustainability Report, for example, uses reputation on the Y axis and stakeholders on the X axis.

Appendix B: Materiality Matrix Examples

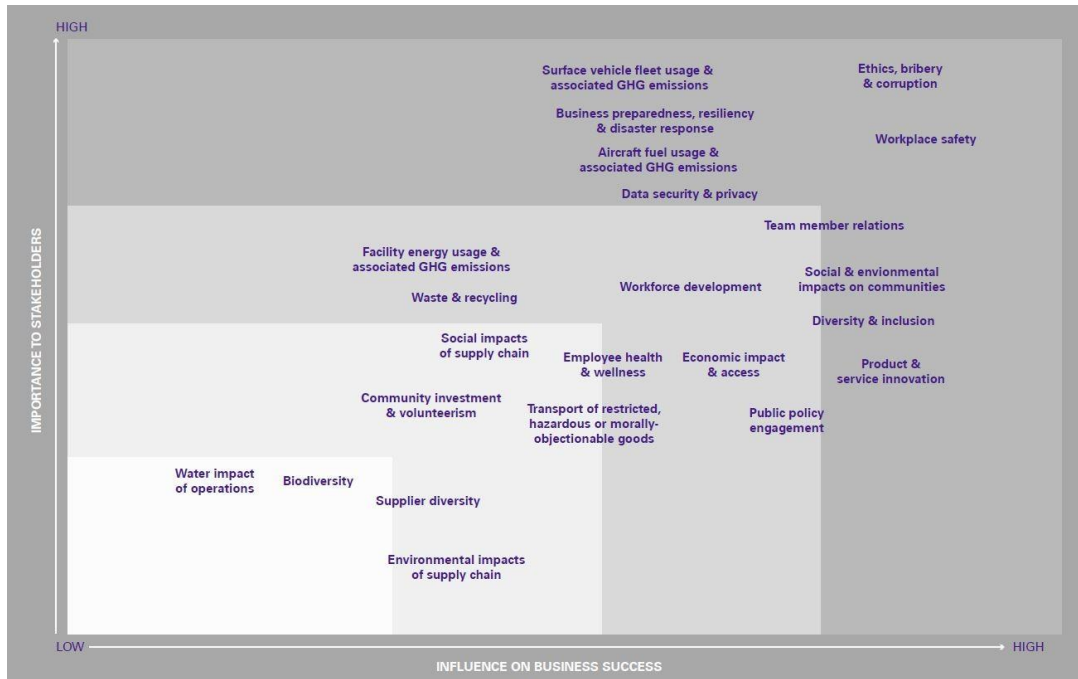


Figure B.5: The Fedex 2016 Global Citizenship Report uses stakeholders and business success.

Appendix C: ESG ratings and indexes

There is a growing demand for ESG factors to be incorporated into investment decision making and stewardship. In order to assign a single representative score to evaluate a company's ESG performance, investors rely heavily on ESG ratings. Unlike frameworks, which provide recommendations for what to report on and how to report it, ESG ratings assign a specific score to a business based on its ESG performance. Typically, third-party standards are responsible for the development of ESG ratings by collecting data from various sources (e.g., NGOs, company disclosures, sustainability reports, proxy reports, etc.). This way, they are able to generate ESG indexes that are used by the investors to assess companies much easier and quicker. In other words, just as credit ratings aim to measure a company's creditworthiness based on a number of criteria, ESG ratings aim to measure a company's exposure to ESG risks and how effectively it manages them.

Unfortunately, ESG ratings aren't always consistent across providers. Research conducted at the MIT Sloan School of Management found that prominent agencies' ESG ratings were only aligned in about 6 out of 10 cases [213]. However, ESG ratings are still an emerging product with rising importance, and they are expected to become more accurate and widely used in the future. Below, we summarize some key representatives of ESG ratings and indexes that are most commonly used:

- *Dow Jones Sustainability Index (DJSI)*: The DJSI indices launched in 1999 as a family of the first global sustainability benchmarks that track the stock performance of the leading (top 10%) companies worldwide in terms of ESG. The family was created jointly by S&P Dow Jones Indices and RobecoSAM. DJSI was designed for investors seeking to invest in companies that demonstrate good sustainability practices and wishing to reflect their sustainability convictions in their investment portfolios [214]. The DJSI introduces a number of forward-looking indicators, such as the evaluation of intangible assets, development of human capital, risk management, branding, climate change mitigation, and labor practices [215]. The DJSI family contains one main global index, the DJSI World, and various indexes based on geographic regions. In addition, the DJSI contains industry-specific indexes called "blue chip indexes".
- *FTSE4Good Index Series*: The FTSE Russell ESG Ratings Model contains over 300 indicators across 14 themes and 3 pillars (see Figure C.1). Companies' overall ESG rating is scored on a scale from 0 to 5, with 5 being the highest rating. For the

assessment of ESG practices, FTSE Russell accepts only publicly available data in order to enhance transparency across the market [216]. The FTSE ESG Ratings are used as the core element to determine the components of the FTSE4Good Index Series which was launched in 2001 by FTSE Russell based on EIRIS Foundation²⁴ [217]. The FTSE4Good Index Series is designed to provide objective ESG risk and aims to measure the performance of organisations demonstrating strong ESG practices. Hence, it acts as a market tool for investors who have recognized that sustainable business practices are critical to generating long-term shareholder value and want to use an index as a reference point for individual stock selection [218].

- **BoardClic's ESG Index:** Boardclic's ESG Index²⁵ is a benchmark that gives a clear view of how a company is performing in terms of ESG factors in comparison to other companies. It enables to get a better idea of where the organisation stands, how well it is doing and which areas should be improved. The index is calculated based on aggregated data on a range of important ESG questions and topics, such as stakeholder management, corporate health, diversity, culture, and climate. The index is calculated and updated once a month.



Figure C.1: Transparent and objective ESG ratings. Source: [217].

²⁴ <https://eirisfoundation.org/>

²⁵ <https://boardclic.com/esg-index/>