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ORGANIZING FOR SUSTAINABILITY

THE CASE OF VIMEC

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Firma

Manco Gobbi

*To all of you who have supported me
along this journey
in one way or another*

Now that five years of commitment, dedication, joy, some sad moments, and some angers are coming to an end, all I feel like doing is thanking those who have leave their trace along my personal route.

I am very grateful to my family, who have always supported me, even in difficult times, to my parents, Loris, and Annabella, for teaching me that everything can be achieved with commitment, and to my sister, Alessia, for showing me how to do it.

Thanks to my old friends, for making these years fantastic, sharing the joys and sorrows of life, and thanks to the new friends I have met during these academic years.

*And finally:
Thanks, Caterina, for all that you do for me.*

Marco

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INTRODUCTION & SUMMARY

THE REASON OF MY DISSERTATION – The purpose of this dissertation is to study the conditions that enable a company to organically initiate the transition process towards sustainability. Starting from the literature on change management, the study focuses on identifying a thread to create a new key to understanding change, where change itself is still in its embryonic stage, but many factors already play a key role in shaping the chances of future success of corporate sustainability programmes. A theoretical framework was then developed, comprising the factors which, according to the literature on corporate sustainability, change management, sustainable and circular entrepreneurship, and piecemeal, to the literature on sustainability pre-implementation factors, are considered critical for initiating sustainable change.

FIRST CHAPTER – SUSTAINABILITY: WHAT’S NEW? – The objective of the first chapter is to provide a literature background on sustainability, circular economy, and these paradigms applied to the business world. The first part of the chapter introduces the concept of sustainability and the three-pillar approach that this concept has adopted, that of environmental, economic, and social sustainability. From this consideration, the paradigm of the circular economy is introduced, presenting the *butterfly model* proposed by the Ellen MacArthur Foundation (2019), and the principles supporting this model, that of *eliminating waste and pollution, circulating products and materials, and regenerate nature*. After having provided this literature background, the chapter continues, focusing on the application of sustainability and circular economy concepts in the business world, arriving at a definition of circular entrepreneurship, a new concept that emphasises a new form of

entrepreneurship, inclined towards sustainability, but focused on creating a positive impact for society through the circular economy.

SECOND CHAPTER – FROM INTENTIONS TO EFFECTIVE CIRCULAR ORGANIZATIONS – After providing an overview about sustainability, the circular economy, and how these concepts are shaping the nature of businesses worldwide, the second chapter focuses on the changes that organizations face after the introduction of circular considerations for conducting their business. The chapter stresses that becoming circular is not an easy path, but requires specific managerial resources, a significant amount of time, and an organizational culture suited to support this kind of journey. The chapter highlights different business model that circular companies can adopt and focuses then on the importance of an effective supply chain management to reach the objective of the flowing of resources within the chain itself. Then, the focal point shifts on the *organizational fabric* of companies, highlighting the changes on the corporate governance and on the human resource management, and finally on the skills and competences that are needed to actually implement circularity and sustainability within the organization. The last part of the chapter analyses temporal dimension of the changes towards sustainable organizations, proposing two interrelated models.

THIRD CHAPTER – CHANGE MANAGEMENT: THE ESSENTIAL CONDITIONS FOR AN EFFECTIVE SUSTAINABLE TRANSITION – The objective of the first part of the chapter is to analyse the sustainable transition not from the result perspective, but to understand and highlight how to manage the change process, from its beginning to the end state where sustainability is organically present throughout the entire organization, also surpassing the companies' boundaries. The chapter starts therefore with the description of the Leading Change Model proposed by Kotter (1995), a model analysing each stage of transformation and the errors to avoid when implementing organizational changes. Then, organizational change is analysed under the lens of sustainability issues, finding drivers for such change, and discussing the *Sustainability Phase Model* proposed by Dunphy *et al.* (2003). The analysis of these frameworks and of the literature surrounding them has highlighted the critical importance of the leadership in driving change, and the weight that effective planning of these organizational changes plays in the probability of success of these programmes. The focal point shifts therefore in the last part of the chapter, where

supporting conditions are analysed which, if present before the kick-off of the process, would guarantee an organic planning of organizational change, and thus higher probability of success. From this overview of the literature, a comprehensive model is developed for companies planning sustainable transition, which will be the theoretical background for the research conducted.

FOURTH CHAPTER – RESEARCH METHOD – The only objective of the fourth chapter is to provide an explanation of the choice of using case study research methodology as the methodology selected for conducting the research. It encompasses an overall research methodology description, considerations on the research philosophy and approach followed, it clearly describes the research design implemented and provides considerations on population, sampling techniques, sources of data collection, data analysis techniques and limitations and ethical considerations. The goal is to have a clear background to better analyse data, formulate hypothesis and describe results in the final chapter of the dissertation.

FIFTH CHAPTER – CASE STUDY: VIMEC – The final chapter opens with an introduction to the case study that will be analysed. The procedures followed during the analysis are then presented, starting from the division into parts observed during the conduct of the interview. Then the attention is put on the codification implemented to transform every *Sustainability Precondition* into 2- to 3- characters codes. The questions designed for the semi-structured interview are then displayed. The last section of this final chapter is devoted to the actual analysis of the data collection results. A table was therefore designed to facilitate the reading and comprehension of the analysis, followed by a discursive part that takes up the most important considerations and provides a final key to understanding the issues dealt with, recalling the proposed research questions. In the conclusions to the chapter, which represents the conclusions of the entire dissertation, proposals for future research on these issues are provided.

SUSTAINABILITY: WHAT'S NEW?

1.1 Introduction

Climate change is one of the most discussed topics nowadays, its importance has increased since the publication of “Our Common Future”, also called the Brundtland Report (World Commission on Environment and Development (WCED), 1987), where the conflict between economic growth and the deterioration of the environment caused by such growth was highlighted. As a result, the Brundtland Commission sought to redefine the path followed by companies worldwide, by introducing a new logic to be followed, that of “*sustainable development*”, defined as:

«The development that meets the need of the present without compromising the ability of future generations to meet their own needs» (WCED, 1987, p.37).

In this view, companies are seen as part of the problem leading to worst environmental conditions, mainly because of the logic followed in their production processes. This approach is a one-way path that starts with inputs, like land, human resources or capital equipment and raw materials and ends with the provision of goods or services to customers, through a transformation process that most of the time entails the creation of waste. What most companies don't seem to get is that our planet has a finite amount of resources, and this linear model of doing business aimed at profit maximization without considering the repercussions on the environment and on future sustainability is not bearable.

Various school of thought have developed, from 1987 to date, to find new ways of making management sustainable, aimed at reducing environmental impact of various companies, mostly based on the Triple Bottom Line framework (Elkington, 1994), the latter used to assess the performance of a business, taking into consideration not only accounting aspects, but also social and environmental issues. One of the concepts that was developed

in this timeframe is the *circular economy* (CE), an economic paradigm with the objective of eliminating waste, where resources are circulated and nature is regenerated, which was formalized in 2012 by the Ellen MacArthur Foundation.

The challenge of sustainable development is becoming progressively relevant for businesses worldwide, as the introduction of climate as one of the major business risks underlines (Pattberg, 2012). A growing number of entrepreneurs are modifying their businesses to address these risks, becoming themselves main advocates for achieving sustainable development.

Following these themes, this chapter will focus on the concept of *circular entrepreneurship*, a new holistic approach of doing business, where circularity plays the fundamental role. This concept is still new, and a clear definition of the topic is not yet formulated and available, but the core characteristic of such entrepreneurship can be analysed to make it clear where it stands, as compared to other concepts such as *sustainable entrepreneurship*. The chapter will start by introducing the concept of sustainability and sustainable development goals, a set of 17 interlinked global goals developed by the United Nations General Assembly in 2015. The CE paradigm will then be presented as an introduction to the central topic of this dissertation, the concept of circular entrepreneurship. The latter will be analysed with the aim of addressing its fundamentals and main characteristics.

1.2 Sustainability and the three pillars approach

The modern concept of sustainability derives from the mentioned Brundtland Report, published in 1987 by the UN World Commission on Environment and Development. This publication attracted wide attention, from politicians to business leaders (Hopwood *et al.* 2005, Dovers and Handmer, 1993) and prompted discussions on its interpretation (Brown *et al.* 1987, Shearman, 1990). With widespread recognition, various definitions of the term “*sustainability*” and “*sustainable development*” has emerged through the years, addressing several facets and critical points of the concept. The origins of the term used by the Brundtland Commissions have been analysed in Kidd’s work “*The Evolution of Sustainability*” (1992), claiming that the search for an unambiguous and holistic definition of the term “*sustainability*” is futile in itself, as long as the area of application and a precise definition of the term is given.

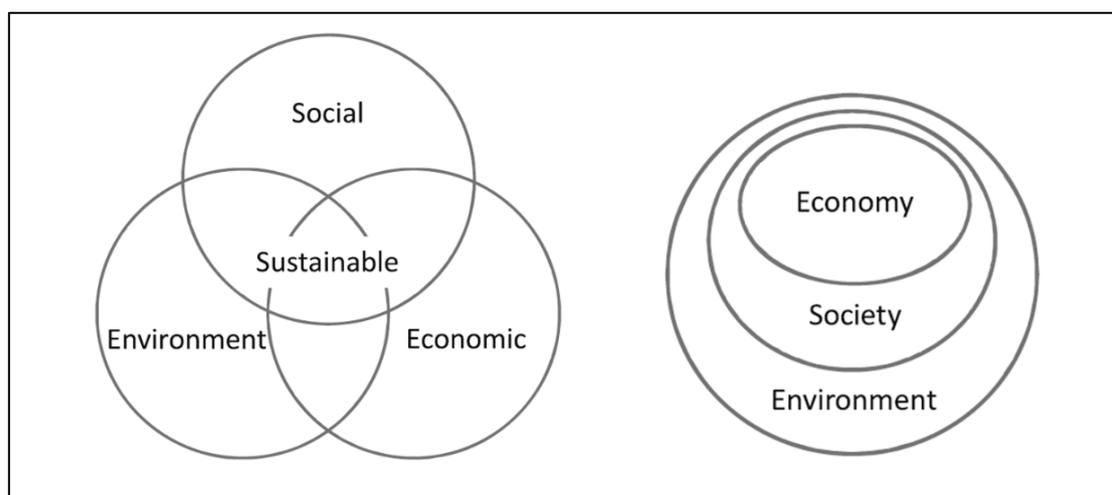
Box 1 *The evolution of Sustainability (Kidd, 1992). Roots of modern sustainability*

In "The evolution of Sustainability", Kidd (1992) supports the idea of the non-necessity of a single definition of sustainability, by analysing what he considers to be the "six separate but related strains of thought" that have contributed to the current concept of sustainability, namely: "The ecological/carrying capacity root", at the basis of the scientific strand derived from ecology and focused mainly on environmental degradation, population levels and land availability for human activities, which highlights the possible disasters that would result in the long-term as consequences of human activities, this literature also introduced the concept of carrying-capacity, defined by Riddell (1981) as the population of both humans and animals that an ecosystem can sustain; "The resource/environment root", which is a result of the concerns regarding the unsustainability of the growing population after the World War II and resulted in the creation of the environmental movement and the introduction of laws and regulations to control water and air quality, and incentives for the use of renewable energies; "The biosphere root", centred on the idea that human activities can degrade the planet; "The critique of technology root", which narrative pointed out the importance of maintaining values of agricultural communities, whilst limiting the use and development of technologies which worsen the distribution of incomes, by "incorporating the notions of justice or equity in the definition of agricultural sustainability" (Douglass, 1984, in Kidd, 1992, p. 9); "The no growth – slow growth root" which books relies on assumptions that growth cannot continue indefinite in the future, that economies where there is no-growth can contribute to better social goals and ethical values and that a shift from fossil fuels and a reduction of energy consumption is essential, and, finally, "The ecodevelopment root", highly influential worldwide in providing the rationale of the sustainability concept enunciated a decade later by the UN Commission on Environment and Development and derived from the definition

Although the Brundtland Report (1987) set the stage for the advancement of the concept of sustainability and sustainable development, critics arose, pointing out that the ambiguity of the terms used in its pages would turn such concept to meaningless words. Others (Daly, 1990, Daly and Townsend, 1992 and Goodland, 1995) argued that the notion of sustainable growth, inherent in the Brundtland Commission's terminology, could only be an oxymoron, emphasising that the term "growth" implies physical or material quantitative growth, whereas the term "development" means qualitative advance or refinement of something (a process, an approach, a good or a service). Another area of friction was the degree of sustainability recommended in various publications, divided in weak and strong (Haughton and Hunter, 1994), based on the range of substitutability between natural, human, human-made and social capital (Daly and Cobb, 1989). Weak sustainability proponents promote the substitutability of natural capital with human-made capital, as long as the total stock of capital is maintained intact, regardless of the segmentation of the same capital among the four kinds (Costanza and Daly, 1992); on the other hand, advocates of the strong sustainability approach redefine the paradigm of sustainability, emphasizing that natural capital and man-made capital are complementary but not completely interchangeable, given that critical characteristics of natural capital, such as irreversibility, uncertainty and the contribution that some function of the natural capital make to welfare (Ekins, *et al.*, 2003) are difficult for humans to duplicate. These contributions paved the

way to the definition of sustainability and the increasing adoption of the concept of the three interrelated pillars of environmental, economic, and social sustainability. The Brundtland's Report definition of sustainable development is, indeed, the outcome of the increasing consciousness about the linkages between the environmental challenges and socio-economic issues in tackling inequality and poverty and in ensuring a healthy life for the generations to come. This threefold vision is the basis for some key concept in the business world today, such as the *Triple Bottom Line* introduced by Elkington in 1994, used by companies to communicate to stakeholders about their performances regarding economic, environmental, and social topics and to continuously reviewing their strategies. There are some works that consider supplementary dimensions, such as institutional (Spangenberg *et al.*, 2002), technical (Hill and Bowen, 1997) and cultural (Soini and Birkeland, 2014) and, although the three pillars concept has become a commonplace in the literature, a univocal representation of their relationships has not yet surfaced. (Purvis *et al.*, 2019). The typical representation of sustainability as a Venn diagram with three intersecting circles, attributed to Barbier (1987), has been criticized for suggesting trade-offs, since economic growth is provided at the cost of environmental degradation and a general decline in the quality of life, bolstering the idea that a concentric model, where the economic system is a constituent of the social system, and the latter is curbed by the environment, could be more appropriate in depicting the three pillars as subsystems of each other (Macnaghten and Jacobs, 1997; Mebratu, 1998 and Giddings *et al.*, 2002).

Figure 1 Typical representation of the three pillars of sustainability as intersecting circles and concentric circles representation



Source: Purvis, Mao and Robinson (2019)

Sustainability has been at the core of the debate in the agendas of national governments, and national and international organizations for the past twenty years. Following on the success of the Brundtland Report in placing sustainable development at the centre of the economic-political debate, the United Nations have continued to place emphasis on the issue; in 2015 were published the 17 Sustainable Development Goals (SDGs), contained in the so-called Agenda 2030, and direct progression of the eight Millennium Development Goals, which expired in the same year. This unified framework of objectives has been adopted by all United Nations member states and represent a punctual partitioning of the three pillars of sustainable development. The SDGs are in fact: no poverty; zero hunger; good health and well-being; quality education; gender equality; clean water and sanitation; affordable and clean energy; decent work and economic growth; industry, innovation, and infrastructure; reducing inequality; sustainable cities and communities; responsible consumption and production; climate action; life below water; life on land; peace, justice, and strong institutions; partnership for the goals (United Nations, 2015). In an effort to ensure that goals are more actionable, specific targets were introduced in 2017 to allow for tracking of progress in each area, a total of 169 targets has been adopted, each corroborated by a number of indicators that ranges from one to four.

In the following sections the three pillars will be introduced, as some aspects will be useful in discussing the circular economy approach and the circular entrepreneurship paradigm.

1.2.1 Environmental Sustainability

One of the first, and fundamental, works on environmental sustainability (ES) is the article published by Robert Goodland in 1995, named “*The Concept of Environmental Sustainability*” (Goodland, 1995). In his work, the author gave a former definition of the environmental dimension, described as the sustainability targeted at preserving life-support systems worldwide. The environment is found to be crucial in providing two services for human activities and prosperity, namely the source and the sink functions, and ES chief purpose it to seek to maintain the efficiency of the source function, by imposing limitations on the use of renewable and non-renewable stock of resources, and the proper functioning of the sink side by limiting pollution and waste assimilation (Daly, 1991 and Pearce *et al.*, 2013).

On the latter side, these principles translate into constraints on waste emissions, that should be kept within the assimilative capacity of the environment. The sustainability of the source function entails limiting the harvest of renewable resources below environment's regeneration capacity and bounding the consumption of non-renewable resources to the rate at which renewable substitutes can be created (El Serafy, 1991). The principle underlying ES lies in the fact that, since the 1990s, the concept of scarcity is also applied to natural capital, i.e., the stock of assets provided by the environment, including soil and fauna, forests, atmosphere, and water (Pimentel *et al.*, 1992, in Daly and Goodland, 1996), and actions aimed at the intergenerational maintenance of this capital are therefore necessary. In practical terms, for a project to be environmentally sustainable, the local environment upon which such project acts should be able to cope with the waste emissions without degrading its absorptive capacity for the future (Daly and Goodland, 1996).

Environmentally sustainability can be ultimately defined, with the words of Morelli (2011), as:

«A condition of balance, resilience, and interconnectedness that allows human society to satisfy its needs while neither exceeding the capacity of its supporting ecosystems to continue to regenerate the services necessary to meet those needs nor by our actions diminishing biological diversity.» (Morelli, 2011, p. 5)

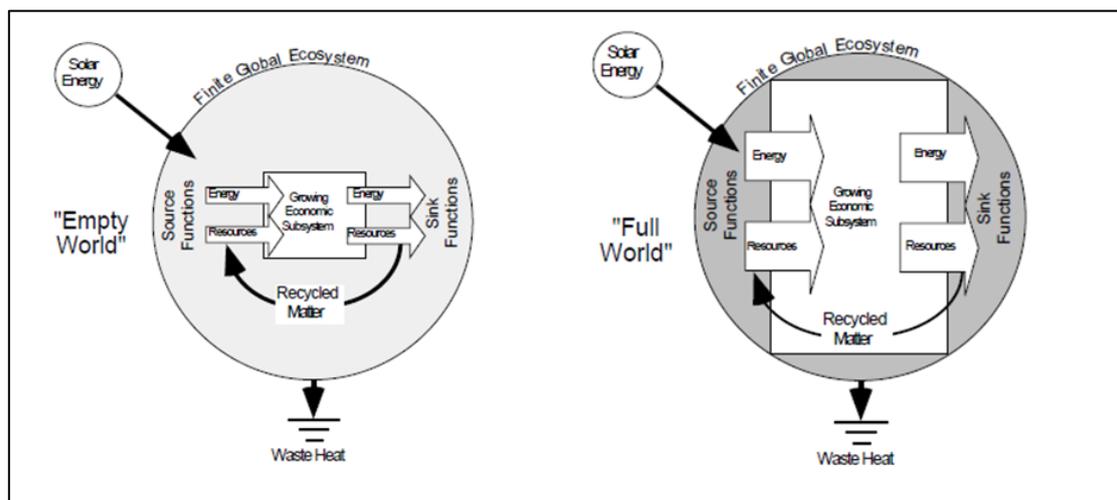
The paper also contains a list of guiding principles divided in five broad categories: Societal Needs, Preservation of Biodiversity, Regenerative Capacity, Reuse and Recycle, and Constraints of Non-renewable Resources and Waste Generations, that summarize all the concepts highlighted and applied in the literature regarding environmental sustainability.

It is a commonplace to consider environmental sustainability as the most influential among the three dimensions, given the fact that without a sustainable productive environment providing life-support functions, it would be extremely difficult to develop a sustainable society, similarly, creating an economic system constrained by the unavailability of an environment providing natural resources and energy would lead to its failure, given its long-term unsustainability. A sustainable eco-system is not dependent on the presence of a society or economy, and its capacity to adapt and maintain its equilibrium almost perpetually should be de facto considered as the golden standard in developing societies and economies that are truly sustainable.

1.2.2 Economic Sustainability

Sustainable development is the main issue dealt with by central governments and companies, but the division into three pillars, conceived as a facilitator in dealing with the different challenges, has created a distorted way of acting that emphasizes the economic aspects to the detriment of environmental and social issues, and this has been the status quo since the beginning of the XXI century. Most governmental policies focus on economic growth, treating environment and society as exploitable resources to achieve the goal, although the reality is that economic systems are subset of the society, which in turn depends on the environment (Giddings *et al.*, 2002), as depicted in the concentric view of sustainability. In order to tackle this problem and give governments and major companies a framework to develop sustainable policies, many economists have tried to give an explanation of economic sustainability based on the modern definition of income (Hicks, 1946) stressing out the relevance of resource scarcity and unsustainable population growth, pointing out that a continuous growth in GDP in a world of limited natural capital is unfeasible. The economic subsystem's scale, whose magnitude is calculated as current population times per capita consumption of resources (Ehrlich and Ehrlich, 1990), has in fact increased over the past decades, reaching a size where the global ecosystem is struggling in providing the primary source and sink functions. In this reality, it is therefore necessary to keep the size of the global economy at a level where the ecosystem is able to support it.

Figure 2 The economic subsystem relative to the Finite Global Ecosystem



Source: Costanza, Cumberland, Daly, Goodland and Norgaard, (1997)

Recalling the critique on growth versus development proposed by Goodland and Daly (1996), various economists' works and publications paved the way to the foundation of ecological economics, a transdisciplinary field of academic research concerned with issues related to the unsustainability of the economic subsystem. In their vision, sustainability can be achieved only if quantitative throughput growth is replaced by qualitative development, arguing that a sustainable economy's aim is to get better, not necessarily bigger (Costanza *et al.*, 1997). Ecological economics also support the strong sustainability paradigm, emphasizing the importance of sustaining the stock of natural capital for future generations. Considering the global economy, proponents of this research field argue that a more sustainable path could be achieved if three trends were to occur, developed economies should in fact opt for qualitatively sustainable development while helping less developed economies through a more equitable redistribution of intragenerational and intergenerational capital, allowing the latter to reach stable demographic levels, and as a result of these two trends, the restructuring the stock of natural capital could be achieved.

Another important concept in the economic sustainability dimension is the term decoupling, used to define the ability of an economy to grow at a rate that does not imply a worsening of the pressure exerted on the environment. Although the term has been used in every scientific field, in sustainability considerations decoupling means:

«Using less resources per unit of economic output and reducing the environmental impact of any resources that are used or economic activities that are undertaken» (UNEP, 2011)

Following this approach, its advocates place a central importance on the improvement in technological efficiency and innovation as ways to decouple the growth of the economy from the deterioration of nature (Daly, 1996).

Among the proposed solution to reach economic sustainability, the introduction of newly designed regulatory systems could be difficult for the purpose of achieving desired level of environmental protection, opting for more effective incentive-based management instruments, like marketable emission permits, pollution charges and subsidies for pollution abatement.

1.2.3 Social Sustainability

In the concentric representation of sustainability, the social dimension is in between the broader environmental dimension and the economic system. Although been specifically mentioned as one of the three components of sustainability (WCED, 1987), an unambiguous definition of the concept and a general framework have not yet been developed. A first basic delineation of the notion was given by Brown *et al.* (1987) as the “*continued satisfaction of basic human needs*”; recalling the five different types of capital, social sustainability has been related to the maintenance and development of social capital, the latter encompassing goals such as social cohesion, inclusion, diversity, and discipline, that need to be tackled by specifying a set of shared values, equal rights, and interaction and dialogue between communities, cultures and religions. The social capital maintenance must be complemented by investments in human capital, primarily in the fields of education, health, and the nutrition of individuals (Goodland and Daly, 1996). Spangenberg (2002), adopting the institutional dimension as a fourth dimension of sustainability, defines the focus of social sustainability on topics such as education, experience, skills, consumption, income, and employment, while, for the author, the institutional aspect is concerned more with distribution and gender equity, democracy, and participation. Also, McKenzie (2004) defined social sustainability as:

«a positive condition within communities, and a process within communities that can achieve that condition»

The author also presented a list of principles to be followed encompassing themes such as intra- and inter-generational equity, social sustainability consciousness, maintenance of such consciousness, local political participation, and community mechanisms to provide solution for the needs of society (McKenzie, 2004).

The lack of a univocal, non-vague definition is, moreover, one of the reasons why there is still no consensus on assessment criteria or frameworks pertaining social sustainability, also given the fact that indicators on the issue are increasingly qualitative in nature, encompassing social and physiological factors that are dependent on people's preferences and background. This trend is analysed by Colantonio (2009), who points out that "soft" issues such as well-being, happiness, participation, and quality of life are increasingly being embedded in traditional concepts of social sustainability such as basic needs, equity, employment, education, and health, thus leading to a greater attention to these new

issues that are more complex to define, with a consequent increasing difficulty in measuring social issues related to sustainability.

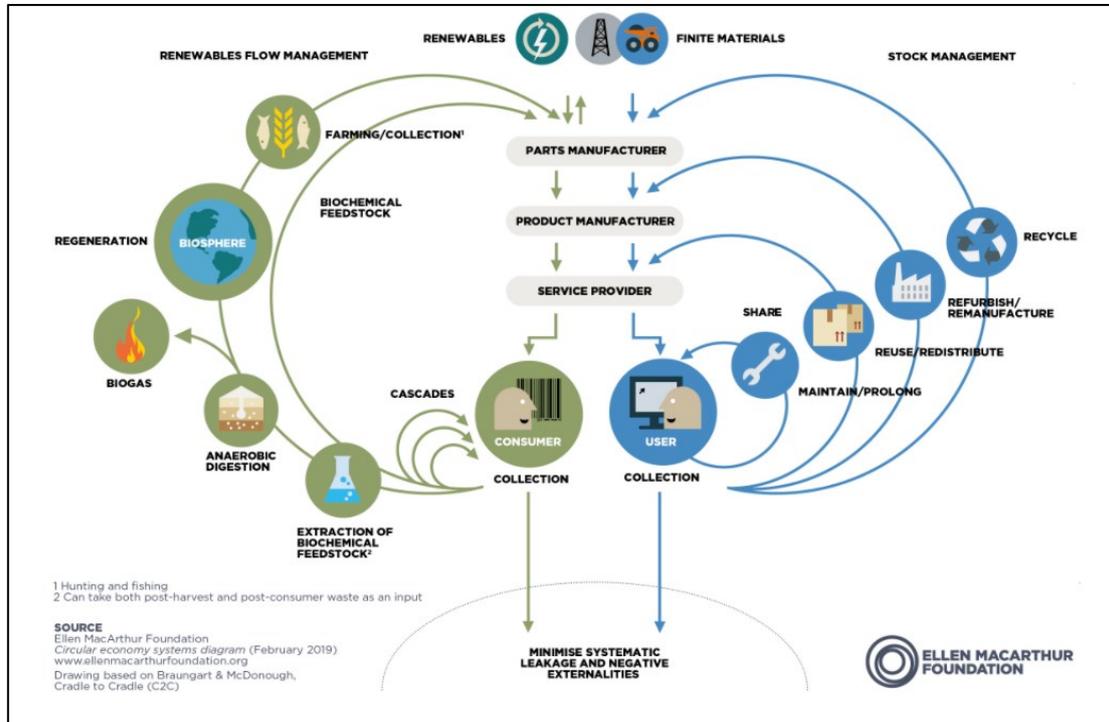
1.3 Circular Economy

Various mechanisms have been followed since the adoption of the sustainable development goals to reach the 2030 targets. One of the concepts that has attracted the most interest in the public and private sectors and also in academic research over the past decade is the circular economy (CE), also termed circularity. This notion is used to define an economic model which is designed with the triple intent of minimizing resource input, the production of emissions, and waste as by-products of the production process. The theoretical background of this concept is rooted in the fields of ecological economics, industrial ecology, and environmental economics (Ghisellini *et al.*, 2016). The adherence to and support of CE principles are the outcome of ongoing partnerships between important non-profit institutions, most notably the Ellen MacArthur Foundation (EMF), with public agencies and intergovernmental bodies, which have led to the adoption of supranational policies centred on this new economic paradigm.

The foundation of this model lies in the fact that circularity is the guiding principle of all processes that we see in nature, and so, our economic system should adapt to this “dogma”, emulating natural environment and redesigning production activities, if the stability of economies and the integrity of natural ecosystems are to be maintained. CE is usually studied by applying a system perspective, as its concepts can be applied at all levels of human life, they can in fact be applied at the macro level, comprising nations and international policymaking, at the meso level, considering eco-industrial parks, and at the micro level, operating on products design and life cycle, and on companies’ policies and consumers behaviour. It is an all-comprehensive paradigm focused on the R-framework, where Reduce, Reuse and Recycle imperatives play a central role, although other R-imperatives emerge (Reike *et al.*, 2018), and it is directed at closing the loops of resource flows. To achieve this objective, another central principle of the CE, furthered by the Ellen MacArthur Foundation, is the division in Biological and Technical cycle in a feedback-based system that has been addressed as the “*Butterfly Diagram*”, endorsed by the adaptation of the Cradle-to-Cradle design concept, first introduced by Braungart and McDonough (2002), as a strong opposition to the linear model of production and consumption pattern, defined as Cradle-to-Grave. The CE is, in fact, an alternative approach

to the linear pattern of “take, make and dispose” (Ness, 2008) that is grounded on continuous growth and increasing resource throughput.

Figure 3 Circular economy systems diagram



Source: Ellen MacArthur Foundation, 2019

The Biological loop entails the cycle of biodegradable raw materials, called nutrients, from their deployments through their return to the natural cycles. This cycle is fundamentally dependent on the restorative capacity of the environment, the objective is to use natural resources at a level that does not exceed natural capabilities to restore its capital. On the other hand, in the Technical cycle, materials and products that are not biodegradable are taken into consideration. Here, the loop of resources is imperfect since natural cycles cannot restore their value, therefore additional value should be provided by recycling, remanufacturing, reusing, and maintaining such materials. The CE is different from simple recycling in that the latter, as a simple recover of raw materials, is the last step in the loop. The inner circles of the *Butterfly Diagram* entail less resource demand and are more economic, thus, CE aim is to maximize the time that resources spend in the inner circuits, leveraging the inherent value in materials in as many high value applications as possible (Korhonen *et al.*, 2018).

Although materials provided by the biological and technical cycles can be combined to form finished products, when a product has reached the stage of recycling, the two types of resources must generally not mix, to preclude the formation of blended waste.

Following these insights, a prominent definition of CE has been delivered by the Ellen MacArthur Foundation (2012, p. 7), which states:

«[Circular Economy] is an industrial system that is restorative or regenerative by intention and design. It replaces the “end-of-life” concept with restoration, shift towards the use of renewable energy, eliminates the use of toxic chemicals, which impair reuse, and aims for the elimination of waste through the superior design of materials, products, systems, and, within this, business models»

1.3.1 Three principles of circular economy

The circular economy is based upon three interrelated principles: eliminate waste and pollution; circulate products and materials; and regenerate nature. The following bullet list gives a brief explanation on the three to understand the modalities and aims through which CE can support the achievement of a sustainable world.

- *Eliminate waste and pollution* is the first principle, it emphasizes the role of CE in redesigning the production activities in order to have virtually no wastes and pollution. In addition to the considerations presented above regarding the useful life of materials and resources in the Technical and Biological cycles, one of the main objectives of the circular economy is indeed to reduce pollution, tackling greenhouse gas emissions as a primary issue. To facilitate this goal, waste and pollution must not be considered as inevitable, but rather as design flaws that should be eliminated through more effective materials and technologies.
- *Circulate products and materials*: Following the pattern of circularity that permeates nature, upon which CE is based, another cardinal rule is the one regarding the circulation of products and materials. Considering that technological development entails higher rates of obsolescence for almost all technical products used in everyday living, the objective to pursue is to develop new products design to make it possible for components, if not the product itself, to be reused and recycled for reaching the highest possible value creation through time, following the cradle-to-cradle design approach. Again, examining the *Butterfly Diagram*, the purpose of CE is to optimize resource

yields by circulating products, components, and materials at the highest value creation applications for the longest time possible.

- *Regenerate nature*: Being an industrial system that is restorative or regenerative by intention, as cited above, the third guiding principle of CE is to regenerate natural capital, following the cyclical essence of resources that includes water, carbon, and minerals, where the concept of waste does not exist. By decoupling growth from resource extraction, thus reducing dependence on resources, and focusing on renewable resource usage within the restorative capacity of the natural system, adopting circular economy can create an environment where biodiversity, and so society, can thrive.

1.3.2 Win-win-win potential of circular economy

The circular economy is stated to facilitate the reaching of the objectives of sustainable development. Of the three dimensions of sustainability, the economic and environmental aspects are predominant in literature and research on CE, with marginal emphasis given to the social dimension (Murray *et al.*, 2017 and Moreau *et al.*, 2017).

Although many authors emphasize the role played by CE in uniting economic and environmental sustainability concepts, there is a strand of researchers supporting the notion that this economic model also entails social considerations. The definition given by Van Buren, Demmers, Van der Heijden, and Witlox (2016) on circular economy is one of the most comprehensive of this group, including the 3R framework and the hierarchy of the various R concepts, the systems perspective, fundamental topics in CE studies, and all three dimensions of sustainability: environmental quality, economic prosperity, and social equity. Focusing on sustainable development, the given definition reads:

«a circular economy aims for the creation of economic value (the economic value of materials or products increase), the creation of social value (minimization of social value destruction throughout the entire system, such as the prevention of unhealthy working condition in the extraction of raw materials and reuse) as well as value creation in terms of the environment (resilience of natural resources)» (Van Buren *et al.*, 2016, p. 3)

The concept of CE seems to be promising also in the business world, as a new approach to be followed by companies. It is in fact promoted by several businesses around the world and is becoming widely accepted, thanks to the fact that it has been created mainly by the business community, policy makers and practitioners (Korhonen *et al.*, 2018). The model of circular economy, if adopted in a systematic way, also considering the limits imposed

by the current economic model (linear economy and the use of energy generated largely from non-renewable sources), can ensure the achievement of several economic, political, and social objectives, as can be seen in Table 1.

Table 1 Contribution of CE to environmental, economic, and social dimensions of Sustainable Development

SUSTAINABILITY DIMENSION	PHASE OF THE PRODUCTION PROCESS	
	INPUT	OUTPUT
ENVIRONMENTAL CONTRIBUTION	Reduced material and energy input that are virgin If not possible, inputs used should be renewable from natural ecosystem	Reduce wastes and emissions Resources in the system are used many times
ECONOMIC CONTRIBUTION	Reduced raw materials and energy costs Higher value of resources since they are used many times Minimization of scarce, non-renewable, and costly resources Reduced costs that come from legislation and tax benefits Brand awareness, image, responsible, and green market potential	Value depletion and resource losses are reduced Reduced waste management costs Reduced costs for emission control Reduced costs from environmental legislation and taxation New business image can attract investments
SOCIAL CONTRIBUTION	New employment opportunities as new jobs and skills are required thanks to the reuse paradigm and the higher value embedded in resources Thanks to the sharing economy as deriving from the circular economy, adopting a vision on the value of the product rather than on consumption, user groups can share the value of a physical product, thus, increased sense of community, cooperation and participation can be achieved	

Source: adapted from Korhonen *et al.* (2018)

The EMF stresses the importance of business models as enablers of the circular economy. This paradigm is, in fact, seen as instrumental in supporting businesses worldwide in implementing the principles of sustainable development (Ghisellini *et al.*, 2016). As mentioned in the table above, by applying CE principles in the business world, new employment opportunities can be created, thus helping in shaping wealthier communities. It is in fact estimated that a transition to more resource-centric business models would help create about 6 million new jobs by 2030, in activities related to recycling, repairing, renting, and remanufacturing (International Labour Organization, 2018), of which 700,000 alone in the European Union (Committee on the Environment, Public Health and Food Safety, 2020). The benefits are not just about labour, which poses a cost to companies, but also about the potential generation of \$4.5 trillion in economic growth. Research conducted by consulting firm Accenture has estimated the sleeper potential of this new economic

model by estimating the loss in natural resources to which current business practices would concur to by 2030, that is equal to North America resource usage in 2014 (Lacy and Rutqvist, 2016). The importance of the circular economy is also stressed by investigations conducted jointly by the Ellen MacArthur Foundation and the McKinsey Center for Business and Environment (2015), emphasizing how the CE, if supported by technological advancement, could secure Europe a source of productivity growth of about 3% per year. The total annual benefits, according to estimates, would amount to about €1.8 trillion, compared to the current situation, with positive impacts on employment, welfare, the environment, and on competitiveness and resilience of businesses.

The adoption of a circular business model is only one facet of the implementation of sustainability in the ways business undertakings are carried out. Following this incipit, in the next paragraph sustainability applied to companies' processes, termed business sustainability, will be addressed.

1.4 Sustainability in the business world

In business, sustainability means achieving the developed strategic objectives, without negatively impacting the environment, community, or society in which the business is conducted. Adjusting the definition of sustainable development given by the World Commission on Environment and Development (1987), business sustainability has been defined as:

«The ability of firms to respond to their short-term financial needs without compromising their (or others') ability to meet their future needs » (Bansal and Des Jardine, 2014)

In the past decades, companies have been the most polluting actors in our society, creating an increasing debate among policymakers, NGOs, and business organizations on how to deal with such critical issue. This growing attention has led to a shift in the business world, with several investors now using environmental, social, and governance (ESG) metrics when valuing and analysing an organization's impact and sustainability practices, thus, sustainability-related corporate strategies, encompassing equally all three dimensions of sustainability (Parnell, 2008), have become critical for competitiveness in the current market. Sustainability in business practices can influence a range of variables that are critical for the ability to compete and the success of a company. Among these factors, Schaltegger, Lüdeke-Freund, and Hansen (2012) identified six common business drivers

which, by conducting a literature review, were found to be positively impacted by a heightened focus towards sustainability within the company. Better management of material flows and reduction in material usage have strong impact on *costs*; more comprehensive management decisions, taking into consideration also sustainability concerns and the resulting strategy development and communication contribute to better spot major risks of businesses, such as technical, political, and market *risks*; corporate sustainability can also positively influence *sales and profit margins* and increase *brand reputation and market value*; sustainability can also boost a company's *attractiveness* in the eyes of current and prospective *employees*, increasing retention rate of high-skilled workers, while ensuring that different visions can be leveraged for additional *capability to innovate* (Schaltegger *et al.*, 2012).

Table 2 Business Drivers and the impact of sustainability practices

DRIVER	MAIN PROPONENTS	IMPACT OF SUSTAINABILITY
Costs and cost reduction	Christmann (2000)	Better management of material usage and flows
Risk and risk reduction	Schaltegger and Wagner (2006)	Risks are better managed, more risks are taken into consideration
Sales and profit margin	Porter and Van der Linde (1995)	Higher sales thanks to consumer preference shifts
Reputation and Brand Value	Ehnert (2009)	Higher reputation/brand value
Innovative capabilities	Schaltegger and Wagner (2011)	Skilled and innovative workers are more keen to work for sustainable businesses

Source: adapted from Schaltegger, Lüdeke-Freund, and Hansen (2012)

To achieve corporate sustainability, firms should divert from old management style, focused only on economic growth and profit, by integrating economic, environmental, and social aspects in an inter-related way, blending the pursued strategies with the principles embodied in the triple-bottom-line (Elkington, 1997). Corporate management should therefore develop strategies that are in harmony with the concept of capital developed by sustainability theorist, thus managing economic, natural, and social capital (Dyllick and Hockerts, 2002), and ultimately, incorporate more long-term strategic objectives, shifting from the short-term perspective that has become a chain to develop real sustainability. Apart from the strategic point of view, sustainability must be embedded throughout the entire organization, Eccles, Perkins and Serafeim (2012) support the idea of a widespread dedication to reach sustainability, driven by strong leadership commitment, external engagement of multiple stakeholders along the value chain, active employee involvement,

and well designed (and enforced) mechanisms for execution. In their view, a supportive organizational culture grounded in change capabilities, innovation, and trust is the foundation of this transformational process, reinforcing the above-mentioned drivers of sustainability while being amplified by the latter.

Dyllick and Muff (2016) fostered this view by emphasizing how sustainable development should be emphasized in all the components of a business venture, namely operations, governance, management, marketing, human resources, organizational structures, and culture, as well as auditing and reporting functions. They also refined the work of Dyllick and Hockerts (2002), creating a framework for identifying three different typologies of business sustainability (BST), BST 1.0, 2.0, and 3.0. These typologies entail increasing differences from business-as-usual type of firms, as regard the point of view on concerns, value created, and organizational perspective. The true sustainable business, based on BST 3.0, is the one that has implemented three major perspective shifts:

- *First shift*: shifting from an economic-centric view to a three-dimensional view encompassing social, environmental, and economic concerns.
- *Second shift*: expanding the value considerations from shareholders perspective to value proposition encompassing all three dimensions of the triple bottom line (TBL) (Elkington, 1997).
- *Third shift*: changing organizational perspective from inside-out, centred on the business, to an outside-in perspective, thus changing value creation perspective from triple bottom line to creation of value for the common good.

To truly assess business sustainability, however, a series of facilitators are needed: transparency is required so that the contributions of various companies towards sustainability can be effectively evaluated, compared, and improved, thus, external assurance will play a central role in verifying transparency.

1.4.1 Corporate Social Responsibility

One of the most known facilitators contributing to transparency of sustainable business initiatives is the ISO 26000. This standard, developed by a joint leadership between the Swedish Standard Institute and the Brazilian Association of Technical Standard, was designed to provide organizations with a framework to assess their impacts on society and the environment. This international standard is the coronation of Corporate Social

Responsibility (CSR) as one of the most influential topics on business practices and can be seen as a guiding tool for companies worldwide when trying to implement sustainable actions. A first definition of the term reads that CSR represents for the company a continuous and lasting commitment to behave in an ethical manner, contributing to economic development, without neglecting, but on the contrary, improving, the quality of life of employees, the local community, and society in general (Watts and Holme, 1999). Corporate social responsibility is a multidimensional approach, conceiving a wide variety of social and environmental problems (Lindgreen and Swaen, 2010). CSR has developed over the last decades as a response to external pressure, made by policymakers, and internal ones, deriving from employees and companies' stakeholders, as a way to address how companies act towards society.

Although increasingly important for business reputation worldwide, corporate social responsibility is still based on ISO 26000, which is a voluntary guidance standard, and no certification for applying such standard is rewarded to compliant companies.

In the last years, following the principles of CSR, increasing weight on the impact on society, environment and economy has been placed on companies. One of the business fields where such concept was further developed is in the investment banking market, where ESG evaluation is an increasing and profitable market. By adopting ESG reporting, a company is required to present and made available reports containing both financial and non-financial data that complies with standards developed by international standard setting bodies such as the Global Reporting Initiative.

1.5 Circular entrepreneurship

The chapter focused on the increasing importance of sustainable development and on the current challenges that businesses are being called upon to face. Terms such as sustainable development and sustainability are commonly used today in almost every aspect of business activity, from governance, operations, marketing, to human resources, supply chain management, and culture. Researchers, practitioners, businessmen and policymakers are all actively involved in trying to promote new ways of operating that could help society in reaching the objectives set by the United Nations in the SDGs.

Following the concept of circular economy, an increasing number of companies are adopting circularity principles in their activities, creating a new typology of sustainable organizations that needs revised business models and value proposition, paving the way

to the introduction of a new paradigm in entrepreneurship literature, the circular entrepreneurship.

Circular entrepreneurship is a new paradigm in the entrepreneurship field, focused on the change agent implementing circular economy principles in the organization. It is strongly related to the concept of BST 3.0 presented above, as it is a perfect example of an organization that has completed all three shifts from business-as-usual type of firms. It is a form of entrepreneurship that is focused on sustainability but differs from other type of sustainable businesses as it entails an intentional commitment towards the creation of positive impact for society and the environment on which the organization perform its business functions. The application of circularity in a company entails a management revolution requiring a reframe of the economic and management system (Auerswald, 2012). The implementation of circularity in business practices, supported by technological innovation, institutional support, appropriate legal systems, and public policy incentives, can be seen as a means to reach the objective of sustainable development. More generally, it is entrepreneurial initiatives that can drive towards a more sustainable future, detaining a higher capacity of reaction in the short term and, moreover, the ability to introduce radical changes autonomously, compared to other actors such as international institutions or national governments. (Zucchella and Urban, 2019).

1.5.1 Sustainability and entrepreneurship

The role played by managements of leading companies worldwide has been a core driver of sustainable development; entrepreneurs and managers are shaping markets and society, given the significant contribution that the innovations they introduce represent. The entrepreneur, defined as a given person or decision maker, such as board of directors, is responsible for assessing opportunities and threats, in view of the strengths and weaknesses of its company. Sustainability is a central topic in business considerations, and organizational impacts on sustainability are more and more taken into considerations by a wide variety of stakeholders, thus, entrepreneurs are called to act in accordance with internal and external pressures towards sustainable development. Adapting the definition of Schumpeter (1934) of entrepreneurial activities as creative destruction, entrepreneurs striving for sustainable business alternatives are “destroying” the conventional business world, by changing production and consumption patterns, and market structures, pledging to find products and/or services offering more environmental and social benefits

(Schaltegger and Wagner, 2011). The relationship between entrepreneurship and sustainable development has been analysed from various perspective, often focusing on selected areas independently. Embedding environmental consideration in the literature of entrepreneurship has led to the definition of ecopreneurship, while studies and research on entrepreneurs bent on achieving socially desirable outcomes have paved the way to the definition of social entrepreneurship. It is only recently that a holistic view integrating social and environmental aspects for creating a business venture, contributing to sustainable development, has been addressed, under the new concept of sustainable entrepreneurship.

1.5.2 Types of entrepreneurships embedding sustainability aspects

Early applications of the entrepreneurship literature to sustainability aspects have focused mainly on environmental concerns, shaping the figure of environmentally oriented entrepreneurship, called also “ecopreneurship”. The logic followed by ecopreneurs is to obtain an economic advantage while solving environmental problems or contributing to better environmental conditions, by considering environmental performance as an integral part of the economic performance of the business venture (Hockerts and Wüstenhagen, 2010). Another definition of the role played by ecopreneurship is given by Keogh and Polansky (1998), stating that ecopreneurs determine the potentiality and opportunities of a business through the “*lenses of environmental commitment*”, this view was backed up by Schaper (2002), pointing out that the implementation of environmentally sustainable business practices supported by the adoption of sustainable business frameworks can provide entrepreneurs and companies with additional market niches and profit opportunities. Environmental value, therefore, is not generated as a by-product of economic value, but rather the opposite is true. As the literature on the environmental entrepreneur is comprised within the macro-topic of entrepreneurship, innovation plays a crucial role in helping environmentally sustainable firms reach their objectives, like incorporating sustainability in product design through what is called eco-innovation. This strand of thinking differs, however, from other forms of entrepreneurship, in that it only considers ecological aspects for reaching economic benefit, focusing primarily on environmentally related issues and not on the whole triple bottom line.

Another typology of entrepreneurship, detached from the environmental entrepreneurship, is the social entrepreneurship. As the name suggests, this type of entrepreneurs is

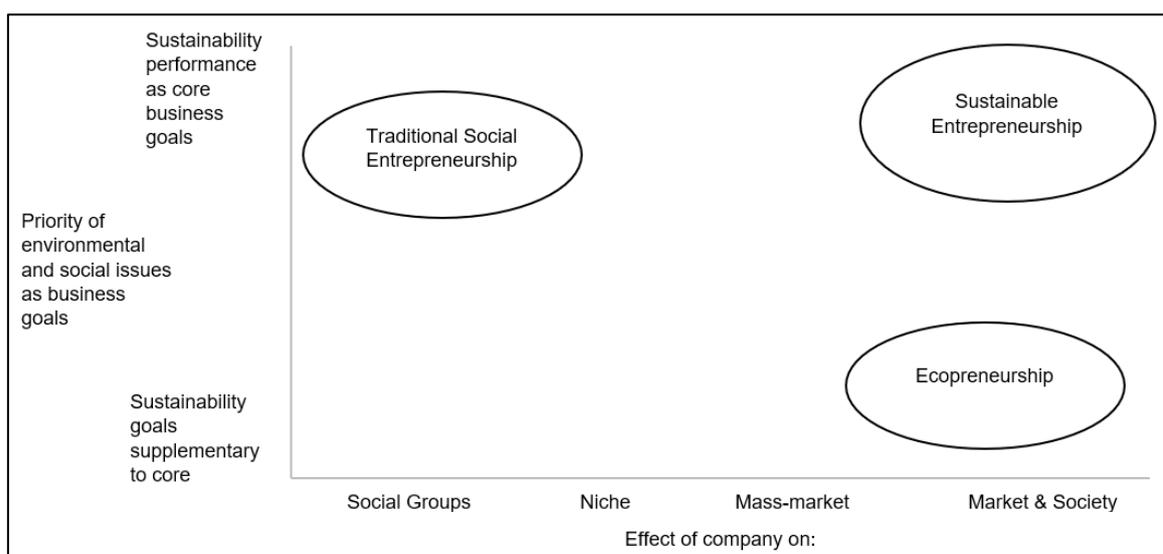
motivated by the creation of value for society, seeking solutions to social problems. Among the most marked differences with respect to ecopreneurs, advocates of social entrepreneurship highlight how the economic purpose, i.e., the creation of profit, is not so demarcated in this last type of entrepreneurship, becoming a means by which to achieve societal goal, and no longer a strategic objective. By treating profit as a mere vehicle to reach the objective of social value creation, social entrepreneurship has developed in various organizations, comprising also not-for-profit organizations. Austin (2006), indeed, defined this type of entrepreneurship as an innovative, social value creating activity that is not confined to the business sector but can be found also in the non-profit and the public sectors. It is a form of entrepreneurship embedding altruism in the current capitalism paradigm, by placing a value on human activities not dependent on business terms (Tan *et al.*, 2005). Although innovative, most social entrepreneurship initiatives have failed to reach the larger society and are mainly focused on smaller communities. Tan *et al.* (2005) have also stated that policymakers must ultimately support such business initiatives in scaling their business, to make them effective and sustainable.

With the increasing awareness of sustainability on the part of several types of stakeholders, beyond the shareholders primacy, and encompassing all three aspects of the triple bottom line in an interdependent logic, there has been a growing need to have a comprehensive definition that departs from the fragmented concepts of sustainable entrepreneurs derived from the academic literature on environmental and social entrepreneurship. Sustainable entrepreneurship's aim is to contribute to sustainable development, this contribution is not limited to corporate boundaries, but goes beyond them, in an attempt to spread sustainability through the market and society at large. It is strongly dependent on radical sustainability innovations and on the discovery and exploitation of entrepreneurial opportunities deriving from stakeholders' demand and needs. (Dean and McMullen, 2007). It is in fact the improvements demanded by fringes in a society that can represent enormous business opportunities for entrepreneurs, as those stakeholders can represent lead users and so foreshadow a larger future demand (Schaltegger and Wagner, 2011). Sustainable entrepreneurs embody a combination of strong social and environmental values with entrepreneurial attitude (Schaltegger, 2002). Schaltegger and Wagner (2011, p. 5) developed a definition of sustainable entrepreneurship that states:

«[Sustainable entrepreneurship] can be described as an innovative, market-oriented and personality driven form of creating economic and societal value by means of break-through environmentally or socially beneficial market or institutional innovations.»

The three forms of entrepreneurship described in this section differs in terms of the extent of the effects of the company’s activities and in the priority given to environmental and social issues.

Figure 4 Typologies of entrepreneurship in the sustainability discourse



Source: Adapted from Schaltegger (2002) and Schaltegger and Wagner (2011)

Social entrepreneurs are in fact focused on restricted social groups, but give high priority to social issues, and social sustainability is therefore a core business goal. Ecopreneurship gives slightly less priority to sustainability performance, but usually tries to implement changes in market and society through its initiatives. On the other hand, sustainable entrepreneurship is both focused on changing market and society, by embedding social, environmental, and economic issues as core business goals to reach company’s success (Figure 4).

1.5.3 Fundamentals of circular entrepreneurship

The implementation of circularity principles in an enterprise, as already stated, can be seen as a means to reach the objectives of sustainable development. The entrepreneur whose business initiative entails circularity is referred to as circular entrepreneur, and circular entrepreneurship is the epithet given to companies adopting such transition. The circular entrepreneur, in its conception, is a typology of sustainable entrepreneur, as

defined by Schaltegger and Wagner (2011), seeking the creation of positive effects for the environment and society while performing business activities.

Circular entrepreneurship is deeply embedded in the transformational process that need rethinking in terms of relationships with stakeholders, production processes, and consumption patterns and in terms of technical, legal, and cultural context (Zucchella and Urban, 2019). Such conversion has been incentivised in recent years by private and public organizations and governments in main industrial countries, by developing specific laws and regulation, and, in practice, by funding valuable projects. The European Union is strongly backing circular economy, with Netherlands, France, Germany, and Italy being the leading countries. People's Republic of China has become one of the most active countries worldwide, by starting the transition of its industrial agglomerate to CE in 2009, when the Circular Economy Promotion Law came into force (McDowall *et al.*, 2017).

Although increasingly important, a clear definition of circular entrepreneurship has not yet surfaced, being in any case a new branch of the literature on entrepreneurship, and also bearing in mind the fact that the two founding notions of the term, "sustainability" and "circular economy", are not static expressions but they are subject to continuous changes. Zucchella and Urban (2019), among the most authoritative scholars on this topic, have stated that:

«Circular entrepreneurship consists in the process of formation and exploitation of opportunities, using both commercial and ecological logics to address environmental challenges with the aim of closing, narrowing, and slowing the loop of resources and of generating/reconstituting natural capital. Circularity principles apply also to human resources and intangible resources.»

This definition comprises elements of social and environmental entrepreneurship, it does not make a distinction between born circular start-ups and incumbent firms approaching circular transformation. It encompasses various aspects of the organization, highlighting the possibility for circular entrepreneurship to be beneficial for all three aspects of the triple bottom line (People, Planet, and Profit), finally, it concerns the entrepreneurial process, from the exploration phase, all the way to the exploitation of opportunities.

The authors also mention several aspects that require the utmost attention from circular entrepreneurs in the conduct of the business venture:

- Create wealth, by designing goods and services that are really useful and needed, in a sustainable way

- Invest resources to prompt sustainable performance
- Use digital technologies, analysing data for the benefit of customers and users
- Innovate through research and development with the aim of creating sustainable competitive advantage
- Implement recycling processes of materials and products to minimise wastes
- Reduce CO₂ emissions and energy consumption from business processes, infrastructures usage and transportation
- Spread circularity through communication and training
- Adapt the organization to be effective in the transformation process to circularity

Circular enterprises are designed to be inclusive and collaborative, this new entrepreneurial paradigm needs to be applied extensively, surpassing organizational boundaries, by promoting, on the one hand, information flows throughout the value chains in a perspective of open-source sharing, creating open networks, and, on the other hand, closed loops for material usage optimization. Creating connections throughout the value chain, with suppliers, distributors and retailers, manufacturers, and consumers, is essential, as these connections are at the basis for implementing strategies for reducing material usage, using materials more efficiently, reducing waste and emissions, and at the same time, extending products and resources' life cycle (Vasiljevic-Shikaleska *et al.*, 2017)

Scalability of this entrepreneurial form is therefore a key challenge that entrepreneurs must face (Leisinger and Bakker, 2013). Circular entrepreneurs must therefore become “activators” of this transformational process, and successful businesses can thus enable positive spill-over effects for other companies (Stern, 2010).

Hoogenstrijd (2019) has enriched the literature on circular entrepreneurship focusing on the personality of the entrepreneurs adopting circularity principles in their businesses by analysing the vision and ambition of these economic actors, starting from the founder identity theory (Fauchart and Gruber, 2011), and embedding growth and scalability considerations in its research. By interviewing 40 entrepreneurs, 20 circular and 20 linear entrepreneurs, the author found that circular entrepreneurs are mainly identified with the *missionary identity*, meaning that they embrace a definition of success that goes beyond the mere creation of profit, focused on creating a business with a purpose to contribute to society, seeing their firms as political objects (Fauchart and Gruber, 2011). The sample of circular entrepreneurs was found to be strongly driven by environmental motivation,

as the totality of the group responded in that way, and to a lesser extent by social motivations. Further investigation by the author, based on the opportunity-necessity framework (Reynolds *et al.*, 2002), suggests that circular entrepreneurs are driven mainly by an *intrinsic necessity* and an *extrinsic opportunity*, defining their motivation as:

«[...] a need, obligation or mission to do something about environmental or social issues they perceive, whilst simultaneously spotting an opportunity to accomplish and act upon that drive.» (Hoogenstrijd, 2019, p. 32)

The analysis focusing on the adopted business model also highlighted an unclear prioritization along the triple-bottom line, insights from the responses suggest that environmental conservation (Planet) is by far the most critical aspect, followed by Profit creation and ultimately by social equity concerns (People).

These insights also provide explanation on the higher emphasis put by circular entrepreneurs on revenues growth than linear entrepreneurs, used as a control group. Despite the fact that this outcome seems a contradiction, an explanation could be extracted, considering that the former typology of entrepreneurs is focused on creating positive impact on society at large, as already stated, and revenues growth represent a necessary step in creating the basis for impact growth. For circular entrepreneurial activities, the focus is thus put on targets and KPIs that are useful in tracking the relevance of the impact they produce. The higher priority given to revenue growth is also coherent with other findings on the barriers for growth for circular businesses. By comparing linear with circular entrepreneurs, it is clear that the latter type of entrepreneurs has higher difficulties in two main fields, on the one hand, finding financial partners, such as investors for supporting the business venture, is more difficult due to a degree of business novelty that is generally higher, implying greater risks and less chances of profit compared to business-as-usual enterprises, and on the other hand, concerning more operational aspects, barriers related to technology validation, access to sector expertise, and required changes at industry level are usually more challenging to overcome. The struggle to secure financing from external investors also results from the fact that business scalability is not among the initial prerogatives of the circular entrepreneur. In fact, the conducted analysis indicates that just a portion of these entrepreneurs listed scalability as a relevant aspect of the business initiative, as opposed to the majority of linear entrepreneurs. Scalability gains importance in circular business models once they reach a certain business maturity. This is due to the conviction of circular entrepreneurs, that scalability concept should merge the idea of

expanding into new markets with the goal of maximising the impact created. This is reflected in the choice of development path to be pursued, thus remaining consistent with their values and vision in the selection of strategic partners, and in the choice to revolutionise the relationships with stakeholders, favouring, as mentioned above, coordination along the value chain and open-sourcing initiatives.

By conducting an analysis of the most relevant characteristics of circular entrepreneurs as a change agent, based on the work of Zucchella and Urban (2019), five critical traits of the personality of such subject are found, namely *inclusivity*, *natural capital management*, *social values*, *communication capabilities*, and *leadership*:

- *Inclusivity*: the entrepreneur adopting circularity in its business, and, by extension, the business venture itself, is inclusive by its very essence. The relationships with all stakeholders, that are employees, producers, customers, institutions, NGOs, suppliers, and shareholders, are designed to allow flows of communication, expertise, and products and services throughout the entire value chain. Financing is made inclusive by allowing the business to access capital through crowdfunding. The design of products and of the production process make it possible for used parts to be reintroduced in the production cycle, allowing also final customers/users to be included in the development process; open innovation is therefore at the base of a circular business initiative, thus contributing to creation of relationships linking internal R&D departments with external agents, such as universities and research labs.
- *Natural Capital Management*: the fundamental of circular economy is to preserve natural capital whilst contributing to the creation of value for society at large. By applying circularity principles, circular enterprises should adopt processes that enable the natural capital to be used, respecting natural laws, while trying to regenerate and restore it. Non-renewable natural resources usage should therefore be minimised, and renewable resources should be exploited, but the rate of usage should at no time surpass the natural renewal rate of such resources. Circular business main contribution to the environment is to try to decouple production growth from resource utilization, in other words, increasing the output per unit of a given resource input. Guiding principles for entrepreneurs are the R-principles of reuse, remanufacture and recycle, following the idea of the *butterfly diagram* (EMF, 2012).

- *Social Values*: circular entrepreneurs must consider also social aspects in the management of resources; Zucchella and Urban (2019) clearly cite human resources as a resource to be considered. The entrepreneurs can contribute to the creation of social value in two main ways, directly through controls on working conditions and on the compliance of rules and norms for human dignity and health care, or, on the other hand, by cooperating with policymakers, global institutions, and NGOs in developing new rules and standards.
- *Communication Capabilities*: Communication capabilities are essentials for every circular entrepreneur, internally, to exploit the image given by sustainable businesses to attract and retain talents, especially young, highly educated, and motivated people (Davis-Peccoud, 2013), and externally to spread experiences and knowledge to as many stakeholders as possible, with the goal of contributing to the adoption of circularity, or more broadly, sustainability principles by society at large.
- *Leadership*: core characteristic of the circular entrepreneur is the attitude of this subject to be a leader, being a visionary able to influence people (employees, collaborators) to follow its guidance. Such visionary leader can be found not only in circular start-ups, but also in established businesses. Transformational leadership is essential for companies in reaching circularity in business practices, Bass and Riggio (2006, as cited in Zucchella and Urban, 2019) summarize such leadership as comprising four interrelated elements, a charismatic personality (*Idealized Influence*), an inspiration that is motivational for its followers (*Inspirational Motivation*), the focus of the leader to every follower's needs and the ability to empower them (*Individualized Consideration*), and an ability to encourage followers in changing their perspective of viewing things, in order to stimulate creativity and problem-solving (*Intellectual Stimulation*).

Circular entrepreneurship can be seen as a form of sustainable entrepreneurship, it differs from the latter in that the circular entrepreneur, as observed, is focused on the creation of impact on society by blending its business initiative with circularity principles, in contrast, therefore, with the sustainable entrepreneur, the latter's literature being primarily focused on business models centred on the linear economy. Both strands of literature focus on the creation of long-term value through innovation, mainly radical; for circular entrepreneurs this innovation is focused on circular opportunities identification and exploitation. Although both concepts of entrepreneurs are strategically linked to the three

aspects of the triple bottom line as directives for the definition of business goals (Schaltegger and Wagner, 2011, and Zucchella and Urban, 2019), clear references to social issues are more evident in the literature of sustainable entrepreneurship, and, at the moment, lacking in the works concerning circular entrepreneurship, a result of which might be the same level of deficiency in circular economy theory, as discussed in the preceding sections (Murray *et al.*, 2017, and Moreau *et al.*, 2017).

1.6 Conclusions

A new economic scenario is developing as a result of the generalized knowledge that the current economic landscape is unsustainable. Sustainability is becoming the central topic in almost every discussion regarding the environment, the economy, and the society at large. Sustainability discussion has evolved during the last decades in various interrelated strands of thought, encompassing different topics and evolving in a threefold paradigm including three pillars of environmental social, and economic issues. Although a unique definition has not yet surfaced, the Brundtland Report definition of sustainability is generally accepted. A proposed solution to tackle the rising problems related to climate change and thus help society, and more specifically companies, to achieve by 2030 the targets set out in the Sustainable Development Goals, is the transition to the circular economy. This new economic paradigm is the result of studies and trials-and-error processes implemented by practitioners, businessmen, researchers, and policymakers to design a new path to achieve sustainable development by decoupling throughput growth from resource utilization, implementing resource recycling, remanufacturing, and reusing in an (almost) closed loop, retaining the maximum level of utility and values of products, components, and materials for as long as possible. Although criticism has emerged as to whether the circular economy is useful as an effective paradigm to achieving sustainable development, proponents of this model have shown how it can contribute, in a triple bottom line vision, to all three sustainability issues, preserving natural capital, contributing to increase sales and profits for businesses, and creating employment opportunities and stronger communities. Sustainability has impacted the business world in various ways, climate change is nowadays considered as a business risk, thus companies worldwide are adapting to develop organizational structures, strategies, and products/services that can impact environment and society in a positive way, reducing the burden posed on the environment, society, and the economy in conducting a business. Sustainability can in fact

impact several company's drivers, it can entail reduction of costs thanks to better management of material usage and flows, risk reduction as more risks are taken into consideration, thus the company is more reactive to market changes, sales and profit margin can increase as more consumers are attentive to sustainability issues in their consumption choices, thus also increasing reputation and brand value, and, ultimately, sustainable organizations can attract and retain skilled workers, developing in this way innovative capabilities exploitable to create competitive advantage. Accountability over sustainable business practices has also developed in recent years, with Environmental, Social and Corporate Governance valuation methods also being supported by international standard setting bodies. The introduction of sustainability topics in the day-to-day operations of most companies has paved the way to the development of the sustainability themes in entrepreneurship literature, defining in this way the entrepreneurial initiative embedding pure business perspective with sustainability principles. Entrepreneurs, being the bearers of the Schumpeterian creative destruction, are at the core of this transition toward a more sustainable future. Sustainable entrepreneurship has developed in various strands of literature, differentiating over time into environmental entrepreneurship, social entrepreneurship, and more recently, into a more comprehensive current of thought called sustainable entrepreneurship.

Entrepreneurship literature was furthered in recent years by the disruptive impact of the circular economy on the competitive strategies of companies worldwide. This strand of literature is relatively new and not analysed in depth, but early advocates of this type of entrepreneurial activities have already outlined the core characteristics of the circular entrepreneur, the change agent responsible for implement circularity in a new business or in an already existing business venture, being them inclusivity, natural capital management, inclination towards social values, and strong communication capabilities and leadership. The next chapter seeks to consolidate the role of the circular entrepreneur in being a change agent, focusing on the ways in which the latter can shift the business in practice, by changing business model and the very essence of the company itself, its culture and organization.

FROM INTENTIONS TO EFFECTIVE CIRCULAR ORGANIZATIONS

2.1 Introduction

The literature on the circular economy has focused on various interrelated aspects, starting from the concepts of cycles, the R-strategies, the focus on environmental, economic, and social sustainability, arriving at a degree of development where there are many theoretical definitions of various concepts and projects that can be implemented, where, however, the extent of literature development on actual circular initiatives and the impacts that circularity can have on businesses, markets, and society at large were placed in the background.

As already mentioned in the first chapter, the circular economy is based on examples set by people, companies, and institutions inspired and focused on this transition, on trial-and-error processes aimed at setting what in the future will be defined as best practices of circularity, and, by extension, of sustainability.

The chapter will focus on the changes impacting on companies embarking on the circular economy transition, starting with the role played by what have been termed *circularity enablers* (Lacy *et al.*, 2020), then explaining the role attributed to organizational culture in creating an environment conducive to this new business paradigm.

The discussion goes on to describe the various types of circular business models that can be adopted by companies, also introducing supply chain management issues as critical to achieving a truly circular process along the supply chain.

The central part of this second chapter deals with the analysis of the consequences of adopting circular practices within the organizational structure, focusing on the outcomes

of circular practices in governance processes and in human resource management. It then defines skills and competences that staff in circular (sustainable) companies must possess, and which will need to be cultivated to achieve concrete results, and finally highlights the role played by higher education in Italy in creating knowledge, skills, and competences for circular companies.

The final part of the chapter is reserved for the review of two works describing the various stages of corporate change after the adoption of sustainable initiatives, which can therefore be adapted to circular economy, being the latter “*a necessary step to achieve sustainable development*” (Corona *et al.*, 2019). The first is the work of Sandhu and Kulik (2019), the second is the short paper published for CUOA Business School by Gubitta (2021), where a new concept, that of the *enterprise of sustainability*, is analysed, drawing on previous works and empirical data from various Italian B Corps. For this latter reason, these two reviews are divided by a paragraph dealing with the function of certifications in creating commitment towards sustainability issues, among which the role of the B Corp Certification stands out.

2.2 Circularity Enablers

Circular economy entails a global opportunity that is worth more than \$4.5 trillion, based on the research cited in the previous chapter (Lacy and Rutqvist, 2016). This value can be captured by companies worldwide but focus on waste must be put at the centre of every business strategy to grasp the opportunity that circular economy can represent. In general, leading players in the adoption of circular activities have been consumer-facing industries, that have been driven by demand from consumers, employees, and governments. The impact of this demand for shift towards circularity is not, however, confined only to industries with high customer visibility. In recent years, this consumer-driven change is increasingly affecting companies in the Business-to-Business (B2B) sectors, such as those active in the chemicals industry. This is corroborated by the results of surveys stating that consumers perceive plastics as the least environmentally friendly option for packaging and are concerned about the lack of consideration for sustainability issues by the chemical industry in general (Long, Hart and Guerriero, 2019). In other industries, the shift toward circularity is boosted by regulatory drivers, and there are also companies that are applying circularity to their business, as circular economy principles are strongly aligned with the business model or the industry in which these organizations conduct their

activities, such as in the automotive sector and for products with multi-decade lifecycles such as industrial machineries and infrastructures. Implementing circular initiatives in a business, being they piloting initiatives or structured strategies developed across multiple functions, requires the exploitation of drivers that are critical for success in the current business world for every company, but that could be extremely impactful if directed at implementing circularity. Lacy *et al.* (2020) identified five key enablers that business ventures must devote time and attention to, specifically *Consumer Engagement*; *Design*; *Reverse Logistics*; *Disruptive Technologies*; and *Ecosystems*.

Consumer Engagement

Consciousness over global climate changes and sustainability is changing consumers' behaviour, with the latter preferring sustainable alternatives over products resulting from production processes considered polluting. This does not only represent a threat for such businesses, but also an opportunity for increasing profits if successfully exploited, and initiatives communicated. Consumers need therefore to be educated by companies, thus creating a relationship that can lead to benefits in terms of brand trust and engagement.

Design

A shift in the design processes, considering the long-term usage of products and the principles of reuse, remanufacture, and recycle, is needed to achieve true circularity. Products should embrace the principles outlined in the Cradle to Cradle (Braungart and McDonough, 2002) approach, thus making it possible to develop a production process that encompasses the entire value cycle of the product and its components, eliminating waste.

Reverse Logistics

Reverse logistics is a crucial part of a circular value chain and consists in the process of managing the return or recovery of products, from the final users back into the value chain, creating closed loops of resources, and maximizing in this way the usage value of resources, materials, or products.

Disruptive Technologies

One of the most important enablers for implementing circularity within an organization is the adoption of disruptive technologies, mainly those digital, physical, and biological

technologies that are driving industries towards the fourth industrial revolution. Embedding such technologies could grant companies substantial new alternatives for companies with regards to production processes, recycling processes, and data storage and analysis.

Ecosystems

This term entails the approach that should be followed by companies starting the circular economy conversion, the latter should put emphasis on engaging external stakeholders in their strategies and initiatives.

In sum

Considered together, these circularity enablers could help a company in boosting its transition to circular economy and thus capture part of the incremental value previously cited. Implementing circularity within a business is not an on-off type of change, with minimal effort needed and minor consequences, but entails strong motivation from the top of the organization and meticulous planning of circular initiatives. Company's leaders need to detect and give priority to initiatives in accordance with the organization's needs, current maturity, market positioning and growth perspectives.

2.2.1 The circularity maturity journey

The pursuit of circular economy projects must also consider the maturity of the company regarding circularity itself, companies can in fact fall into the group of *emerging* companies, those that are starting their circular journey, or they can be already *established* firms with confirmed circular initiatives. Companies can reach the level of *leading* companies for circular economy once they involve the entire strategy towards circularity, embedding its principles throughout the organization, with the aim of reaching the highest degree of commitment, the so-called "*ultimate circularity*", where the focus of the company is on changing the entire value chain for creating positive environmental, social and economic impacts while closing the loops of resources, creating indefinite circulation of materials, products, and services (Lacy *et al.*, 2020).

2.2.2 Organizational culture enabling circularity

Lacy *et al.* (2020) and Kwarteng *et al.* (2021) have stressed the importance of organizational culture as a key component in the achievement of a change process towards circular

ways of conducting a business. The role played by cultures and sub-cultures in companies has been analysed for decades, with the first investigators defining it as:

«The pattern of basic assumptions that the group has invented, discovered or developed in learning to cope with its problems of external adaptation and internal integration, and that has worked well enough to be considered valid, and, therefore, to be taught to new members as the correct way to perceive, think and feel in relation to those problems.» (Schein, 1990)

Organizational culture has enormous impact on the way daily operations are carried out within a company, on the way people behaves, and, as such, it is critical to embed circularity into the organization's DNA, or it would be otherwise difficult to successfully implement the transition. Circularity must therefore be made a central and critical aspect of the business, starting from its core vision and corporate mission (Lacy *et al.*, 2020). The company should in fact adopt long-term goals supported by measurable targets, making the vision, and so the transition to circularity, actionable. Culture is the main driver of working behaviours; company leaders need to harness and shape organizational culture in order to achieve the strategic goals, as these processes have been found to be primary drivers for addressing and shaping employees' attitudes, improving business effectiveness, and boosting business performance (Hartnell *et al.*, 2019; O'Reilly *et al.*, 2014). An environment designed and shaped by circular economy should strive for stronger participation and involvement of employees, effective leadership, and commitment to company's vision, mission, and goals (Choi, 2020). The achievement of sustainable goals, as the introduction of circularity practices endorse, depends in fact on human account, actions, and behaviours, which are culturally rooted (Soini and Dessein, 2016). Analysing the correlation of circular economy adoption to the financial performances of companies, research found that an effective organizational culture can moderate the positive relationship between circular economy strategies and business financial performance (Kwarteng *et al.*, 2021). Research suggests that the higher the degree of adherence to a certain organizational culture, one stressing sustainability, cohesion, inclusivity, and participation, the stronger the relationship between circular economy strategies and financial performances, thus corroborating the role of culture in being a moderator, i.e., a variable that interferes with the interaction between an independent variable (i.e., in this case, circular economy) and its respective dependent variable (i.e. financial performance) (Hair *et al.*, 2017; Kim and Chang, 2019; Kwarteng *et al.*, 2021).

Another perspective on the importance of cultural disposition towards circular economy implementation is given by Scipioni *et al.* (2021), highlighting the impact on innovative and collaborative solutions, which are inherent to the circular economy transition, that a lack of such disposition can have. The absence of a CE-oriented corporate culture can in fact obstacle the transition from the very start, on the other hand, the presence of a top management oriented towards the creation of an innovative and sustainable culture can not only support the adoption of circular economy practices but trigger positive spill-over effects such as overcoming structural barriers, such as the lack of economic resources and limited internal structures, and limitations in processes.

The same result is found considering the impact of organizational culture on the attitudes towards organizational change, as the transition towards CE can be seen. Research found that people are more receptive to change if business culture promotes single-minded dedication to organization's mission and goals, where internal stakeholders adopt behaviours in line with the company's values autonomously (Rashid *et al.*, 2004). Organizational culture plays therefore an important role in the successfulness of the change process, with certain patterns able to facilitate the acceptance of changes (Lorenzo, 1998; Yousef, 2000). The supporting role of business culture in the implementation of strategies rooted on sustainability is also strengthened by *departmentalization* approaches, i.e., the adoption of small working groups to encourage sustainable innovative work behaviour, and by clear communication of objectives and goals, that is the prerequisite to involve employees and internal stakeholders in general in the transition process and in the generation of innovation (Turner, 2020). Culture should therefore be the forefront of the implementation of circular economy initiatives, as an effective corporate culture can endorse the adoption of innovative business models, making internal stakeholders aware and compliant with new behaviours, strategies, processes, and procedures (Kwarteng *et al.*, 2021). Organizational culture changes towards CE should be backed by top management, using the diverse knowledge and polyfunctionality of its members to adapt and introduce circular business models in the company (Scipioni *et al.*, 2021).

2.3 Circular Business Models

The adoption of circular initiatives is usually having a primer impact in the business model chosen by the company. The need to think about new models is the result of the implementation by various companies and organization of CE-oriented strategies such as

sharing economy, remanufacturing, product-service systems, and dematerialization. Circular business models (CBMs) can be defined as:

«Business models that are suited for the Circular Economy by incorporating elements that slow, narrow, and close resource loops, so that the resource input into the organization and its value network is decreased and waste and emission leakage out of the system is minimized» (Geissdoerfer et al., 2018, p. 713)

Another definition of the concept, but with stronger emphasis on the recycling of resources, is given by Rosa, Sassanelli, and Terzi (2019). The most common circular business models to be found in the literature regarding CBMs are those oriented to Product-Service Systems and those that are based on the Reuse, Remanufacturing, and Recycling paradigm, this is reflected in the definition of the aforementioned authors, that define circular business models as:

«A new kind of business models, where the value creation is grounded on keeping the economic value embedded into products after their use and exploit it for new types of market offerings» (Rosa, Sassanelli, and Terzi, 2019, p. 2)

The previously mentioned work of Lacy, Long, and Spindler (2020) fostered the knowledge by giving a taxonomy of CBMs, conceptualizing five different business models, the main features of which are inferred from an analysis conducted on companies that are actively transitioning to circularity or are already circular enterprises. The five CBMs main differentiating factor is the stage of the value cycle upon which they are focused, and the processes used to create more value by exploiting the opportunities latent at that specific point. Key enabling factors for reaching this quiescent value are the ones presented in the previous section. The five conceptualized CBMs are therefore:

- *Circular inputs* model, focused on recyclability and renewability of inputs used in the production process, found to be the most used and implemented business model.
- Business model based on *Sharing Platforms*, thus focused on maximising the usage rate of products through the adoption of digital technologies, while creating also stronger and more cohesive communities.
- *Product as a Service* type of business model, the one adopted by companies retaining the ownership of their products while offering subscription-type of services for benefits, maintenance, and end-of-use disposal of the latter.

- *Product use extension* business model, selected by companies offering repairing and reconditioned products with the aim of extending products' lifecycle while making profits.
- Business model based on *Resource Recovery*, that is the CBM usually applied by companies working at later stages of the value chain, implementing processes intended to recover resources and materials from products that are nearing the end of their life cycle, so that they can be returned to the production cycle through recycling, upcycling or downcycling infrastructures and practices.

The five business model typologies are also directly linked with the three strategies or approaches stated by Bocken *et al.* (2016), comprising recycling measures, efficiency improvements and use-phase extensions for helping a company in cycling resources and reducing resource flows. Circular business model should aim at implementing strategies for *closing resource loops* by recycling, creating closed-loops for the entire production cycle or for part of it, implementing mini-loops; strategies for reaching *resource efficiency* or *narrowing resource flows*; and finally, approaches for *slowing resource flows*, designing products with longer lifecycle and by implementing product-life extension tools, contributing to product cycling for longer period in the technical or biological cycle.

By contrasting the linear model of take-make-use-dispose and the reliance of traditional business models on fossil fuels, circular business models can enable economically viable opportunities for the generation of profits from the flow of materials and products over time, by continually reusing products and materials, and by exploiting renewable resources (Bakker *et al.*, 2014).

Business model innovation is a necessary instrument for implementing circular economy changes into organizations, inserting them at the organizational level, because business models are the primer source of information for understanding, analysing, and communicating to stakeholders (internal and external) the organizational configuration and activities developed and deployed (Doleski, 2015). Circular business models, having circularity at their foundation, are deeply focused on sustainability. By utilising the analytical, strategic, and communicational potential of these tools, companies approaching circularity can integrate such considerations at the organizational levels, aiming at sustainable value creation, pro-active management of a larger stakeholder base, in contrast with the current management viewpoint, that is reactive to changes or new trends, and long-term

perspective (Geissdoerfer *et al.*, 2017). The integration of sustainability in CBM is also found in components of the business model such as the value proposition, the value creation and delivery system, and the value capture. These elements, in fact, include considerations of the economic, social, and environmental dimensions, and usually embrace a long-term orientation, as detailed in the Table 3.

Table 3 Sustainability dimensions impact on Circular Business Models main elements

SUSTAINABILITY DIMENSIONS	CIRCULAR BUSINESS MODELS		
	VALUE PROPOSITION	VALUE CREATION AND DELIVERY SYSTEM	VALUE CAPTURE
<i>Economic</i>	Products and services with adequate profit margins	Incentives to supply chain actors for returning disposals or extend product use	Aim at creating profit for each stakeholder
<i>Environmental</i>	Product and service designed to minimise natural resources depletion	Environmental efficient production and logistic operations	Reduced environmental burden by decoupling value creation from resource usage
<i>Social</i>	Maximise value for society through product and services	Pro-active management of stakeholders needs and relationships	Increase consciousness of products environmental value
<i>Future generations' perspective</i>	Long-term perspective in addressing economic, social, and environmental concerns	Ensure development of long-term partnerships through radical and incremental changes in the system	Further circular economy, contributing to future creation of perfect circular economy systems

Source: Adapted from Geissdoerfer *et al.*, 2018

Being business models comprising circularity considerations, CBMs are usually intended to also change the way the whole network of companies in the value chain is managed, and the management of this aspect for circular companies is usually referred to as circular supply management.

2.3.1 Circular Supply Management

Supply chain management is a critical factor nowadays for companies in order to be successful in accessing the market and keeping or increasing their market share. It is defined as the configuration and coordination of various business functions within businesses, and across different organizations comprised in a value chain, it is essential for the enhancement of operative effectiveness and efficiency, and for the creation of competitive advantages. Based on the differences created by the introduction of circular considerations for the adopted business model, a company's decision to implement circular initiatives has also impacts on the approaches followed in managing the supply chain. Circular

entrepreneurship entails, indeed, the adoption of circular initiatives that goes beyond organizational boundaries, thus affecting other businesses and spreading circularity throughout the entire business network, becoming successful examples that should be followed, creating the positive spill-over effects for other companies suggested by Stern (2010), as cited in the previous chapter. Circular supply chain management, therefore, has been defined as the management of organizational functions such as marketing, R&D, sales, production, logistics, finance, customer service, and IT, within and across businesses, merging the objectives of traditional supply chain management, i.e., improving operational efficiency and effectiveness and creating competitive advantages, with circularity-oriented objectives of closing, slowing or narrowing resource flows/loops, minimising resource usage and eliminating waste and emissions from the production system (Geissdoerfer *et al.*, 2018). This type of management of the supply chain can also be adopted for reaching the objectives of sustainable development, including, in addition to the aforementioned objectives, more specific considerations regarding social effectiveness (and thus, intra- and inter-generational equity, personal and professional development), environmental effectiveness (considering issues such as biodiversity and pollution) and economic effectiveness (developing sustainable competitive advantages), and taking into account, in addition to the creation of economic value, the further creation of non-monetary value.

2.4 Impacts of circularity on the *organizational processes*

The changes fuelled by the introduction of sustainability considerations within a company, in addition to those already highlighted regarding the deployed business models, have strong impacts also in the organizational environment, impacting the way the business is conducted, requiring modifications in the approach followed by the governance of the organization, usually entailing the creation of new managerial positions concerned with sustainability issues, and affecting also human resource management practices, following a more inclusive, triple-bottom-focused, and long-term perspective. Firms are, in fact, becoming increasingly aware of the importance of the three sustainability dimensions, and are setting new internal targets that depart from common profit objectives, but include more focused measures on individual, communal, and environmental-friendly performance and development, thus working towards the established targets included in the Sustainable Development Goals. The final purpose of the SDGs is to create

sustainable, innovative, and people-oriented economies (Chams and García-Blandón, 2019), thus, organizations must evolve to assist society in this needed metamorphosis. A clear reference to circularity and its impacts on the organization, primarily on corporate governance and human resource management, is still underdeveloped. However, since a strong relationship can be found between the practices of circular economy and goals of sustainable development (Schroeder *et al.*, 2019), and since circular companies are by definition aimed at sustainable development, with the literature undoubtedly demonstrating it, most authors analyse the impacts of sustainable practices on corporate governance and human resource management, although referring also to circular companies (Almagtome *et al.*, 2020).

2.4.1 Impact on the Corporate Governance

Corporate governance entails the system of rules, processes, and practices to manage the organization in reaching its objective and in overseeing the diversity of relationships with several stakeholders, being they internal or external to the organization (Khan, 2011), and is deeply affected by the shift towards circular economy if such paradigm is adopted by the company. Corporate governance has been originally linked to the principal-agent theory and the division between managers, responsible for running the company, and shareholders, whose main contribution is financing the business while requesting lasting value creation as compensation, was considered to be the main source of problems within the corporation, as there was a substantial divergence in the objectives pursued by managers (the agents, pursuing short-term profits), from the objectives on which the main stakeholders, i.e., originally, the shareholders, were focused, that of long-term value creation. Corporate governance has, however, developed, to include several different interests and various perspective, encompassing tools such as the triple bottom line, emphasizing the importance of People and Planet, and not only Profit, and procedures such as CSR, in an attempt to change the way companies operate, thus seeking to create an economic system that is not a slave to profit and growth, but is optimised to create positive impacts for society at large, certainly comprising economic aspects, but at the same time, improving the environment and society. Corporate governance for sustainability already entails circular considerations, as it can be seen as a PDCA cycle of continuous improvement but focused on sustainable development. The objective of corporate governance for a circular enterprise should be to keep the cycle of planning, doing, checking, and acting (the four

phases of the Deming cycle developed in 1950) working, aiming at sustainable development by producing outputs while reducing the impact exerted on earth to a minimum, creating employment opportunities (Goede, 2018). This new trend in corporate governance, that of focusing on sustainability and not on mere profit creation, was also stressed by the Founder, Chairman and Chief Executive Officer of BlackRock, Laurence D. Fink, whose letter to CEOs published in 2018 read:

«Society is demanding that companies, both public and private, serve a social purpose. To prosper over time, every company must not only deliver financial performance, but also show how it makes a positive contribution to society. Companies must benefit all of their stakeholders, including shareholders, employees, customers, and the communities in which they operate.» (Fink, L., 2018)

The relation between corporate governance and sustainability was also addressed by Boeva *et al.* (2017) and Ahuja *et al.* (2019), highlighting a trend of changes in corporate governance policies and practices and on board of directors' type of management due to the firm adopting policies of sustainable development for circular economic activities.

The importance of governance for enabling the change towards circular economy has been also analysed by Lacy *et al.* (2020). They stressed the importance of having a governance system that is able to support circular decision-making network and does not represent a barrier to company's development. The goal of the business in this aspect should be to include circularity in policies, processes, and procedures, creating a structure that allows for accountability and agile decision-making at every level of responsibility. Circularity should go from a simple aspect included in a company sustainability policy to be the core element of an industry-leading governance structure, reporting internally and externally on circular economy, and deploying circular KPIs to be fully accountable.

2.4.2 Human Resource Management

In order to comprehend how a shift towards more circular enterprises could affect human resource management practices, a first consideration to be made is that the 17 sustainable development goals are based on an expanded and modified version of the triple bottom line, which comprises, in addition to People and Planet objectives, considerations on Partnership, Peace, and Prosperity, thus not making a clear call for the Profit bottom line.

From the goals, it is possible to deduce how the SDGs focus on people, being they individual or part of a community, irrespective of their gender, as equality, in all its form, is

a stated objective, and with the aim of empowering individuals and communities, creating meaningful employment opportunities, granting health, food, and education for everyone, ending poverty in all its forms. The human element is therefore the initiator and the beneficiary of the implementation of the SDGs, and, at the corporate level, the area where the higher contribution towards People can be made is the Human Resource Management (HRM) (Chams and García-Blandón, 2019). As well as with corporate governance, also in the literature on HRM the focus is on the issues of sustainability and not specifically on circularity; however, as already widely emphasised, since circular economy is a means to achieve sustainable development, the principles applied within the corporate practices of circular organizations are intrinsically sustainable.

In their work, Chams and García-Blandón (2019) identified two main categories comprising several interconnected HR tasks adopted by firms to promote sustainable practices, namely, operational, and managerial functions, summarized in Table 4.

Table 4 Functions of Sustainable Human Resource Management Categories

OPERATIONAL FUNCTIONS	MANAGERIAL FUNCTIONS
<p><i>Policy Making and Planning</i> Ensuring consistent reporting on environmental issues, setting specific timelines, distributing responsibility equally</p>	<p><i>Support from top-level management</i> It can be useful for establishing a structure that is flexible and lean, avoiding centralized authority and vertical communication flows</p>
<p><i>Implementation and Auditing</i> HR should ensure a structure able to minimise undesirable outcomes that might harm the company, implementing a monitoring system to control and evaluate sustainable practices</p>	<p><i>Boost employees' empowerment, provide continuous training</i> Training should be targeted at creating employees that are creative, skilled, and participative to create a stimulating working environment</p>
<p><i>Action-correction and performance assessment</i> Ensuring a system of actions performed in case of detected errors in the performance of tasks and implementing performance assessment measures and indicators to ensure accountability</p>	<p><i>Build cross-functional teamwork</i> HRM practices should be focused on creating teams in order to facilitate the collaboration and coordination between various organizational divisions</p>

Source: Adapted from Chams and García-Blandón (2019)

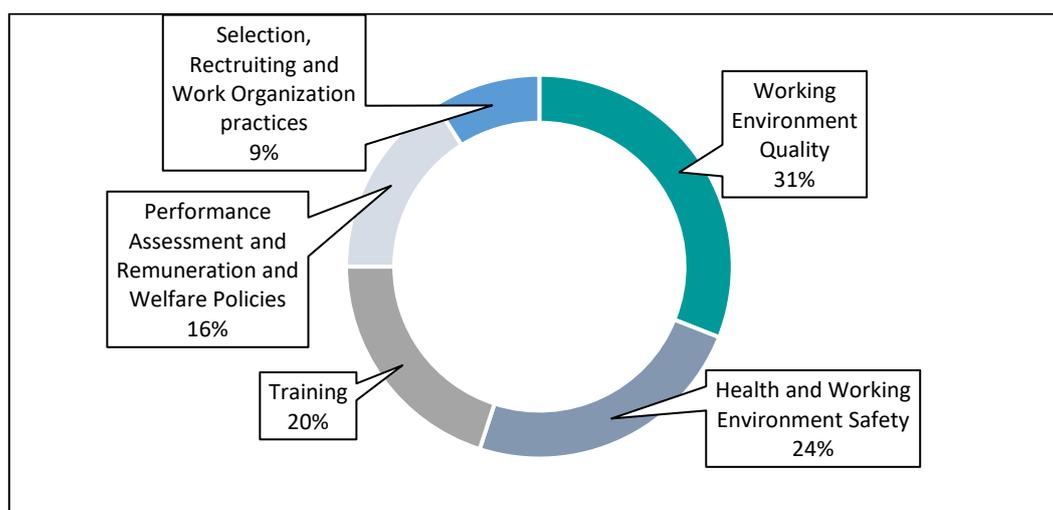
Considering specifically the spreading of circular knowledge within the organization, Lacy *et al.* (2020) stressed the importance of providing internal stakeholders, and most importantly employees, with “resources that allow for upskilling the workforce on circular economy practices and principles”, executives are seen as trainers that must raise awareness and educate the workforce on circular economy, by stressing how CE will affect people’s role and responsibilities. Several approaches are adopted by practitioners in order to allow for such workforce enhancement. One effective way could be to select already circular-focused teams and use them as drivers to spread circular economy practices, or to actually involve employees in the creation of organizational practices, in order

to create a stronger sense of commitment within them. Managers of HR must also provide trainings that are in line with the corporate journey towards circularity, from basic training courses to advanced programs. However, all these efforts must be supported by a system of incentives to encourage the people concerned towards circular ways of thinking and acting. An example of stimuli driving circularity is the one adopted by Danone, which implemented a program where a portion of long-term incentives to managers are correlated with the company's climate performance, using the score attributed by the CDP, a global, non-profit organization ranking companies on their environmental progress (Danone, 2017). Recalling the maturity journey designed by Lacy *et al.* (2020), the one comprising four phases of maturity, with the stages based on the degree of circularity adopted, encompassing companies from *emerging* stage up to enterprises adopting *ultimate circularity*, different pursued HRM strategies can be found to be adopted in each different phase. Business organizations in the emerging phase should therefore be focused on increasing basic circular awareness on employees through training, as already stated, and by deploying non-financial incentives and encouragement to behave consistently with circular economy values; companies that are already established in their circular transition should introduce accountability for circularity at senior levels, as accountability is one of the strongest driver for introducing changes in behaviours, and linking them to rewards, monetary or non-monetary ones. In this phase, training should also be furthered by introducing case studies and making employees at all levels comprehend circularity also through learning expeditions. Becoming leading companies in the circular economy, regardless of industry belonging, requires commitment at every level of the organization, so people within the company are consistently assessed through performance measurement related to circular economy behaviours. Leading companies combine standard corporate training, required also for legal purposes, with ad hoc training on circularity, thus becoming part of the core training curriculum. Reaching the "Ultimate" stage of the circular maturity journey demands the widening of the boundaries of the company considered to be the competence in upskilling and training policies, going beyond the scope of the business, considering therefore the whole value chain, thus including supply chain partners, customers, consumers, and other key stakeholders.

Enabling this shift toward circularity and sustainability in HRM practices could boost companies' value drivers, it could especially bring cost savings, as more circular

organizational culture can attract and retain more talent, as circular and sustainable issues are more and more relevant to the workforce nowadays. Higher retention levels could in fact reduce recruiting costs, that average \$4.000 per employee, with an average of 42 days to fill an open position (Society for Human Resource Management, 2016). Circular considerations and Sustainable Human Resource Management could also determine higher workforce engagement. Schwartz and Porath (2014) found that this condition usually drives higher profitability, higher customer ratings, less theft attempts, and fewer safety incidents compared to companies with lower engagement of employees. The adoption of Sustainable Human Resource Management practices, that is a broader term that comprehends practices encompassing economic, social, and environmental objectives of sustainable development, not confined to the field of the circular economy, but nevertheless also important for companies that are ready to embark in, or have already begun, the transition to the circular economy, has been analysed in a study conducted by Gubitta and Crosta (Gubitta, 2021). By analysing 29 balance sheets of companies in the engineering sector for the 2019 business year in Veneto and Emilia-Romagna, focusing on sustainability-related initiatives for HRM, 113 practices were identified that were *ad hoc* designed or redesigned to ensure better results in terms of quality of the working environment, inclusion, environmental sustainability, and a more general focus on sustainability-oriented behaviours. Of these practices, it was found that a third is focused on the working environment quality, concerning issues such as gender equality, inclusion, and organizational atmosphere, 24% were related to health and working environment safety, 20% were practices concerned with training aimed at sensitising employees, to understand sustainability. 16% of these practices were concerned with employees' performance assessment, remuneration and welfare policies, with initiatives aimed at rewarding sustainable behaviours or at supporting them, such as through carpooling and usage of public transportation. Only 9% of the analysed population adapted practices of selection, recruiting, and work organization to support sustainability.

Figure 5 Percentage of HRM practices for sustainability



Source: Adapted from Gubitta (2021)

Figure 5 gives an overview of the presented results. Although encompassing different organizations, the research is just a glimpse at what sustainability can contribute to in the management of the human factor, but it can also be used to provide an overview of the most significant policies for organizations that are sensitive towards sustainability.

Marrucci *et al.* (2021) have analysed the impact of a branch of SHRM practices, the Green Human Resource Management practices (GHRM) on various aspects of the organization, by assessing GHRM impacts on EMAS-registered organizations, that is the Eco-Management and Audit Scheme in the European environmental management system (Daddi *et al.*, 2015), as these companies demonstrate great commitment to continuous performance improvement and, at the same time, to the continuous involvement and empowerment of employees. The study analysed the impact of various human resource management practices on circular economy, on environmental and economic performance, and on the environmental reputation of organizations. By surveying over one thousand organizations, researchers found that:

- GHRM practices positively affect the performance of the organization as a whole.
- Specific GHRM practices, such as recruiting and involving, are effective in spreading circularity within the company.
- Environmental performance is affected by recruiting and involving, and also by training practices.

- Recruiting, training, and involving are significant in boosting environmental reputation as well, while GHRM practices such as attracting, appraising, and rewarding are not significant.
- Attracting, rewarding, training, and involving have positive impacts on the economic performance, while results show that recruiting is not significant in this dimension.

What is surprising from the insights gathered from the survey is that training is not significant in boosting circular performance, but this could be induced by the fact that circularity concepts and practices are relatively recent, on the other hand, the role played by recruiting processes and involvement initiatives is crucial in directing employees towards more sustainable organizational cultures, thus recalling the importance of culture as enabler for the diffusion of the circular economy (Marrucci *et al.*, 2021). Companies will have an increasing need for staff who can better manage circular initiatives, hence the need to educate and improve employees, creating a highly skilled workforce.

2.5 Skills and competences needed for the circular economy

The adoption of CE in businesses has created the need for new skills and jobs, with circular economy employment ranging from 0.5% to 5% of national employment in western nations (Horbach *et al.*, 2015). Circularity is being adopted in several industrial sectors, and with this, the knowledge base, in terms of skills, education, and expertise is heterogeneous and composite (Van Oort *et al.*, 2018). Within an organization, all its functions, including engineering, procurement, marketing, sales, supply chain management, design, production, and logistics, are being in some ways affected by the CE transition, therefore, novel and updated skills and competences aligned with circularity principles are required, and so managers of business organizations must develop new skills and competences to face such increasing context complexity (Giannocco, 2018). With the design and implementation of circular initiatives, companies are increasingly focusing on modern skills and competences, and are introducing new roles in the organization, spreading the adoption of what have been called *green jobs*, i.e., jobs that have been created, substituted, or redefined for the transition towards a greener economy and that benefit the environment (European Commission, 2014). These jobs are found to be more high-level cognitive-based and more interpersonal skills-based, requiring higher level of education, expertise, and on-the-job training than traditional non-green jobs (Consoli *et al.*, 2016) and are also more dependent on production, design, and technological knowledge and expertise (Vona

et al., 2015). Adopting the dichotomy of *core* and *enabling* circular strategies (Van Oort *et al.*, 2018), the former requiring high technical skill activities, whether the latter are those correlated with higher skill set requirements and associated to management, business operations, design, and architecture, a study conducted by Burger *et al.* (2019) examined the opportunities and risks of employment, skills and education that are related to circular economy practices within companies. The results highlighted how core activities does not require college education, on the contrary, enabling activities are strongly correlated with higher formal education requirements, stemming from the already cited functions and divisions where such activities are to be performed. In general, CE is also found to require more complex problem-solving skills, resource-management skills, system skills and technical skills compared to traditional, linear economy, with higher skill levels across a larger range of skills for enabling activities. The changes resulting from the introduction of circular economy practices will therefore have significant impact on skills requirements for employees in the labour market. Consoli *et al.* (2016) have observed that existing occupations will be subject to greater change as a result of the transition to more sustainable economies, and the process of adaptation for people in these positions will be more time-consuming and demanding than for those position, defined as *new green occupations*, which are being developed from scratch as a result of such transition, and which will be entrusted to people who are generally already educated, trained and ready to take up these posts.

Skills needed in this new labour market have been grouped into *engineering and technical* skills, those for example needed for R&D projects and sustainability programs, such as design and construction and assessment of technologies; *science* skills; *monitoring* skills, pertaining legal and technical knowledge; and *operational management* skills, such as adaptive management skills, those needed for changes such as the transition to CE, changes in organizational structures and stakeholders management (Vona *et al.*, 2015).

2.5.1 The role of higher education on the creation of skills and competences for the circular economy

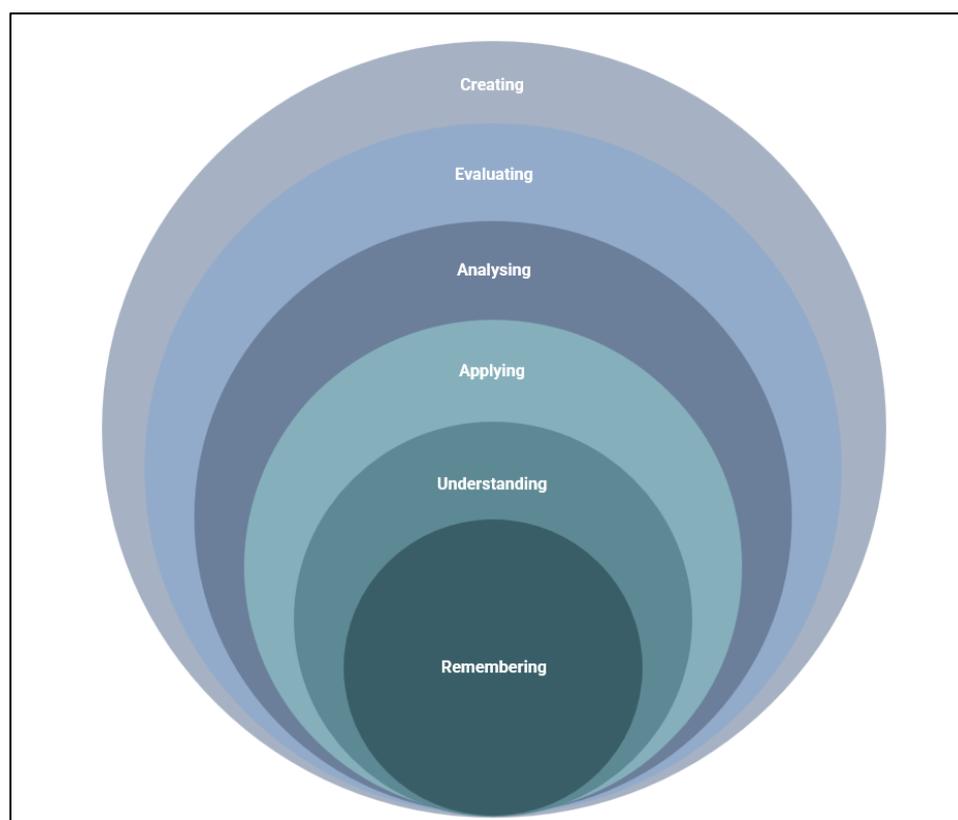
The contribution of new skills to circular economy adoption has also been analysed by Giannoccaro *et al.* (2021), applying the Bloom's taxonomy (1956) for increasing cognitive skills to highlight the outcomes of several higher education offerings in Italy, expressly centred on the circular economy. The authors suggest in fact that higher education

is central to the creation of professionals, such as business leaders and policymakers, with applicable appropriate skills, competences, and awareness on circular economy challenges.

The six skills, translated into verbs, are the following:

- *Remembering*: the knowledge of terms, facts, basic concepts, and answers
- *Understanding*: the comprehension of facts and knowledge
- *Applying*: the application of the acquired knowledge in several different contexts
- *Examining*: the analysis and breaking of information gathered into causes, motives, and the ability to make inferences from insights
- *Evaluating*: the ability to develop opinions, judgements on something, and of making decisions upon such opinions
- *Creating*: the ability to use the information obtained to propose initiatives or create something new

Figure 6 *The Bloom's classification*



Source: adapted from Giannoccaro *et al.* (2021)

Learning outcomes of Italian higher education institutions offerings were analysed in order to discern knowledge (theoretical and factual), skills (the ability to use knowledge) and competences (the ability to apply knowledge and skills autonomously and with responsibility) provided by CE education (Giannoccaro *et al.*, 2021). Results show that the knowledge of the various R-strategies is one of the most relevant outcomes, with higher frequency of recover, recycle, reduce, and rethink strategy knowledge. These learning outcomes were identified as belonging mostly to the *remembering* cognitive class. Several offerings focused on the system perspective, barriers and enablers of the CE, the pillars and principles, and the circular value chain perspective. All these learning outcomes are identified with higher-level cognitive classes, such as the *understanding* class, with the comprehension of the main principles of socio-technological transition; the *applying* class, with courses focused on the creation of skills for the application of circularity principles on decision making and business development; the *evaluating* class, focused on creating analysis skills for measuring the impact of circularity in a multi-perspective way; and, for the highest cognitive class, the *creating* class, regarding the development of competences for the CE, learning outcomes are focused on competences such as the development of CE action plans and business models, the design of indicators for monitoring the implementation of action plans, the design of new products and services embedding circularity. Table 5 summarises the various outcomes of the analysed learning offerings, dividing them in knowledge, skills, and competences.

Table 5 Learning outcomes of Italian higher education concerning Circular Economy

KNOWLEDGE	SKILLS	COMPETENCES
R-strategies in general, particular focus on reduce and rethink, with repair, reuse and refuse not quite developed.	System perspective	Competences on recovery and recycling strategies.
System perspective	Sustainable development and sustainable goals related skills.	System perspective
Knowledge on environmental and social aspects of sustainability, lacking knowledge of social dimension	Ability to design circular business models.	Sustainable development and sustainable goals related competences
Alternative circular business model knowledge	Ability to develop sustainable marketing communication plans	Ability to assess and measure economic and environmental performances by developing proper CE indicators.
Knowledge on the risks associated with CE projects	Ability to understand consumer behaviour	Ability to adapt design circular business models to specific context, exploiting digital technologies
	Ability to use the knowledge on CE projects' associated risks	

Source: Adapted from Giannoccaro *et al.* (2021)

2.6 The redesign of the organizational structure

Embedding circular considerations within a company has impacts on its formal organizational structure as well, being the latter the system responsible for the adopted methods of coordination and control, task organization, and for decision-making authority allocation across the company, and for designing and implementing standard procedures and practices. Organizational structure is the system of relations existing between jobs, operating processes, people, and groups aimed at achieving goals, it is a cluster of methodologies dividing several tasks in duties and focused on coordinating them (Mintzberg, 1972, in Ahmady *et al.*, 2016), it is created by organizations to allocate, coordinate, and organize activities (Rezayian, 2005). Hold and Antony (1991), defining organizational structure, stated:

«Structure affect all organizational processes. Organizational structure refers to the models of internal relations of organization, power and relations and reporting, formal communication channels, responsibility and decision-making delegation is clarified» (Hold and Antony, 1991, in Ahmady *et al.*, 2016)

A formal organizational structure is critical to enable a company to reach its organizational objectives without having divergent interests of people occupying organizational roles deflecting its functioning towards other, non-pursued paths. Considerations on the organizational structure and its changes deriving from the creation, adoption, or implementation of new managerial roles, especially when requiring unique expertise in nascent areas, as sustainability and circularity can be seen, are important, because in such cases there is not a blueprint, nor can they be copied from other organizations adopting them, due to their uniqueness and novelty (Sandhu and Kulik, 2019). The difficult part in the implementation of these new roles is when trying to fit them into existing structural constraints, and so attention must be placed into how managerial discretion and structural dimension interlink, where managerial discretion has been defined as the predisposition to modify the structure of an organization to solve organizational issues (Montanari, 1978). The co-dependence of these two dimensions clearly shapes the organizational structure, that is found to be *constituted*, i.e., structured through rules, and *constitutive*, i.e., moulded by discretion given to role occupants (Ranson *et al.*, 1980). Formal structure and managerial discretion are in fact intertwined, and the increase in one of these two measures usually comes to the detriment of the other. Managers must therefore balance

organizational structure to enable managerial discretion, thus allowing for creative and innovative thinking (Mintzberg, 1979), but keep the degree of discretion under control in order to avoid lack of focus on organizational objectives, ambiguity, and chaos (Albers *et al.*, 2016). This structure-discretion tension has reached the point where top-down organization design processes are becoming obsolete, and more freedom should be given to organization's members in designing jobs and structure, implementing bottom-up processes (Clement and Puranam, 2018).

Following this discourse, Sandhu and Kulik (2019) have studied how organizational structure and managerial discretion influence each other following the introduction of *sustainable managers* within an organization, deriving a model highlighting the impact of this new role on the organizational design. The research analysed the role of top-down forces of organizational structuration and bottom-up processes of managerial discretion in deriving the structure and enactment of the sustainable manager, but more generally of all types of managers whose roles require them to engage with emergent issues. The mixture of these co-dependent tendencies of structure and discretion, assessed through the lenses of the sustainable manager introduction, allowed the identification of three different configurations, the *prospecting*, *orchestrating*, and *championing configurations*. These organizational configurations differ mainly with regards to the extent of formalization of sustainability programs (that is a critical top-down aspect encompassing all three configurations), and with regards to the evolution over time of the degree of centralization.

2.6.1 Prospecting Configuration

Companies included in the prospecting configuration are those that recognize the importance of sustainable commitment, and thus adopt written commitment to sustainability and draft publicly available sustainability reports, however, this formal pledge is not translated into a concrete effort towards sustainability. Authors find that sustainability managers in these organizations are responsible for skimming initiatives taken by other companies that could be adopted in their own, but this responsibility is not supported by the required authority, given the fact that sustainability function is found to be usually comprised of a separate cell with little authority over other functions. Managers in these organization are also found to be limited in their tasks, and thus their opportunities for making an impact for the business, by a combination of high role ambiguity and a low

level of discretion. In this configuration, the implementation of a sustainability manager is usually a top-down decision deriving from external pressures, commonly to comply with rules and policies backed by institutional bodies. This top-down implementation results in the narrowing of sustainable initiatives that can be implemented, as only those providing reputational and legitimacy benefits are chosen, since top level executives focus primarily on initiatives providing benefits in term of goodwill and reputational capital.

2.6.2 Orchestrating Configuration

Shifting to companies adopting the orchestrating configuration, differences can be found in the degree of role ambiguity, that in this latter case is virtually nil, and the degree of formalization that sustainability issues hold, thus making it possible to know which initiatives are suitable and adoptable by the company, which will therefore receive resources, and which are not. In this configuration, sustainability managers can be seen as facilitators for the implementation of sustainable initiatives, the role's responsibilities and resource allocation are clearly defined through explicit top-down guidelines. However, the high level of top-down formalization comes at the cost of managerial discretion. In this configuration managers have little incentives to pursue and support bottom-up initiatives, thus constraining managers tasks to spread top-down imposed sustainable practices in other functional areas, resulting in most managers feeling disempowered and isolated, although their role is more clearly implemented, reducing role conflict and ambiguity. Lastly, in the orchestrating configuration, the sustainability function is comprised in the corporate executive team, thus facilitating the delivery of sustainability programs across the entire organization.

2.6.3 Championing Configuration

The last configuration is the one where the approach to sustainability is more mature, compared to organizations adopting previous configurations. The championing configuration is the perfect mixture of both top-down formalization and bottom-up discretion which converge in the role of the sustainability manager. Organization comprised in this configuration usually adopts semi-structured formalization processes for selecting and implementing sustainable initiatives, while commitment to such issue is organization wide. The name given to this configuration derives from the discretion given to the

manager, responsible for championing sustainable initiatives. The degree of discretion in selecting initiatives vowed to social and environmental issues is such that it allows this corporate figure to support projects that run counter to the company's own short-term profit objectives. The selected initiatives in these companies are embedded across all functional areas, given the fact that sustainability manager is an effective member of the senior executive team. Given this discretion, managers are also able to maintain their credibility, in particular with external stakeholders, when conducting negotiations for implementing new initiatives, and empower the entire company in reaching true sustainability, expanding the boundaries of sustainable initiatives beyond the organization itself, implementing projects which create positive impacts for the environment and society (the community on which it has an impact). These managers embrace one concept that is also central in circularity considerations; thanks to their discretion, they focus on developing relationships with industry peers in order to support and facilitate the transition of these other executives, and so their companies, towards sustainability, spreading their example industry-wide, thus helping in the development of ecosystems (seen as circularity-, and more generally, sustainability-enabler (Lacy *et al.*, 2020)) vowed to sustainability.

2.7 Why certification matters in creating commitment towards circularity

Circular economy is changing the business paradigm and the very essence of companies, businesses are nowadays focused on the triple objective of creating positive impacts for the environment and society through the achievement of economic (profit) objectives. The model adopted for reaching such goal is continually evolving, thanks to innovative tools, and new management techniques. Companies can take advantage of bottom-up approaches and tools of management for innovating their business, adopting innovative business models stressing circularity, exploiting the virtually infinite opportunities granted by Industry 4.0 technologies and changing management style, focusing more on the value chain and on a broader spectrum of stakeholders than the usual businesses rooted in the linear economy do. In this new market arena, companies adopting circularity, and, more in general, organizations that show particular sensitivity towards ethical, environmental, and customer satisfaction issues, considering all stakeholders, internal and external, are becoming increasingly interested in obtaining certification from external, independent bodies to demonstrate their commitment to sustainable development, while

at the same time helping them to redefine their objectives with a view to achieve profit and non-profit targets. The role played by certification is also important to avoid relapsing into the phenomenon of *greenwashing*, the attempt made by some companies to capitalize on the growing demand for eco-friendly products or services, usually seen as an unsubstantiated claim aimed at deceiving consumers (Parguel *et al.*, 2011). Nevertheless, obtaining certifications for these issues without concretely internalized environmental-friendly initiatives and practices may be only another greenwashing strategy to alleviate pressure exerted by stakeholders (Testa *et al.*, 2018).

One of the most known and most authoritative certifications for assessing social and environmental commitment applied to the business world is the one created and introduced by B Lab, a non-profit organization whose aim is to support companies that actively intend to bring the world to a more sustainable state, by involving as many stakeholders as possible in the transition towards sustainability. The B Corp Certification, the attestation given to companies scoring more than 80 points out of the available 200 points on Environment, Workers, Community and Governance dimensions on the Benefit Impact Assessment (BIA) tool (BCorporation, n.d.), has been endorsed to be one of the most relevant and visible commitment of companies towards CSR (Harjoto *et al.*, 2018), focusing on the Triple Bottom Line concept and stressing business sustainability. The innovation that this certification has brought is the legitimization over some sensitive themes that have been overused in past decades by market players to attract customers and retain larger market shares. The standard given by B Corp Certification has been successful in tackling the mentioned widespread problem of greenwashing and has constrained the use of terms describing companies as more socially and environmentally active than they actually were (Clark and Vranka, 2013). The objective is that of certifying companies that have really social and environmental issues embedded in their environment as a mission (Rimanoczy, 2014), through a system that is tailored to the company taking the assessment, updated every two years, and independent, being developed by independent third parties. Certified B Corps are also found to be superior in terms of growth capabilities and actual growth rates, higher than peer average, outperforming competitors that are not certified belonging to the same industries (Chen and Kelly, 2015). Companies choosing to take the BIA and obtaining the certification are also supported in the conduct of their business initiatives, through a series of advantages stemming from company

improvements to network-advantages given the relationships that could be created with the rest of the B Corp community, and finally, by reaching better performances in the market in its entirety.

Companies can benefit from the certification firstly by identifying the areas where more sustainability-related focus is needed, by receiving recognition from investors thanks to the rating system developed specifically for B Corp, the Global Impact Investing Rating (GIIRS), and ultimately by improving communication on sustainability commitment, since the BIA is a critical tool to highlight the importance of sustainability on daily operations externally to stakeholders, but equally importantly to internal stakeholders of the company. Taking into consideration the community, advantages can be gained by promoting products and services to or the possibility to access B2B opportunities with other Certified B Corps, such as Florim Ceramiche did with 24Bottles in order to “*reduce carbon footprint and promote healthy hydration while at work by adopting a reusable design bottle*” (24Bottles, 2021), and finally by obtaining access to resources provided by B Lab. Benefits that can be achieved at the market level regard social and mass media attention, the possibility to exploit marketing and co-branding initiatives, and the access to B Lab newsletter and other initiatives organized to spread the B Corp initiative.

2.8 The *Enterprise of Sustainability*

Following the study conducted by Sandhu and Kulik (2019) and focusing on the evolution of the sustainability function within companies, and thus the role of managers, their responsibilities, and the level of discretion of the latter, a joint study conducted by Gubitta and Cirio (Gubitta, 2021) highlighted three different phases of maturity in the journey to organizational transition towards *The Enterprise of Sustainability*. This form of enterprise has been defined as an approach to business management moulding the financial-economic dimension with environmental and social sustainability objectives. It is a form of organization that is deeply dependent on concepts of circularity as ecosystem and supply chain management, as it is found to reach its potential only when operating through an ecosystem of organizations and when the entire value chain is organized to support sustainable development objectives. The enterprise of sustainability is a company where all transformational trends that are shaping these first two decades of the third millennium are blended into the organizational environment, with the primary perspective of exploiting the opportunities created by these innovations with a view to sustainable

development. The trends that are driving this transition are those stemming from manufacturing digitalization to more broad societal digitalization; from new work-practices, such as working from home remotely, to new supply chain management dynamics; from renewed focus on people, to the centrality of inclusion considerations across the entire organization.

The study conducted analysed data collected through a survey submitted to 104 Certified B Corps, of which 19 responded, focusing on three interrelated variables: managerial discretion, organizational structure, and sustainability strategy. The study showed that the transition towards circularity, or more broadly towards sustainability, for a company can generally be traced back to three stages.

Stage 1. Transversality and Involvement

The first of these phases can be found in companies that have recently approached the world of sustainability, where initiatives promoted are responsibility of a *transversal team* linked to these issues, and coordinated by a *process owner* across the organization, with limited scope for action (discretion) and not necessarily focused on these initiatives full-time.

The main objectives for these companies are to raise awareness internally, but also communicate their commitment to sustainability externally with the aim of increasing consensus of stakeholders.

For this, research and evaluation of external best practices and the implementation of those initiatives evaluated and selected for their high impact and high internal visibility are fundamental in this phase.

Stage 2. Centralisation and Formalisation

In the second phase of the transition process, the figure of the *sustainability manager* is generally introduced into the corporate organization chart, i.e., the executive figure responsible for implementing sustainable initiatives, with a well-defined role also in the strategic top management, underlining the greater maturity of the entire organization regarding the issue involved.

The centralisation and formalisation stage also differs from the previous phase of transversality and involvement in that, as the name suggests, it increases the degree of formalisation of the sustainability-oriented practices that are adopted, usually designed

following a top-down logic, i.e., starting from the strategic top in the person of the sustainability manager, introducing different degrees of priority, and indicators to measure and consequently communicate the results obtained to stakeholders. In this phase critical issues of circularity also arise, such as a more conscious and organised management of the supply chain, more properly defined value chain, through the definition of actions common to several actors.

Companies in this phase, as well as continuing to pursue the previous objectives, are focused on the creation of internal corporate culture closely related to sustainability, and on the formulation and introduction of indicators with the ultimate aim of ensuring accountability and guiding the behaviour of employees, managers at various levels, and top management with a view to coherence with the pursued strategic objectives of sustainability.

Stage 3. Internalisation and Internal Entrepreneurship

Sustainability spreads beyond the company's pre-established figures, thus going beyond the role of the sustainability manager and creating pivotal figures for the transition of the entire company, who promote sustainable actions and behaviours within their areas of competence, the so-called *sustainability agents*. In this phase, it is not uncommon to create a *cross-functional team* dedicated exclusively to the planification, dissemination, measurement, and evaluation of the company as a whole with regard to sustainability.

Table 6 Differentiating factors within the stages towards the Enterprise of Sustainability

VARIABLES CONSIDERED	STAGES TOWARDS THE ENTERPRISE OF SUSTAINABILITY		
	TRANSVERSALITY AND INVOLVEMENT	CENTRALISATION AND FORMALISATION	INTERNALISATION AND INTERNAL ENTREPRENEURSHIP
Roles and Structures	Transversal team Process owners	Sustainability manager with links to top executives	Sustainability manager Sustainability agents Cross-functional team
Actions implemented	Internal and external communication Best-practices analysis High impact – high visibility initiatives	Sustainability strategy formalisation Supply chain management Indicators for accountability and communication of results	Area/function specific objectives Bottom-up initiatives promoted by sustainability agents Introduction of sustainability reporting Initiatives for stakeholders' engagement
Aimed results	Internal sensibilisation External consensus	Creation of internal corporate culture Ensuring accountability	Increase stakeholders' engagement External legitimisation

Source: adapted from Gubitta (2021)

This new structure also makes it possible to define specific objectives by area or function of the company, as well as adopting an approach that combines both top-down considerations and formalisations with advice and innovation from bottom-up approaches, bringing sustainability to a capillary level in the organizational environment.

At this maturity stage, the company has generally successfully introduced sustainability reporting, and strengthened its focus on activities aimed at increasing stakeholder engagement levels. The main differentiating factors between these three stages of corporate sustainability maturity are summarised in Table 6.

2.9 Conclusions

In the new organizational context that is developing as a result of the introduction of sustainability considerations, which are increasingly central to the economic-political debate, and to which more and more stakeholders are paying attention, companies that approach the circular transition see their business change in various ways. From considerations about products and services, companies are facing real internal changes, with modifications to the business models, to practices used in governance processes and in the management of human resources, through to more profound changes, which impact the very culture of the company towards a circular, sustainable perspective. To comprehend these changes, it is first important to understand the factors that facilitate them, the circularity enablers. Being one of the most important facilitators, the role of organizational culture is crucial for sustainable companies, and it can also have impacts on the business model adopted. The introduction of circularity principles can give rise to several business models, which focus on different strategies within the circular economy spectrum.

Circularity means also new and refined practices for the management of governance processes, seen as never-ending cycles of planning, doing, checking, and acting, and for the human resource management. At the individual-level, CE entails the introduction and development of new skills and competences that can boost people's carriers in this new organizational area.

To conclude, being the transition an extensive, time-consuming, and resource-intensive process, different approaches have been found to describe the journey followed by organizations from the beginning of their sustainability projects to the ultimate level of comprehension and adaption of circular and sustainable practices, where they became, to all intents and purposes, examples to be followed, *change agents*.

CHANGE MANAGEMENT: THE ESSENTIAL CONDITIONS FOR AN EFFECTIVE SUSTAINABLE TRANSITION

3.1 Introduction

Change is fundamental in the current economic, environmental, and social scenario. Companies must be able to continuously adapt to new conditions in order to resist and thrive. Change in the management literature has been addressed from quite some time. The pivotal work that inspired future authors to study, examine, and analyse change management has been the work of Kotter (1995), whose model shows eight different stages for companies to be successful in implementing transformative change. Several authors have taken the model proposed by Kotter as a starting point for developing and corroborating each aspect treated, with great importance given to the role played by effective leadership in driving and sustaining change efforts.

With the growing importance of sustainability issues, aspects of sustainability and the importance of sustainable practices have been embedded in the change management literature, and so, an analysis of the main drivers supporting sustainability has been carried out. The chapter follows on in presenting the most significant contributions on the sustainable change literature, with predominant contribution given by the model developed by Dunphy *et al.* (2003), perfected to allow companies to carry out self-assessments of their status, with a view to sustainability, in order to chart a course towards higher levels of awareness of this issue. An analysis of the literature concerning sustainable change have highlighted several points of connections with the more general literature on change management. Finally, the last part of the chapter contributes to clarify the role of some key factors in triggering change, thus searching the literature for a key that could lead to

a holistic view of these aspects, which can be defined as prerequisites for sustainability, deriving a representation of the so-called *Sustainability Preconditions* that are found to contribute to the successful adoption of sustainable practices.

3.2 Transformational change: Kotter's Leading Change Model

Becoming a sustainable organization, as already emphasized in the previous chapters, is a journey that requires time, effort, and clear planification, otherwise it would be an end in itself, and more often than not, a failed project.

Sustainability and circularity require organizational changes, and they imply a profound rethinking and redesigning of organizations' processes and structures. The literature on how changes affect the organization has been treated for decades now, with works such as Kotter's (1995) seminal eight-stage framework for change management expressing the importance of avoiding eight errors, "deadly sins" committed by organizations when trying to achieve effective transformative change. The extreme difficulty in achieving change is also evidenced by empirical findings and conceptual explanations (Beer and Nohria, 2000). This difficulty in changing, irrespective of the subject that is changing, has been known since time, also Machiavelli (1469-1527) understood the problem of change in its critical essay on political doctrine, *The Prince*, stating:

«... there is no more delicate matter to take in hand, nor more dangerous to conduct, nor more doubtful in its success, than to set up as a leader in the introduction of changes. For he who innovates will have for his enemies all those who are well off under the existing order of things, and only lukewarm supporters in those who might be better off under the new» (Machiavelli, 1469-1527)

The framework depicted by John Kotter (1995) is now the fundamental work when discussing about organizational change, and the same author underlines how various type of changes, such as Total Quality Management (TQM), business turnaround, business expansions, internationalization, and all those type of extraordinary management activities requiring radical changes all fall within the actions undertaken by businesses to cope with a new, more challenging market environment, and sustainability transition is not different. The steps found by the author are: *Establishing a sense of urgency; Forming a powerful guiding coalition; Creating a Vision; Communicating the vision; Empowering others to act on the vision; Planning for and creating short-term wins; Consolidating improvements and producing still more change; and Institutionalizing new approaches.*

Establishing a sense of urgency

The first stage of successful change efforts is when some individuals, internal stakeholders, managers, executives, or others, alone or in group, start examining the company's current situation, analysing the competitive and market position, financial performance, and technological trends, usually focusing on issues that for them are of fundamental importance for the company's own survival, aspects that are usually undervalued by the majority of the stakeholders. Communication of those issues is critical, as the message of urgency must be clear to the highest number of receivers, as transformation programs require aggressive and committed cooperation among many individuals. Motivation is therefore the key and spreading the sense of urgency is vital for the success of the program. For Kotter (1995) this first phase is not over until commitment is exerted by senior management. The problem here is that senior management is usually benefitting from the current situation, and the only solution that can overcome this "blockage" is the introduction of a new point of view, in the head of a new manager that is also a good leader and sees the need for change. The author stresses the importance of having a facilitator, which can be an individual or a group, as already said, encouraging the business venture to face reality and insisting on emphasising the need for change. The importance of understanding the need for change is critical, otherwise change agents will lack the necessary power and credibility to start the change program (Kotter, 1997). The credibility of the change program can be corroborated by the work of external consultants, as the latter can reinforce the message (Armenakis *et al.*, 1993, and Kotter, 1996), this concept was also stressed by Gist *et al.* (1989), stating that message generated by more than one source usually implies greater levels of credibility and confirmation. The urgency topic was also stressed by Ginsberg and Venkatraman (1995), supporting the idea that change is needed, and urgency is created implicitly, if conversations about change take place with increasing frequency.

Forming a powerful guiding coalition

The second stage of major renewal programs is the creation of a group of people that are really committed to the cause. Not reaching a minimum level of participation is usually associated with poor program performance and results. The coalition, in order to be effective in its role in supporting change, must include spokesmen with sufficient power and responsibilities to ensure the efficient influence of the group itself. It is therefore not

unusual to have a group formed by senior executives, managers, and other employees that are deemed to be “powerful” in terms of expertise, relationships, reputation, as well as job title and that have actual knowledge of the topic. Kotter (1996) clearly stated that the needed characteristics for individuals in a guiding coalition should be *power, expertise, credibility, and leadership*. The relevance of these characteristics was studied, and a clear positive relationship between power, expertise and rate of successful change implementation was found (Lines, 2007). In this phase, companies that successfully implement changes within the organization are those where teamwork is part of the day-to-day business, where group thinking plays a critical role, thus understanding the importance and the need for a strong guiding team, composed of people with the ability to influence and guide the organization towards the new path. The relevance of this cluster is further reinforced when investigating the role played by these facilitators of change vis-à-vis those who seek to resist, as only with a determined and focused coalition can change reach the latter.

To better understand the role played by these change agents, a work by Caldwell (2003) highlighted the difference between change leaders, those envisioning, initiating, and sponsoring change, and change managers, those middle level managers creating the supporting system for the actual implementation of the change within business units and key functions, stressing the importance of managerial attitude toward change for the successful implementation of transformational journeys (Paper *et al.*, 2001). The importance of a powerful and experienced guiding coalition is also supported by studies conducted through business cases (Self *et al.*, 2007, and Cunningham and Kempling, 2009), although some critics have risen, especially regarding the lack of focus on frontline staff, deemed important for adopting change adaptive behaviour (Penrod and Harbor, 1998), and the possible implementation of multiple guiding coalitions, dealing with different aspects of the change process (Sidorko, 2008).

Creating a Vision

In the third stage of change implementation, the coalition group develops a vision, a picture of the future towards which the company should be aiming, that should be easy to communicate and have strong appeal to stakeholders, being they customers, employees, suppliers, executives, and stockholders. The actual development of a common vision is a process that could take months, even a full year of thinking, as it is the fundamental glue

of all efforts required to achieve the goal, as it is deemed essential for projects positive outcomes (Wright and Thompsen, 1997). Vision should be made actionable by the development of strategies stressing the objectives that should be reached, thus extending management's perspective to include longer-term issues than incremental improvement goals (Flamholtz and Kurland, 2006). The coalition should place attention on every detail while developing the vision, in order to avoid the creation of projects that are incompatible and lacking a common purpose, a meaning, thus being confusing.

The author proposed a rule of thumb for effective vision development:

«if you can't communicate the vision to someone in five minutes or less and get a reaction that signifies both understanding and interest, you are not yet done with this phase of the transformation process» (Kotter, 1995, p. 63)

Communicating the vision

After having developed a clear and meaningful vision, the effort of the organization must be focused on communicating it. Executives and those responsible for the company's communication should use all existing communication channels to spread the vision to stakeholders. Communication efforts should come both in the form of written messages, videos, talks, and behaviours, the latter is actually one of the most influential forms of communication, as the power of example is a great source of change for those receiving the message. Weekly meetings are found to be effective in creating an open and trusting environment, allowing employees to discuss changes and embrace the process (Frahm and Brown, 2007). The goal in this phase is to integrate and link everyday aspects of the business with the transformational change that is taking place, stressing how simple tasks changes or present attitudes impact the journey towards the achievement of the change vision. Communication is critical in the organizational change process, reducing uncertainty (Bordia *et al.*, 2004), ambiguity, and can affect the responses to organizational change (Nelissen and van Selm, 2008).

Empowering others to act on the vision

The fifth stage of transformational change is associated with the error of not removing the obstacles deemed to block the new vision. The organization must involve an increasing number of people to act upon the vision, empowering employees to try new methods to conduct their tasks, giving them enhanced responsibilities and supporting them in developing new ideas, providing leadership, and controlling that these new approaches fall

among the overall vision developed by the guiding coalition. The degree of empowerment does not have to be extreme to help the change efforts, even small opportunities can have profound effects on collaborators, thus create in the latter a sense of control over the change process (Kappelman *et al.*, 1996). The exemplary behaviour demonstrated by initial facilitators must be spread towards the highest possible number of collaborators, removing such obstacles as compensation systems giving employees benefit for sticking to the status quo at the expense of the new reality. The critical point here is to engage the organization as a whole in removing those obstacles of various kind that may hamper the success of the change process and its credibility, of which, four deemed critical are structures, skills, systems, and supervisors (Kotter, 1996, p. 102). Employees' empowerment and independent thinking is indeed found to be affected by supervisors' attitudes and training (Klidas *et al.*, 2007), by the hierarchical structure created by existing supervisors (Cacioppe, 1998), and by communication and coaching programs (Ellinger *et al.*, 2010, and Kappelman and Richards, 1996). Empowering is a critical aspect in the change literature, studies conducted at companies' level support its role, evidencing how companies like Ford successfully implemented training programs supporting the building of a sense of responsibility and empowerment (Denton, 1994), or the role played by the creation of team ownership, participation, and empowered employees in supporting a successful organization transformation (Paper *et al.*, 2001, and Lines, 2007).

Planning for and creating short-term wins

The need to create short-term wins that are highly visible is one of the most known stages of this model, yet it is only the sixth phase, meaning that other five equally (if not more) important stages must be successfully reached and surpassed in order to get to this stage. The importance of creating short-term wins might seem like a contradiction, as the vision entails a long-term journey and commitment, but the link between those dimensions it is actually quite intuitive, creating short-term wins support long-term goals, creating confidence and momentum towards the latter (Pietersen, 2002). Without visible targets that could be reached in months, and not years, the risk that the organization may face could be that of losing momentum, and, with that, seeing the transformational process fail. Planning and creating short-term wins is an effective approach to maintain the level of commitment and urgency created in the previous stages of the process, and, at the same time, can support the review and enhancement of the vision, should new information make

minor changes or adjustments to the route necessary, or simply preferable (Kotter, 1996). The right balance must be found between short-term initiatives, providing management's encouragement to keep focusing on the chosen path (Marks, 2007), and long-term effects, avoiding complex issues for organizational leaders given by a lack of long-term focus (Boga and Ensari, 2009), setting performance and expectations that are high and reward-ing behaviours that are consistent with the change vision in the long run, in order to insti-tutionalize the change at the organizational level (Eisenbach *et al.*, 1999).

Consolidating improvements and producing still more change

After having increased the credibility on the change process, the organization must focus on hiring, promoting, and developing employees that can actually implement the new vision with their behaviours and, at the same time, on producing and supporting new projects and actions that are consistent with the new vision and could create more change. Results achieved must be verifiable, using measurable performance metrics, as only cred-ible results can justify the costs incurred for generating short-term wins (Pfeifer *et al.*, 2005). The objective is to avoid declaring victory when the actual goal has not been reached. Changes must sink in the organizational culture to be effective in the long-term, or regression to older behaviours could happen, change-based momentum must not be lost from sight, as momentum increase commitment, and commitment helps to overcome the resistance to change (Hambrick *et al.*, 1993, and Jansen, 2004). To avoid this, the leaders of the change process must engage in tackling the remaining systems and struc-tures that are inconsistent with the new path followed and that were not confronted in the previous phases, exploiting first successes to prevent opponents of change from slowing down the process (Kotter, 1996). With increasing credibility afforded by short-term wins, the change facilitators must embrace even bigger and more ambitious projects with the aim of consolidating the introduced improvements.

Institutionalizing new approaches

The last stage of the *Leading Change Model* is concerned with the phase where the or-ganization is planning for future success, linking new behaviours with corporate success, and developing means and instruments to ensure the development and succession of lead-ership figures that are coherent with the changes implemented and that can support the new “business as usual”, introducing a supporting structure responsible for mentoring and

training the future change agents. The actual communication of the linkages between changes and better performance should be made using every possible channel, as newsletters, informal meetings, websites, visual displays, conferences, and seminars (Massey and Williams, 2006). The top management selection must be made in the best possible way, to support change and renewal, avoiding the effects that poor succession decision can imply, among which, the regression to precedent status, and the destruction of years of work. Institutionalization has been defined as:

«Change that has relative endurance and staying power over a length of time or that “has become part of the ongoing, everyday activities of the organization”» (Jacobs, 2002, in Appelbaum *et al.*, 2012)

To sustain such change, literature suggests that a shift in thinking is required (Senge *et al.*, 1999), supporting commitment through training, rewarding, and spreading further the change idea (Buchanan *et al.*, 2005), aiming at the solidification of the change in the corporate culture (Kotter, 1996). The final step is clearly the most difficult of the eight stages to analyse, as it entails a timeframe for implementation of several years, making it complicated to be evaluated (Betters-reed *et al.*, 2008).

The eight steps are fundamental in understanding the complexity of a transformational process and the actions and behaviours needed to effectively embrace change, and the crucial role played by leaders and change agents in inspiring the whole organization towards paths with radical long-term impact. Table 7 gives a summary of the steps, the action needed, and the errors that organizations must avoid for effectively support change.

Table 7 *Eight steps for transforming the organization, actions needed and avoidable errors*

STEPS	WHAT TO DO	ERRORS TO AVOID
Establishing sense of urgency	Examining market and competitive position Identify potential crises, risks and major opportunities	Not creating a great enough sense of urgency
Forming a powerful guiding coalition	Assembling a team with power to drive the change effort The group should work together as a team	Creating a coalition that is not powerful enough to influence other in embarking in the transformational change process
Creating a Vision	The vision should help in directing the efforts Developing strategies consistent with the new vision	Not creating a vision, but a mere list of strategies without a common meaning
Communicating the Vision	Using every communication channel available to spread the change vision Exploit the power of exemplary behaviours to drive the change	Not using the communication channels in a proper way, underestimating the impact of communication

STEPS	WHAT TO DO	ERRORS TO AVOID
Empowering others to act on the Vision	Getting rid of obstacles Changing systems and structures if needed in order to support the vision Encourage employees to take risks and spread novel ideas, activities and actions	Not removing obstacles that may hamper the change process, such as the current organizational structure, some stakeholders in key roles, or some systems used by the company
Planning for and creating short-term wins	Planning for visible performance improvements to keep people engaged and the organization accountable Creating the improvements Recognize and reward employees to create credibility and commitment	Not actively creating short-term wins, losing momentum
Consolidating improvements and producing still more change	Change policies, structures and systems that are resistant to change Hiring, promoting, and developing employees that are in line with the new vision Aim at continuous improvements thanks to new projects and change agents	Declaring victory too soon
Institutionalizing new approaches	Determine and stress the linkages between new behaviours and better performance Ensure leadership development and succession that is consistent with the chosen path	Not embedding changes at the corporate culture level

Source: Adapted from Kotter (1995)

Although critics found the model to be too rigid (Burnes, 1996), later publications highlighted how problems arising due to the model “rigidity” can be tackled by considering the model as a starting point for managers implementing change in their businesses or organizations, while adapting the framework to contextual variables (Graetz and Smith, 2010).

3.2.1 The role of leadership in the management of change

Analysing the model proposed by Kotter (1995) for managing the change, leadership is found to play a critical role for supporting the organization in setting the direction that must be followed, supporting project managers in overseeing technical aspects and people (employees and collaborators) in effectively implementing the change (Vora, 2013). Its role was already discussed by Kotter (1990), discerning the management, as the supporter of orderly results which keeps something working in an efficient way, from leadership, the facilitator of useful change, stressing the importance of having both for organizations to prosper. The importance of leadership is furthered by Gill (2003), stating that:

«While change must be well managed – it must be planned, organized, directed, and controlled – it also requires effective leadership to introduce change successfully: it is leadership that makes difference» (Gill, 2003)

The author suggests that management in a change journey is necessary but is not sufficient for achieving the desired results, pointing out how corporate policies and practices can become disincentive or lack of incentive to pursue change behaviours. Also, approaching change as a technical and rational process to be managed, whilst underestimating the impacts of social and emotional considerations that leadership contemplate, can result in suboptimal new states, where the organization strive for achieving results based on the erroneous assumption that only managing the technical aspects will lead to real change (McLagan, 2002). The requirements of effective leadership found in the literature are *cognitive intelligence, spiritual intelligence, emotional intelligence, and behavioural skills* (Gill, 2002) and, for leadership to be effective also in change situations, leaders must be able exploit these dimensions to affect all the aspects deemed critical in the model for change management proposed by Kotter (1995), thus encompassing the *vision; values and culture; strategy; empowerment; and motivation and inspiration* (Gill, 2003).

As regards *vision*, leaders must be able to communicate the new vision from the beginning of the change process, creating the sense of urgency suggested by Kotter (1995), vision must help the organization focus on change, driving change (Senge, 1990), and it must be shared, as only through a shared vision there could be alignment, and so commitment (Kakabadse, 2002). Organizational change can only work if based on a long-term vision (Kotter, 1997).

With regards to *values and culture*, effective leadership entails identifying and promoting shared values, supporting the creation of an organizational culture endorsing a common purpose and commitment, avoiding dysfunctional, not shared values (Drucker, 1999). Cultural change requires actions, and leaders must support these changes and be the example, allowing for sequential and incremental changes, creating a network of horizontal relationships that will replace bureaucratic organizations (Gill *et al.*, 1999).

As stressed in the model presented previously, vision would be nothing without a *strategy* making change actionable. In this aspect, effective leadership entails developing and implementing rational business strategies based on possible future scenarios, creating a coalition that will guide the organizations through example and constant communication. Change affects the way power relationships are structured within an organization, effective leadership for change entails also the *empowerment* of people, collaborators, and

employees, to create flatter structures where employees are trusted, expected to conform to shared values, and encouraged to be entrepreneurial and innovative (Cannon, 2000). Finally, and usually the most commonly cited “responsibility” of an effective leader, is the *motivation and inspiration* for people. Leaders must be credible, and their credibility comes from the ability to inspire, and from others’ perception of their competence and honesty (Kouzes and Posner, 2002).

Leadership can thus be defined as a condition that must be present for change to start, or even better, to be envisioned, as only with a strong, credible, and visionary leadership is an organization able to evolve:

«Progress occurs when courageous, skillful leaders seize the opportunity to change things for the better» (US president Harry S. Truman, as quoted by Whitson and Clark, 2002)

3.3 Change management and sustainability transition: drivers

The transition for a company to more sustainable business practices has been described as a process involving every aspect of the organization in a multi-perspective, interrelated way, encompassing the foundations of the organization, its structures, the way through which the business is managed (Governance) and how employees and collaborators are managed (Human Resource Management). The way towards sustainability is long and requires skills and adaptability that not all companies have, and it is a clear change management process, one that in the present state of the society is having big impact on businesses and on markets as a whole.

Sustainability is not a reachable end-state, but it is a rather fundamental feature of an evolving and dynamic system (Ates and Bititci, 2011). Organizations are therefore required to adapt to this continuous change and should develop useful capabilities to become resilient to changes. Change in the corporate context entails the movement from the status quo to a new, more desirable state (Ragsdell, 2000), usually to respond to a new opportunity, technology, or process that must be anticipated, prepared for, and managed in a proactive way (European Commission, 1998), avoiding the risks of losing economic opportunities (Cannon, 1994) or, even worse, being forced out of the market (Collins and Porras, 2002). Sustainable transition as a change management process is also supported by the fact that most transitions of this type are triggered by initiatives proposed at senior corporate levels (Siebenhuner and Arnold, 2007), and this finding is consistent with the

first phases of the model for change proposed by Kotter (1995), as facilitators are those with great responsibility and power to create the needed sense of urgency to grasp opportunities. Other supporting literature indicates that corporate sustainability should not be limited only to raw material provision, products and infrastructures' energy consumption, but should entail an holistic perspective on change management (Baumgartner, 2009) considering effects on corporate culture (Linnenluecke and Griffiths, 2010), organizational models and structures, operations (Diesendorf *et al.*, 2000), management (Doppelt, and McDonough, 2017) and strategies and actionable objectives to reach the desired level of change (Robert *et al.*, 2002). Lozano (2015) defined these latter issues related to organizational structure as “soft issues”, and stated that:

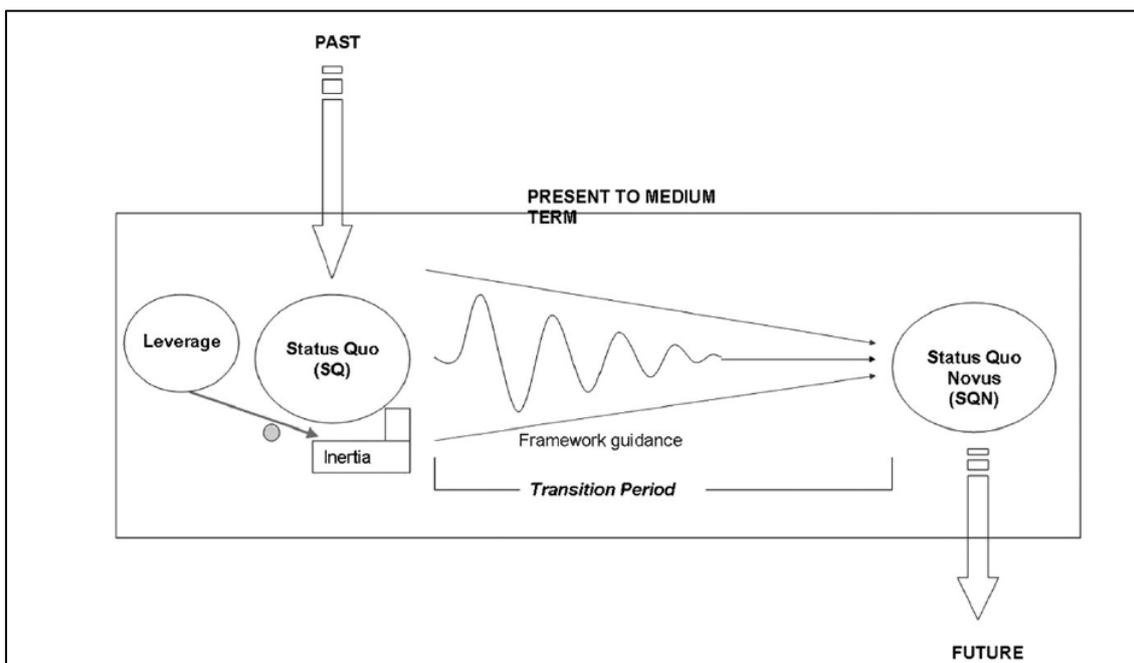
«‘Soft issues’ can be addressed by organizational change towards sustainability, and thus help companies move from an unsustainable *status quo* (SQ) to a new level of equilibrium, a more sustainable orientated state (MSOS)» (Lozano, 2015)

The author also supports the idea of corporate sustainability achievement as a change management journey arguing that:

«Achieving corporate sustainability is a journey requiring continuous adjustment and improvement to internal activities, structures, and management, and to how companies engage and empower stakeholders (including the environment) to contribute to sustainable societies more effectively» (Lozano, 2012)

The study conducted by the author in *A holistic perspective on corporate sustainability drivers* (Lozano, 2015), highlighted two main categories of drivers that can act as a change leverage in supporting corporate sustainability, these drivers are divided into *External* and *Internal* drivers, with the former being usually reactive measures (DeSimone and Poff, 2000), and the latter category comprising drivers deemed more proactive. These drivers can help companies to overcome the initial state of inertia that does not allow the company itself to initiate processes of change, and thus achieve corporate sustainability. They operate as real levers of change, as shown in Figure 7.

Figure 7 Change for corporate sustainability



Source: Lozano (2015)

Among external factors driving companies towards sustainability, national policies, regulatory pressure, international treaties, and political lobbies (Quazi, 2001, Hart, 2000) usually have a predominant role, other factors include NGOs and stakeholders' pressure (Fernández *et al.*, 2006), factors regarding the market, such as future sustainable markets (European Commission, 2002), access to new markets or customer (Laffer *et al.*, 2004), and market expectations (Gill, 2003). Cited external drivers are also customer satisfaction (Busse, 2004), corporate and brand reputation (Ditlev-Simonen and Atle, 2011), as well as the need for social legitimacy and of a sort of license to operate.

The internal drivers, those defined as more proactive, encompass several organizational dimensions, stemming from leadership, shareholders' value (Biscaccianti, 2003), employees' shared values (Fukukawa and Moon, 2004), and ethics (Dunphy *et al.*, 2003), to more operational drivers such as enhanced productivity, profits and growth, resources' and costs' savings (Frehs, 2003).

Through semi-structured interviews with top-level corporate managers and experts, Lozano (2015) concluded that the most important driver for corporate sustainability is the role of *leadership*, and this result is coherent with the literature on change management (Kotter, 1996), followed by the importance of *reputation*. The study conducted highlighted how corporate sustainability needs a holistic perspective on drivers in order to be

achieved in the long term. Corporations are complex social organizations, and leaders of the change must balance and manage the internal and external drivers and stimuli, reacting in a timely manner to external pressures, and promoting and rewarding internal factors. These findings are consistent with the already discussed role of leadership in driving change in the literature review conducted by Gill (2003).

3.4 Management of change towards sustainability

Different frameworks can be applied in the considerations about change management towards more sustainable companies, the generally considered model is the one already discussed by Kotter (1995) which encompass change regardless of the actual type of such transformative change.

3.4.1 Sustainability blunders by Doppelt

Taking specifically into consideration the change due to sustainability transition, the seven key *sustainability blunders* were drawn from a comprehensive study of more than 25 public and private organizations approaching the issue of sustainability (Doppelt, 2003), with an eye to the *Cradle-to-Cradle approach* (McDonough and Braungart, 2002), central in the circular economy transition. The blunders are the following ones.

Patriarchal thinking that leads to a false sense of security

One of the most serious blunders of the seven, it entails the inability and non-incentive of employees to go beyond what they are told to do by managers. It is a clear reference to Kotter's (1995) empowerment problem, and here it comprises the inexistence of people within the organization who challenges the linear economic paradigm or mechanical organizational designs that control thinking (Doppelt, 2003). An organization following such thinking model would not create the sense of urgency suggested as a key step in Kotter's (1995) model.

A "silo" approach to environmental and socio-economic issues

This blunder entails the division of functions and departments, thus not seeing sustainability initiatives as a comprehensive approach but rather as another special program. This situation leads to the stagnation of sustainable transformative change, and the perpetuation of the unsustainable status quo.

As in the first blunder, references to the model developed by Kotter (1995) can be found here, a “silo” approach can indeed obstruct the creation of the guiding coalition to guide the process across the organization.

No clear vision of sustainability

Companies that lack clarity about what they are trying to achieve as regard sustainability usually struggle in adopting a sustainable path. Sustainability must be envisioned as a forward-looking path able to excite people and push them to commit themselves to achieving their goals, not a backward-oriented process for adopting policies in compliance with relevant laws.

Confusion over cause and effect

What the author have analysed from real life transition processes is that most organizations focus on mitigating results, and not on tackling the causes of the problems. Corporations spend to mitigate emissions and reduce by-products, while they should target root causes such as product design and sustainable material usage. The third and fourth blunders are a derivation of the third step of Kotter (1995): developing a vision and strategy to act upon that vision is clearly important also for companies embracing sustainability.

Lack of information

Here the critical issue is consistent with the fourth step of the leading change model proposed by Kotter (1995). Corporations are indeed found to fail in communicating sufficiently the purpose, strategies, and expected output of their sustainability efforts, and the need for such initiatives (Doppelt, 2003).

Insufficient mechanisms for learning

Corporations adopting sustainability practices must focus on creating a system that allows, supports, and rewards employees for testing new ideas, increases their knowledge and in this way provides the organization with solutions on how to overcome barriers to change. The company should therefore eliminate barriers that limit the creation of this working environment. Even for this sixth blunder, a clear reference can be made with Kotter’s (1995) model, specifically with the sixth and seventh step of generating short-term wins and of producing still more change.

Failure to institutionalize sustainability

The failure to institutionalize sustainability entails the inability of the company to incorporate sustainability in their core policies and procedures. Organizations need to create a culture where sustainability-based thinking, perspectives, and behaviours are embedded in everyday operating procedures. This is paired with the eighth step of the model for leading change introduced by Kotter (1995), where organizations are called to embed change (in this case, sustainability).

3.4.2 Literature on *change management* towards sustainability

Other studies have proposed models and frameworks for understanding how change management processes and practices are modified when introducing sustainability considerations. In the same year as Doppelt's publication about the seven blunders of sustainability (Doppelt, 2003), Dunphy *et al.* (2003) developed a three-stage model analysing how companies transition from a wave of opposition and ignorance of sustainability issues to the stage of transformation.

This work paved the way to Lueneburger and Goleman (2010) work, indicating that, based on research, corporate sustainability initiatives encompass three different maturity stages. For the authors, the first phase entails the creation of the sustainability vision, the second phase demands the drafting and adoption of actions in pursuit of the vision, while the final stage of implementation is the transition from a reactive stage to a proactive response to future needs regarding sustainability.

Eccles *et al.* (2012), on the other hand, focused on a comparison between identified *sustainable* and *traditional* firms for grasping the differences guiding the former category in the pursuit of transformation to being a sustainable company. The results helped in the drafting of an identity and cultural model, for companies pursuing large-scale changes, comprising two distinct phases: the first involving the reframing of the corporate identity and the second one revolving around the codification of the new corporate identity through engagement and execution mechanisms (Eccles *et al.*, 2012).

The influence of the eight stages of change introduced by Kotter (1995) is evident in the work of the above-mentioned authors on business transformation to achieve a more sustainable state, nonetheless, when applying change to specific areas of focus, be it Total Quality Management, innovation, or, as in this case, sustainability, frameworks should support companies not only by citing what needs to be done (or should be avoided), but

also by informing the organization about its current position and providing a metric on the actual state it wish to achieve (Sloan *et al.*, 2013).

That is a fundamental difference between the cited frameworks about sustainable change and the prescriptive process for leading the change process proposed by Kotter (1995).

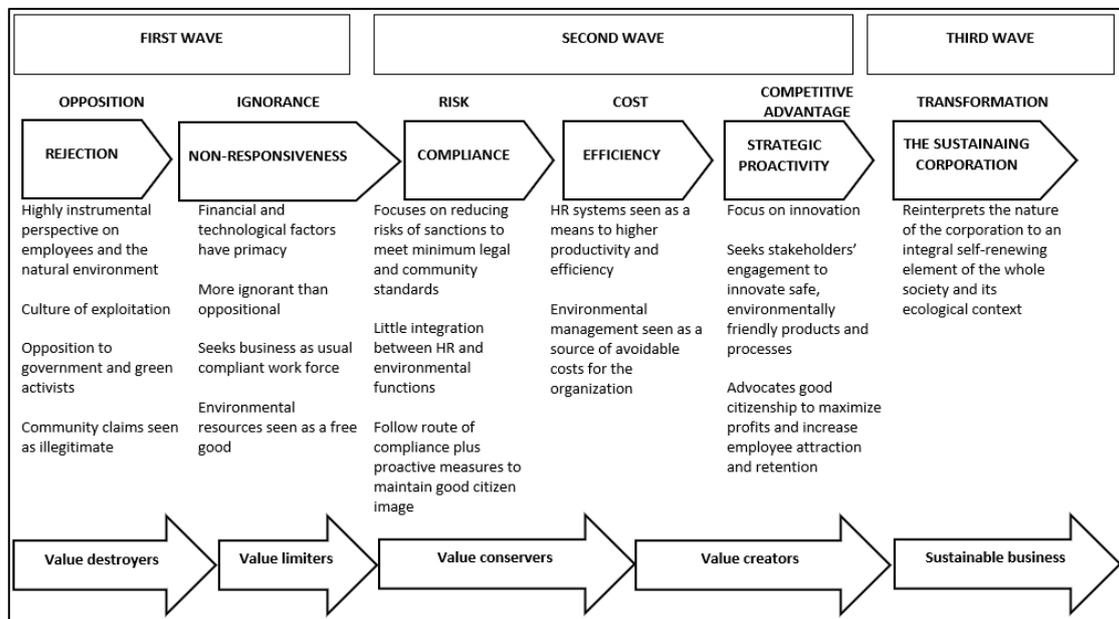
The usage of these frameworks, Sloan *et al.* (2013) says, allows:

«Those involved in leading the change efforts to better frame future states, identify both the opportunities and the obstacles that accompany them, and more clearly articulate the challenges to be faced and overcome» (Sloan *et al.*, 2013)

3.4.3 The Sustainability Phase Model by Dunphy *et al.*

The model proposed by Dunphy *et al.* (2003) is a fundamental, although simplified, representation of the complex scenario of sustainable change. It is used to determine where an organization stands as it contemplates initiative towards greater sustainability efforts. Benn *et al.* (2014) describe the framework as unique in that it includes both environmental and social sustainability. The *Sustainability Phase Model* discern organizations based on their knowledge of the themes that are fundamental for sustainability, on the actions implemented and on the management of initiatives.

Figure 8 Sustainability Phase Model



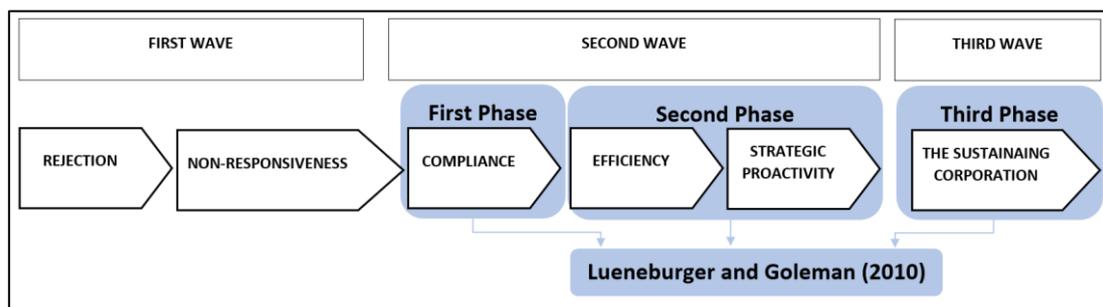
Source: Adapted from Sloan *et al.*, 2013

As can be seen from Figure 8, it is divided in three waves of change, each comprising two stages, for a total of six phases ranging from a state of *Rejection*, where “organizations

exploit resources for maintaining short-term financial gains” (Benn *et al.*, 2014), abusing employees, communities, and the environment to maximize profits (Ayers, 2020), to the final phase of *the Sustaining Corporation*, describing corporations seeking to provide returns to investors while contributing to sustainability in the industry and throughout society as a whole, becoming what have been called as *transforming futurists* (Benn *et al.*, 2014). The bold word above each phase represents the attitudinal focus for leaders and top executives in that phase, whether the arrows at the bottom of the model point out the effects for each organization in each phase. The middle part of the framework comprises, for each one of the six phases, a list of key characteristics.

The model proposed by Dunphy *et al.* (2003) can be compared with the three stages framework by Lueneburger and Goleman (2010), although it differs from the former in that it focuses on specific initiatives and actions. The first phase of the model proposed by Lueneburger and Goleman (2010) is a reactive stage, where initiatives are implemented to respond to external pressures, and can be reconducted to the third stage of the *Sustainability Phase Model*, the *Compliance* phase, where organizations are found to be focused on reducing risks. The second phase of the Lueneburger and Goleman model (2010) sings the passage to a proactive way of thinking and acting, and a clear overlap between this phase and the second half of the second wave (Dunphy *et al.*, 2003), comprising the *Efficiency* and the *Strategic Proactivity* phases can be identified (Sloan *et al.*, 2013). Finally, the third wave of the *Sustainability Phase Model*, where organizations are integral part of the society and the environment in which they conduct their businesses, has correspondence on the final stage of the model developed by Lueneburger and Goleman (2010), in which the organization manages its sustainable initiatives in a “*unconsciously proactive*” way. The overlaps and correspondence can be seen in Figure 9.

Figure 9 Correspondence between models proposed by Dunphy *et al.* (2003) and Lueneburger and Goleman (2010)



Source: adapted from Sloan *et al.* (2013)

This second part of chapter 3 summarises and describes the adaptation that the model of Kotter (1995) and the literature on change management have undergone over the years, focusing the discussion on sustainability issues, highlighting how the change process itself evolves as companies' commitment to a more sustainable future evolves. Companies must strive to change the way they operate, harnessing the commitment of their leaders, including external stakeholders, empowering employees through actionable strategies, thus creating a new identity, that of sustainable company (Eccles *et al.*, 2012).

Having discussed about what needs to be done to reach sustainability, the following paragraph, Section 3.5 *Supportive conditions of sustainable change*, will analyse the pre-implementation conditions that are found to positively affect the successfulness of transformative changes towards sustainability, developing a theoretical framework.

3.5 Supportive conditions of sustainable change

This Section will analyse the literature on factors that are deemed to affect the ability of companies to start and implement organizational changes towards sustainability in a systematic and successful way. The section will therefore initially present the supportive conditions of sustainable change. The analysis of these factors will then allow, in the remainder of the Section, to introduce a division of the conditions into macro-categories, in order to facilitate a critical view of the effects of these variables, finally arriving at a new model to analyse, in a comprehensive manner, the beginnings of organizational change processes aimed at sustainability.

3.5.1 Literature on supportive conditions for *sustainable change*

The theoretical and research literature on organizations' transformative change to pursue more sustainable ways of conducting their operations has been focused mainly on stages of planification and implementation of change, and on its drivers and barriers for success. To better understand the reasons for the implementation of such change journey, another strand of research has put emphasis on those conditions that facilitates or even lead the company to consider sustainable change.

A clear and comprehensive analysis of such precondition to sustainable change has not surfaced as of today, but pieces of information can be gathered throughout the literature on change management, sustainability, and sustainable change. Although such holistic vision on sustainable change preconditions has not yet been developed, some authors

have tried to find evidence on some specific factors and their contribution to companies' adoption of sustainability-centred initiatives and transformative changes.

From change-related frameworks previously analysed (Kotter, 1995, Dunphy *et al.*, 2003, Lueneburger and Goleman, 2010, and Eccles *et al.*, 2012), significant managerial efforts and expertise seem to be needed to implement firm level changes towards sustainability (Sloan *et al.*, 2013). Culture is also found to be a precondition for the development of a sustainable corporation. Sustainable activities and strategies need to be embedded in the organizational culture in order for change to be successful (Baumgartner, 2009). Literature also suggests that changes aiming at sustainability are supported by the previous implementation or the knowledge of other operational improvement processes. In fact, statistical results deriving from the study conducted by Zhu and Sarkis (2004) on the relationships between Total Quality Management (TQM) practices and supply chain management practices adoption, intended as a form of change management towards sustainability, suggests that precedent deployment of TQM practices plays a strong supportive role in those companies trying to successfully green their supply chain. The paper also suggests that TQM practices function as moderators in supporting Green Supply Chain Management practices, thus being beneficial for environmental and economic performance of the company adopting them (Zhu and Sarkis, 2004). This latter role was supported by findings suggesting that those companies adopting quality management standards, that is, ISO 9000 set of standards and its certification, are more likely to adopt an environmental management standard, such as ISO 14000 (King and Lenox, 2001).

Box 2 Brief introduction of ISO 9000 and ISO 14000

The International Organization for Standardization (ISO) is a non-governmental organization. It is a standard-setting body, founded in 1947 and working for 166 countries, responsible for the development and publication of worldwide technical, industrial, and commercial standards, technical reports, technical specification, publicly available specifications, technical corrigenda, and guides (ISO, 2008).

The most known ISO family standards are the *ISO 9000* and the *ISO 14000*.

ISO 9000 is a set of standards on quality management systems designed to support organizations in meeting customers' needs following products or services' requirements that are either statutory or regulatory. *ISO 9000* includes the foundations of quality management systems, including the principles that form the standards, while *ISO 9001* set the requirements that organizations must comply with. The fulfilment of these requirements is recognized by third-party certification, and such certification is one of the most used tools worldwide.

The set of standards comprised in *ISO 14000* is related to environmental management systems. The triple main objective of this family of standards is to assist organizations in minimizing their negative environmental impact, complying with environmental laws, regulations, and other requirements, and in continually improving those two aspects. As with *ISO 9001*, the certification (*ISO 14001* standard) is provided by third-party organizations. The certification is at the core of the EU's Eco-Management and Audit Scheme (EMAS).

Darnall (2001) analysed the adoption of ISO 14000 for environmental management systems, discerning between those companies mandating the standards for their operational units and those simply encouraging them, finding that companies mandating the certification are able to withstand to greater external pressures, usually possessing better internal capabilities. The author found regulatory pressures as being influential in making a company adopt more sustainable practices (Porter and van der Linde, 1995), followed by market pressure (Bowen, 2000), and finally social pressures (Hoffman, 2000). Although being influential, Darnall (2001) highlights how internal capabilities, such as managerial attitudes and views (Cordano and Frieze, 2000) and managerial interpretations (Sharma, 2000) on sustainability issues lead to actual change in companies, pointing out how a culture of change is in large part a function of the organization's leadership (Schein, 1992), thus supporting the role of management and leadership previously cited. The author also suggests that the adoption of higher-order environmental changes, as the ISO 14001 certification impose, could not be achieved unless basic abilities are found in the company (Hart, 1995). Such basic capabilities refer to process innovation and implementation, as disclosed by Christmann (2000). Analysing supply chain management decision-making, Carter *et al.* (1998) found also that sustainable transition and the successful implementation of green supply chain management (GSCM) is significantly endorsed by middle management, highlighting the supportive role played by middle managers in spreading sustainable change throughout the organization. Another research conducted by Wiesner *et al.* (2010) found pre-implementation factors deemed to be critical elements in setting the foundation of sustainable change success: the so-called "wake-up call" heard by CEOs of companies, that is the moment when the leader of an organization recognise the importance of and the need for sustainable change; the gathering of initial information about firm's standing in terms of compliance issues and sustainability issues; the identification of the leaders of sustainability, and so the leaders for change; the analysis of the sources of information used by such leaders to stay informed about new discoveries in the field of sustainability; the elucidation of the role played by sustainability for the firm, to develop a change that is consistent in every aspect; and finally, the examination of the personal mindset of leaders regarding sustainability issues.

The study also states critical elements in introducing and encouraging sustainable change as drivers for and benefit of change, and key factors in planning the change effort such as

decisions regarding the approach to be followed, the selection of the key figures involved, and the creation and establishment of change vision and mission (Wiesner *et al.* 2010).

More recent studies on sustainability within organizations and its preconditions suggested that companies that successfully embrace the transition towards sustainability are the ones adopting and embracing Industry 4.0 related technologies, those presenting a level of readiness in the adoption of technological innovations such as machine learning, cloud computing, blockchain, 3D printing, and robotics (Lacy *et al.*, 2020), to cite few.

The following Sub-Sections will present all factors found throughout the literature by dividing them in four macro-categories, that would be the backbone of the model presented in Sub-Section 3.5.6

3.5.2 Area 1: Leadership and Strategy & Processes

The first category is labelled *Leadership and Strategy & Processes*. It regards the role played by leaders of the company (entrepreneur, top management) in shaping change, and the attitudes and behaviours that managers should show.

As already stated in the previous sections, leadership plays a critical role in shaping the change process and the commitment towards such changes. The main factors shaping *Leadership* role are the experience of a wake-up call concerning sustainability issues (Wiesner *et al.*, 2010), and the presence of an effective leadership (Schein, 1992; and Hart *et al.*, 2019), thus supporting the role of leaders of the company as change-agents.

As regard *Strategy & Processes*, factors included in this variable are the supportive role played by middle managers (Carter *et al.*, 1998), a strong dedicated management will and interest (Mahpour, 2018; Morsetto, 2020; Parchomenko *et al.*, 2019; and Sharma *et al.*, 2021), and managerial attitudes (Zhang *et al.*, 2019), views (Cordano and Frieze, 2000), and interpretations (Sharma, 2000) in line with sustainability considerations.

Table 8 Leadership and Strategy & Processes

LEADERSHIP	
Experience of a wake-up call	Wiesner <i>et al.</i> , 2010
Presence of Effective Leadership (leaders as change agents)	Schein, 1992; and Hart <i>et al.</i> , 2019
STRATEGY & PROCESSES	
Supportive role of middle managers	Carter <i>et al.</i> , 1998
Dedicated management will and interest	Mahpour, 2018; Morsetto, 2020; Parchomenko <i>et al.</i> , 2019; and Sharma <i>et al.</i> , 2019
Managerial attitudes, views, and interpretations	Zhang <i>et al.</i> , 2019; Cordano and Frieze, 2000; and Sharma, 2000

Source: Own design

3.5.3 Area 2: *Cultural Organization and Stakeholders*

The factors comprehended in the first area would, however, guarantee sub-optimal results if not supported by organizational culture and an effective management of the relationships with stakeholders, corroborating the value of corporate culture and stakeholders' inclusiveness in initiating change, and the role of external pressures in creating urgency for change. The second area, *Cultural Organization and Stakeholders*, is therefore named after those dimensions. To better analyse the factors within this Area, a division between internal and external ones has been made. Among internal factors, the model proposes a culture enabling change (Baumgartner, 2009), thus creating a motivation to pursue change (Sharma *et al.*, 2021), and the creation of clients' and customers' awareness (Smol *et al.*, 2018), also encompassing the importance of coordination and cooperation among multiple stakeholders, especially within the supply chain (Hazen *et al.*, 2017). External factors encompass regulatory pressure (Porter and van der Linde, 1995), social pressure (Bowen, 2000), and market pressure (Hoffman, 2000).

Table 9 Cultural Organization and Stakeholders

INTERNAL FACTORS	
Culture enabling change towards sustainability	Baumgartner, 2009
Creation of stakeholders' awareness	Smol <i>et al.</i> , 2018; Hazen <i>et al.</i> , 2017
Create motivation to pursue change	Sharma <i>et al.</i> , 2021
EXTERNAL FACTORS	
Regulatory pressure	Porter and van der Linde, 1995
Market pressure	Bowen, 2000
Social pressure	Hoffman, 2000

Source: own design

3.5.4 Area 3: *Skills and Competences*

The third area of the model highlights the importance of actual *Skills and Competences* that, if present in the company at the start of its sustainability journey, can have a strong impact on the successfulness of the journey itself.

Training associated with circular economy and, in general, sustainability practices is found to be a critical pre-implementation factor (Sharma *et al.*, 2021; Barquet *et al.*, 2020; and García-Quevedo *et al.*, 2020), thus boosting employees' technical knowledge and capabilities, some of which are found to be required for starting the sustainable change process (Dey *et al.*, 2020; Franco, 2019; Paletta *et al.*, 2019; and Rossi *et al.*, 2020). Expertise concerning sustainability in general, encompassing all three pillars of sustainability (economic, environmental, and social sustainability) is therefore critical (Sloan *et al.*,

2013). Among other factors, companies mandating ISO 14001 certification and thus fostering sustainability within the organization, empowering employees on these issues and thus achieving higher overall internal capabilities, are found to better cope with change (Darnall, 2001).

Table 10 Skills and Competences

Expertise concerning sustainability (Economic, Environmental, and Social)	Sloan <i>et al.</i> , 2013
Training associated with CE and sustainability practices	Sharma <i>et al.</i> , 2021; Barquet <i>et al.</i> , 2020; and García-Quevedo <i>et al.</i> , 2020
Technical knowledge and capabilities	Dey <i>et al.</i> , 2020; Franco, 2019; Paletta <i>et al.</i> , 2019; and Rossi <i>et al.</i> , 2020
Mandating certification (ISO 14000), developing capabilities	Darnall, 2001

Source: own design

3.5.5 Area 4: *Exploitation and Exploration*

The last area of the model, called *Exploitation* and *Exploration*, recalling the dichotomy proposed by March (1991) when stressing the importance for companies of being ambidextrous, highlights the role of previous processes of operational improvements in awakening the need for sustainability (Zhu and Sarkis, 2004), or the previous achievement of quality certifications (King and Lenox, 2001), that is, the exploitation dimension, and the importance of process innovation, eco-innovation, transformative innovation and implementation of these innovations (De Jesus and Mendonça, 2018; Ormazabal *et al.*, 2018; Ritzén & Sandström, 2017) and adoption of innovative technology (Lacy *et al.*, 2020; Katz-Gerro and López Sintas, 2019), all part of the exploration dimension. The combination of previous processes and experiences with present and future technologies represent therefore critical pre-implementation factors for change towards sustainability.

Table 11 Exploitation and Exploration

EXPLOITATION	
Previous operational improvement processes (TQM)	Zhu and Sarkis, 2004
Achievement of quality certifications (ISO 9000)	King and Lenox, 2001
EXPLORATION	
Pursue of process innovation and implementation	De Jesus and Mendonça, 2018; Ormazabal <i>et al.</i> , 2018; Ritzén & Sandström, 2017
Adoption of innovative technology (Industry 4.0)	Lacy <i>et al.</i> , 2020; Katz-Gerro and López Sintas, 2019

Source: own design

3.5.6 Organizing for Sustainability: an original framework

The analysis conducted on the literature aimed at searching pre-implementation factors, requirements, and preconditions regarding sustainability has highlighted the existence of a vast but not comprehensive array of factors deemed essential for triggering the change towards corporate sustainability.

Figure 10 displays therefore the final representation of a model comprising all these so-called *Sustainability Preconditions*, divided, according to the degree of affinity of the themes observed, in the four Areas presented in the previous Sub-Sections, namely *Leadership and Strategy & Processes*; *Cultural Organization and Stakeholders*; *Skills and competences*; and *Exploitation and Exploration*.

Figure 10 Organizing for sustainability framework



Source: Own design

3.6 Conclusions

A company, being a complex organism embedding different functions, different structures, different people, and different visions, is a balance of all the forces putting pressure on it, both from inside and outside, and change is therefore the core characteristic of such organism. In the business world, changes have been at the centre of the major accomplishment for companies trying to develop new products or services, trying to become more profitable and efficient in their operations. Being change the real driving force behind companies, the one that pushes company leaders to chase new opportunities, today the most promising direction of change seems to be the one that fits in with sustainability issues.

Change management has been the subject of much study over the years, and the model proposed by Kotter (1995) has paved the way to researches analysing every aspect of it. The inclusion of sustainability aspects in this literature is more recent, nevertheless many aspects of corporate change for sustainability are now covered in depth. The literature includes models for assessing the company's actual involvement in sustainability issues and the path to follow for achieving true corporate sustainability, key factors for driving these sustainable change processes, and mistakes to avoid in order to not waste the efforts made. All of these issues are reflected in well-known works that serve as a reference in the literature, such as Dunphy's (2003) model for the self-assessment of the position of the company as regards sustainability, the work of Lozano (2015) regarding sustainability drivers, and the model comprising the seven blunders by Doppelt (2003), thus regarding the mistakes to be avoided.

However, the literature lacks a comprehensive view of those factors that are already present in companies that are not currently involved in a process of change towards sustainability, which could be useful for all those companies that want to commit to change, but do not have a yardstick for understanding whether the change itself will be successful. By analysing the underlying literature, a graphical representation of the main factors found in various essays, articles, and in business research has been proposed, dividing what have been defined as *Sustainability Preconditions* into four areas.

The analysis conducted in the last Section of this chapter will be the starting point for the research that will be conducted in the last two chapter of this dissertation. The following

chapter will therefore describe the methodology followed to develop the research, and analysis and conclusions drawn from such analysis will be presented in Chapter 5.

RESEARCH METHOD

4.1 Introduction

The comprehension of the impact that pre-implementation factors for sustainable change have on the organization has been deeply analysed in Chapter 3 following a literature perspective. To gain a more comprehensive understanding of this phenomenon the dissertation follows on by presenting the methodology that will be applied for conducting a case study, thus gathering data from real life context, and analysing them to further develop the theory on these *Supportive Conditions of sustainable change*. The chapter observes the approach described by Saunders *et al.* (2009), by first providing an overview of the methodology used to conduct the research, then going on to present the main aspects of the selected methodology. The research philosophy and the approach to research followed, the elements composing the research design, the selection of the population and of the sampling technique, together with the unit of analysis selected, the sources of data collection, and then the data analysis technique are therefore clearly described within the Sections of this chapter. Finally, general limitations and ethical considerations are presented at the end of the chapter.

4.2 Overall Research Methodology

The purpose of this dissertation is to gain an understanding of how certain factors, referred to in the previous chapter as *Sustainability Preconditions*, play a fundamental role in triggering the process of change towards more sustainable organizational systems. A basic comprehension of the strength of these factors is derived from the literature reviewed in Section 3.5 *Supportive conditions of sustainable change*, although a more detailed analysis, designed to understand this phenomenon in real life situation, is recommended. The purpose of this chapter is therefore to highlight the background of the research that will

be conducted; the analysis of the data and the results deriving from it will be reported in the following chapter. The first step in creating a research study is to focus on the research methodology, emphasising the issue to be investigated, establishing theoretical underpinnings, data collection and analysis, and developing a solution that are all coherent with one another (Wedawatta *et al.*, 2011). According to Saunders *et al.* (2009), research methodology is composed of various elements, among which research philosophy, research approach, research strategy, time horizon, and techniques and procedures for data collection and data analysis. The decisions regarding all these elements will therefore be highlighted and their framework would be the core of this chapter. A first condensed explanation of the methodology to be followed in this research will be presented here. The research methodology adopted is indeed the case studies methodology, a form of qualitative research considered the most suitable research methodology for studying and analysing complex phenomenon that evolves over time (Yin, 1984). This method is preferable when three conditions are met, namely: when the research question to be asked are of the “why” and “how” type; when the questions being asked are related to contemporary set of events; and when those events are not under the investigators’ control (Yin, 2009). Although case studies are usually criticised for lack of scientific rigour and difficulty in addressing generalisability (Johnson, 1994), this research method allows for the gaining of a holistic view of a certain phenomenon, providing a complete depiction since different sources of evidence are used (Noor, 2008), as described in Sub-Section 4.6 *Sources of data collection*. Case studies are also useful where the research is trying to analyse properties of life in organizations and organizational activity (Hartley, 1994). The case study methodology is therefore used as it facilitates the exploration of a phenomenon within its context, using a variety of data sources, ensuring in this way the understanding of the multiple facets of the phenomenon under investigation (Hafiz, 2008). In the next paragraphs all the factors in guiding the decision towards the selection of the case study methodology will be presented.

4.3 Research Philosophy and Approach

The approach to be followed for the research will be that of qualitative research, in the form of a case study, observing a deductive approach. Qualitative research is in fact useful for analysing and exploring the “*the meaning individuals or groups ascribe to a social or human problem*” (Creswell, 2014). Developing qualitative research imply following a

constructivist philosophy, meaning that researchers focus on the specific context upon which the case is constructed and where the unit of analysis interact, interpreting emerging issues and trying to give meaning to others view of the studied phenomenon, by making participants describe their view in order to better understand the issue at hand (Robottom and Hart, 1993).

As already mentioned, the research observes a deductive approach, that is, it is designed to develop a theory starting from a theoretical framework, in this case, the *Organizing for sustainability framework* displayed in Figure 10.

4.4 Research Design

In this paragraph a clear examination of all relevant points for the selection of the case study as the designated research methodology will be presented. Every research method has its research design, a logical plan linking the empirical data to the initial research questions and to its conclusions (Yin, 1984). This logical plan is essential to align the final evidence with the research questions initially proposed. Yin (1984) identified 5 different key components for an effective research design:

- A study's questions
- Its propositions
- Its unit(s) of analysis
- The logic linking the data to the propositions
- The criteria for interpreting the findings

These elements can be combined with the approach suggested by Dul and Hak (2007), whose work focuses on the application of the case study methodology in business research. The first four steps of *A stepwise approach to research* (Dul and Hak, 2007, p. 13) include the stages from the first definition of the research topic to the specific choice of the research strategy, that of the case study in this specific case. In the following sections all the five elements of effective research design, applied to this specific research, will be highlighted, embedding various authors' frameworks and approaches to give a complete view and explanation of the decision made, since the five key components proposed by Yin (1984) are clearly correlated with the already mentioned step-by-step guide proposed by Saunders *et al.* (2009).

4.4.1 Research Purpose

The purpose of this research, and therefore that of the entire dissertation, is to examine sustainable change from a new perspective, analysing the foundation of such change, and the pre-implementation elements that are deemed critical for change towards sustainability to start, those factors whose presence ignites the commitment towards sustainability. For making such purpose usable and suitable for research, following Yin (1984) suggestions, two major *research questions* have been drafted, namely:

- Why do organizations embrace sustainability?
- How does sustainable change actually start?

The two questions proposed for this study lead the research towards a specific research purpose, that of the explanatory study (Saunders *et al.*, 2009, p. 134), looking for reasons why an increasing number of companies are starting the sustainable transition by analysing qualitative data.

To corroborate the research questions, literature suggests that propositions should be made whose purpose should be to support research by directing the focus to issues that should be investigated within the scope of the study (Yin, 1984). Propositions can be derived in two main ways, from the actual research questions, or from the interpretation of other data sources, such as the literature (Atkinson, 2002). In this research, two initial propositions are derived by blending findings from seminal literature on sustainability's pre-implementation factors (Sharma *et al.*, 2021, Mahpour, 2018, Ormazabal *et al.*, 2018, Dey *et al.*, 2020, and Smol *et al.*, 2018) and from the research questions developed in drafting this dissertation. These sentences assist the research in a twofold way, by facilitating the formulation of the case study questions themselves, and also by serving as the basis for the creation of a model for interpreting and analysing the case data (Atkinson, 2002). Since the research observes a deductive approach, the two propositions are also hypothesis that are going to be tested through data analysis (Robson, 2002). The two propositions that were therefore formulated to assist research with this dual task are:

- Sustainability preconditions strongly impacts sustainable change processes
- Sustainability preconditions' presence make it possible for organizations to initiate the sustainable change

Those two propositions will help in the definition of the sources to be used and on the analysis of data derived from the data collection.

4.4.2 Research Strategy

Research strategy is the component of research methodology deemed to provide overall direction of the research including the process by which the research is conducted (Remenyi *et al.*, 1998). The point here is that no research strategy is inherently better or worse than any other, the aim of the chosen strategy is to enable the researcher to answer the proposed research questions and meet the research objectives (Saunders *et al.*, 2009).

Case study research was adapted as the overall research strategy in conducting the research. The specific typology of chosen research strategy derives from Yin's (2003) classification based on two discrete dimensions:

- Single case vs. multiple case
- Holistic case vs. embedded case

In this research a holistic single case study strategy was adopted, a single case study is indeed often used when the instance analysed is a typical case of the phenomenon to be examined and because it provides the opportunity to explore multiple facets of the same issue. As regard the second dimension, as already stated, the case study will be holistic, considering therefore the organization investigated as a whole.

4.4.3 Research time horizon

The research will be focused on studying the sustainable change process at a particular time. Several case studies undertaken for academic reasons are in fact based on interviews conducted over a short period of time, given the fact that most are time constrained. Following Saunders *et al.* (2009) definition, this research will therefore be defined as cross-sectional, i.e., giving a "snapshot" of the phenomenon under investigation at a given time (or narrow timeframe).

4.5 Population, sampling, and unit of analysis

The research population is the collection of objects or individuals that is the main focus of the research question(s). It is defined as the "*set of instances of an object of study defined by one or a small number of criteria*" (Saunders *et al.*, 2009). For this research, the population is represented by organizations that have started their sustainable transition process. The unit of analysis for this research is therefore an organization in general, and particularly a company, whose sustainable change has already started. The difficulty to actually select cases is indeed one of the major problems encountered, as sustainability

per se is difficult to identify within a company, for this reason, only companies drafting the sustainability report were taken into considerations, as the preparation of a legal document presenting sustainable initiatives and actual commitment towards sustainability is a proof of the change process being initiated. As already discussed in the previous Sub-Section 4.4.3 *Research time horizon*, the limited time available made it necessary to narrow down the geographical range of case selection in the first place, thus focusing on a geographical area covering a radius of 150 kilometres from Padova, where the University is situated. From this consideration, purposive (or judgemental) sampling was used to select the case that would best enable to answer the previously presented research questions. Purposive sampling is in fact used when the researcher wants to choose cases that are remarkably informative (Neumann, 2000). The case chosen is a *typical case*, that is, one case that is representative of the entire research population. The company that will be used as instance for the research is VIMEC S.r.l., which will be adequately presented in the next chapter.

The case of VIMEC S.r.l., a company that has started the sustainable transition in an organic way in recent years, was selected as such change implies the involvement of all stakeholders, internal and external, along the value chain. Selecting an already mature reality, i.e., one with a developed sustainability programme, would bring into play other factors and levers that are difficult to place in time, thus invalidating the research itself, the focus of which is to understand the factors present and impacting the company prior to the actual commitment to sustainability.

4.6 Sources of data collection

For achieving a high degree of validity and reliability in data collected during the conduct of a research, various authors suggest the utilisation of several sources of evidence to achieve cross validation of information (Noor, 2008). This cross validation is also termed as *data triangulation*, defined as the use of multiple data sources and methods of collection in qualitative-type research with the aim of developing a thorough comprehension of a given phenomenon or particular phenomena (Patton, 1999).

In conducting a research, two main sources of data exist, namely primary and secondary data sources (Cooper, Schindler, and Sun, 2006). This case study implements both primary and secondary data in answering to research questions presented in Sub-Section 4.4.1 *Research Purpose* and in contributing to generate conclusions.

4.6.1 Primary sources

Primary data was gathered from management of VIMEC S.r.l., conducting semi-structured interviews. This type of interview is non-standardized and is usually referred to as a type of qualitative research interview (King, 2004). This variety of interview was selected as it allows the researcher to adapt the questions to be asked to the flow of the conversation, also enabling the latter to add further considerations to gain a better understanding of the analysed phenomenon. For these reasons, Saunders *et al.* (2009) suggests recording the conversation(s) or taking notes during interviews. Interviews lasted 2 hours and were conducted based on a set of pre-determined questions, with the possibility to add further in-depth questions to obtain other useful information (Merriam *et al.*, 2015).

4.6.2 Secondary sources

Secondary data sources are defined as information deriving from data that is already in existence (Sekaran, 2003). Secondary data is generally used in an instrumental way to make sure that primary data is useful to find solutions to the study's research questions. For this research documentary secondary data were used, including written materials such as books, journals and magazine articles and newspapers (Saunders *et al.*, 2009).

Among the other data sources, a comprehensive analysis of the website of VIMEC S.r.l. was performed, considering the data and the documentation published within it. An analysis was also conducted on additional communication channels, such as social networks, including LinkedIn, for the already cited objective of achieving data triangulation (Noor, 2008).

4.7 Data Analysis technique

The interview has been recorded to allow for proper analysis of the conversation. Audio- and video-recording is deemed fundamental when conducting analysis, ensuring that data will not be lost (Saunders *et al.*, 2009). After having recorded the interview, the next step was to transcribe the conversation to allow for the actual analysis of data, clearly differentiating between various participants.

Before starting the analysis, the various sustainability preconditions found in the literature have been codified as issues, using two- or three-character codes to facilitate the overall analysis. The transcription of the conversation was then analysed, searching for excerpts

concerning the various issues, highlighting with different colours the text, and taking notes, testing the theory found in Chapter 3.

The results of this analysis have then been made available in a table (Case Study 2) composed by four columns: the part covered (Part), the identified issue (Issue), the extract of the conversation (Conversation), and a last column containing the evaluation of the theory (Theory Testing).

4.8 Limitations of methodology and ethical considerations

Limitations

The use of a single case study could result in a lack of generalizability of the findings, however, by analysing a case that is deemed typical, findings can be used to generate insights for future research. As already discussed, also the time-horizon and the actual time to make the interviews played a role in selecting a single case study strategy.

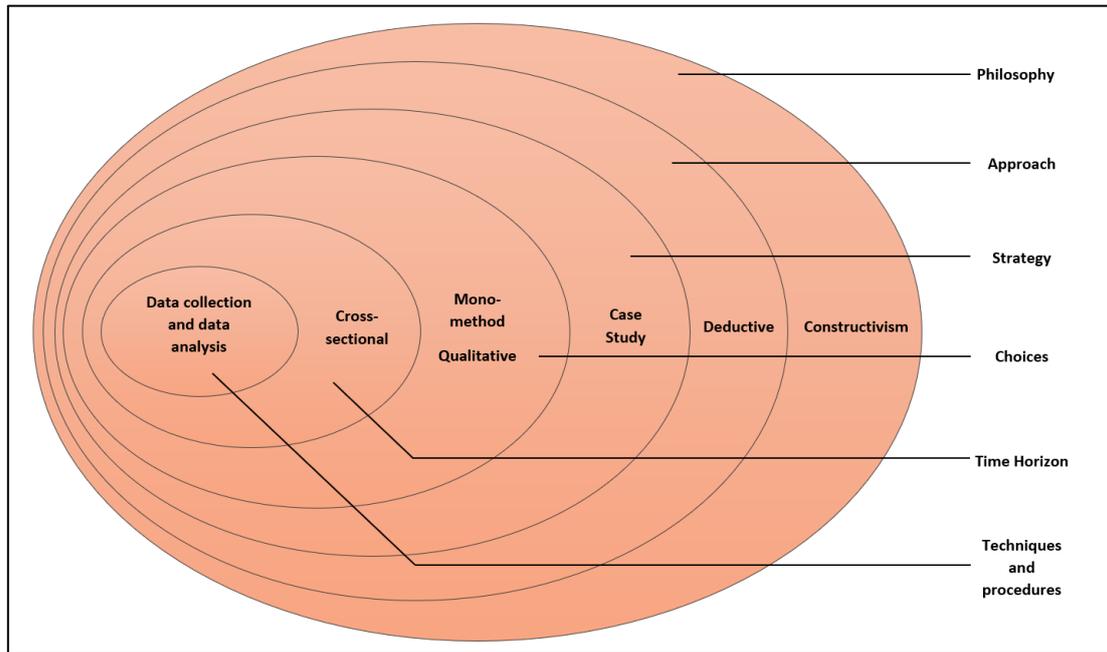
Ethical Considerations

Ethical considerations must be an integral part of any particular case study (Creswell, 2009), and for this reason ethical principles were followed during the conduct of the research. All data collection procedures were anticipated by prior identification of the researcher with ID card and a document containing an informed request form were given to participants. Gaining permission prior to data collection is indeed a critical aspect for any study (Saunders *et al.*, 2009).

4.9 Conclusions

The case study is based on the methodology presented and described in this chapter. To summarize the most important factors regarding the research, Figure 11 gives an overview of the “*research onion*” suggested by Saunders *et al.* (2009). Starting from the general considerations, the various layers of the onion summarize all the choices made in designing this specific research and motivate the selection of the case study as the overall research method adopted.

Figure 11 Research onion (Saunders et al., 2009) applied to VIMEC case



Source: adapted from Saunders et al., 2009

The following chapter will present the company in more detail, then presenting the analysis in depth and giving final conclusions on this dissertation's topic.

CASE STUDY: VIMEC

5.1 Introduction

This chapter is focused on the qualitative analysis of the data derived from data collection concerning the company VIMEC S.r.l., an Italian company located in Luzzara, Reggio Emilia and founded in 1980. Its core business is the construction and sale of home lifts, vertical platforms for public and private premises, inclined platforms for wheelchairs, stairlifts with chairs, and mobile stairlifts. The company is now part of a group managed by the Swedish investment company Investment AB Latour. The chapter initially presents the analysis technique used, displaying in sequence: the various parts into which the semi-structured interview was divided; the issues addressed, codified for major clarity; and the questions asked. Finally, the actual analysis is displayed, which, through excerpts of conversation, allows the theory to be tested as well as the underlying model, which is the foundation of the entire research on the preconditions of corporate sustainability. The conclusions are then presented, which also suggests future research topics and proposals for furthering the research on the *Sustainability Preconditions*.

5.2 Data analysis technique

The data required for the analysis has been gathered conducting a semi-structured interview, the questions asked were previously sent as an attachment to the CEO of VIMEC S.r.l., Andrea Veggian, and to the Head of Sustainability of the company, Pierpaolo Piccoli, the interviewees, who represent the key figures of this transformation.

5.2.1 Parts

The interview has been structured in such a way as to have a common thread, with each part listed below representing a section of the interview and the topic covered.

Intro – The start of the process

Part1 – Leadership, Strategy & Processes

Part2 – Cultural Organization and Stakeholders

Part3 – Skills and Competences

Part4 – Exploitation and Exploration

5.2.2 Issues

The various issues found in the literature about pre-implementation factors having an impact on the adoption of corporate policies for sustainable change were codified to better analyse the various aspects covered during the semi-structured interview.

Case Study 1 Codification of Sustainability Preconditions

LEADERSHIP AND STRATEGY & PROCESSES	
Leadership	
WU	Experience of a “wake-up call” concerning sustainability
EL	Presence of effective leaders for change, leaders as change-agents
Strategy & Processes	
SM	Supportive role of middle managers
WI	Dedicated management will and interest
MA	Managerial attitudes, views, and interpretations
CULTURAL ORGANIZATION AND STAKEHOLDERS	
Internal Factors	
CC	Culture enabling change towards sustainability
SA	Creation of stakeholders’ awareness
MC	Creation of motivation to pursue change
External Factors	
RP	Regulatory pressure
MP	Market pressure
SP	Social pressure
SKILLS AND COMPETENCES	
ES	Expertise concerning sustainability
TS	Training associated with CE and Sustainability practices
TK	Technical Knowledge
I14	Mandating ISO 14000 certification
EXPLOITATION AND EXPLORATION	
Exploitation	
OI	Previous operational improvement processes (TQM, lean)
I9	Achievement of quality certification (ISO 9000)
Exploration	
PI	Pursue of process innovation and implementation
IT	Adoption of innovative technology (Industry 4.0)

5.2.3 Questions

A set of questions was developed to allow for the proper analysis of the case study under consideration. The questions follow the order of the Parts presented in Sub-Section 5.2.1,

thus starting with introductory questions, moving on to more specific ones, focused on the various macro-areas of the model, and targeting the various preconditions for sustainability.

The questions developed are here summarised:

Q1 Period/date of start of sustainability strategies

Q2 Reasons (internal and external) that led to this choice

Q3 What was the first initiative you started, why and how did you do it

Q4 In the kick-off phase of the process, who were the key agents

Q5 Approach followed in designing the sustainability strategy: standalone vs. systemic

Q6 Presence of a key episode (or episodes) that generated the will to undertake the sustainable strategy

Q7 Which leadership profile was appropriate in guiding the activation of the sustainability process

Q8 Having clarified the role of the leadership, what contribution does or can the middle management line make to the start of the process

Q9 Are dedicated people needed in this phase, if so, what personal and motivational characteristics should they have

Q10 Still on the management line, what attitudes should managers have towards sustainability

Q11 What role did the organizational culture play in the kick-off phase of the sustainability-related project

Q12 Have stakeholders been adequately informed, if so, what steps have been taken

Q13 The main external pressures (if any) that led the company to activate the sustainable transition process

Q14 Competences and skills needed to ensure change towards sustainability

Q15 Initiatives to generate competences or to foster the transfer of competences between people

Q16 Previous operational improvement processes activities

Q17 Does the company have ISO 9000 quality certification; if so, how does certification support change management

Q18 What is the link between Investments in Technology 4.0 and the Sustainability Strategy

Q19 Impact of the Sustainability Strategy on innovation paths and projects

5.2.4 Data analysis

This Sub-Section presents the results obtained by analysing the data obtained from the interview. The interview was first transcribed, then a first analysis of the text document was necessary to highlight the various topics, looking for considerations on the various *Sustainability Preconditions* provided by the interviewees. All the components of the table Case Study 2 have been previously described: we will find, in fact, for every part and subject matter identified in Sub-Sections 5.2.1, and 5.2.2, various excerpts of conversation derived from the interview. For each consideration of the interviewees, comparisons with the literature on the subject matter are presented and highlighted, which corroborate what was said by the respondents or provide additional insights and keys to reading previously not considered, with the final aim of better developing the theoretical framework (Figure 10). During the interview, some considerations revealed points of view on pre-conditions comprehended in other macro-areas rather than the one discussed at a specific point. In the presentation of the analysis was however followed the order of the various parts previously presented, starting from the Introduction, and ending with Part 4. All the information obtained from the interview was also compared with the latest sustainability report published by the company to check for any ambiguities.

Case Study 2 Data analysis

PART	ISSUE	CONVERSATION	THEORY TESTING
Intro	CC	<p>Andrea Veggian, CEO VIMEC (referring to reasons for change): <i>«One is more romantic, if you like, and is clearly linked to the values of our group and the commitment that I believe every company must take on as a sense of responsibility in order to manage the business in a sustainable manner, so basically I believe that there is a level of awareness today that allows us to understand that the model that has worked until now cannot be the same model that will accompany us in the next 10 years»</i></p> <p>And also added: <i>«Our way of doing business is determined by the values of the group to which we belong, and I believe that the values of our group in some way lead us to think about sustainability in an extremely important way today.»</i></p>	<p>What the interviewee says in this excerpt of conversation essentially sums up the role played by the organizational culture, by internal values of the company, in supporting and enabling the latter to achieve its goals of change towards sustainability. The respondent, in this way, supports the theory and literature on organizational culture as a precondition for sustainable change, proposed, among others, by Baumgartner (2009).</p>

PART	ISSUE	CONVERSATION	THEORY TESTING
Intro	MP	Andrea Veggian, CEO VIMEC: « <i>In five years, I don't see the company that has decided to become sustainable and the one that can afford not to; in my opinion, it is a forced path that will more or less slowly exclude from the market all those companies that have not adapted. I believe that we find ourselves in some way at the front end of this kind of process, and we do it very willingly, and I think it is essential to adapt in order to maintain a certain type of competitiveness within companies. I believe that in the beginning, the issue of sustainability is an investment that I think will also help us to work better, spend less, be more efficient, be more effective, attract better talent, keep it, and therefore in some way develop our mission in the best possible way.</i> »	Here, a clear reference to the requirements that will govern competitiveness in the market in the coming years can be seen. The market pressure argument has been highlighted in previous works by Hoffman (2000). The statements of VIMEC's CEO therefore corroborate what has been pointed out in the literature.
Intro	EL	Andrea Veggian, CEO VIMEC: « <i>He [Pierpaolo Piccoli, head of sustainability project] manages a small internal team that deals with sustainability. We [Andrea Veggian, CEO VIMEC, and Pierpaolo Piccoli] have created a team composed of Pierpaolo and two other people with whom we meet regularly to plan and try to activate those initiatives that in some way can help spread awareness of what we are doing.</i> »	The considerations highlighted by this extract show that the company has indeed created an ad hoc team to manage the path to sustainability. The presence of the CEO and of the Head of Sustainability underlines the fact that sustainability is fundamental for the company and requires appropriate leadership. This attention can be traced back to the presence of an effective leadership, consisting of figures who act as change agents, and such issue can be found also in the literature, as the presence of an effective leadership is one of the most important and cited preconditions for sustainability (Schein, 1992, and Hart <i>et al.</i> , 2019)
Part1	WU	Andrea Veggian, CEO VIMEC, talking about specific episodes that ignited the will to pursue sustainability: « <i>the key episode on a personal level was my participation in the master's course that I did a couple of years ago, in 2019, in Sweden and organised by LATOUR with the clear intention that it would sound like a wake-up call I think for those who do my job. In my opinion that was the call to arms, if you want to call it like that, obviously it wasn't an explicit call, but basically it was quite clear that the world was taking a certain kind of direction and for me this experience was something that opened my eyes quite clearly on the issues of sustainability.</i> »	The experience of a so-called "wake-up call" concerning sustainability issues is deemed one of the most important preconditions in the literature about sustainable change (Wiesner <i>et al.</i> , 2010). The respondent's answer demonstrate once again the key role played by experience, which then led the CEO of VIMEC to become increasingly interested in the topic of sustainability
Part1	EL	Andrea Veggian, CEO VIMEC: « <i>the most suitable figure is Pierpaolo Piccoli. If I had to describe the type, Pierpaolo is doing well both on the theme of the coach and in that he is an extremely precise, methodical figure. It is clear that we need to work on many aspects, touching many levers [...]</i> »	Here, interviewee gives other considerations on what an effective leadership style in such type of change is, describing the leadership style of the Head of Sustainability of VIMEC, Pierpaolo Piccoli. Such considerations are in line with what Schein (1992) and Hart <i>et al.</i> (2019) found.

PART	ISSUE	CONVERSATION	THEORY TESTING
Part1	CC	<p>Andrea Veggian, CEO VIMEC: <i>«I also believe that our effort is really to raise awareness, to create a culture [...] That way you get an education for the whole organisation, a structural involvement, you have the people really on board and they are not just on board when someone looks at you and then when you turn the corner, they change their behaviour.»</i></p>	<p>In this extract can be found another point corroborating the role of culture in supporting change towards sustainability (Baumgartner, 2009)</p>
Part1	SM	<p>Pierapaolo Piccoli, Head of Sustainability, VIMEC: <i>«our management team was certainly informed by Andrea at an early stage about this policy to be followed, and then I also participated. My task is to try to make everyone aware, and then it is clear that each of us is more or less aware on a personal level, and at this point I expect feedback from them, however, that is, since everyone has their own field of action, maybe they can give me feedback from the experience they have had in the past or something that maybe happens in production where I am not often. They call me to warn me about certain situations and ask how we can deal with it, let's talk about it together. Let's say that our goal is to always try to compare ourselves to each other so that each of us brings something.»</i></p>	<p>This statements corroborate the importance of having the middle managers in line with the overall sustainability project in order to achieve the aimed results. This can be traced back to the supporting role of middle managers in these type of corporate changes, as also highlighted by Carte <i>et al.</i> (1998).</p>
Part1	WI	<p>Pierapaolo Piccoli, Head of Sustainability, VIMEC: <i>«it is something that you have to have inside you, first of all; if you don't have it, you have to start understanding it and believing in it, because if we are the first ones not to believe in it, it would already be a problem. I think we are lucky to have on our side, and Andrea can confirm this, a management team made up of all capable people who care about what is said, what is indicated by the company. As I said before, as well as all thinking in the same way, the characteristics we need to have is the willingness to discuss and tackle any problems together.»</i></p> <p>And also added: <i>«we must all row in the same direction, so it would surprise me, even at managerial level, if someone were to resist the company's policy, whatever it may be. We are now talking about sustainability, so there has been no resistance. I find it hard to imagine that a colleague of mine would come to me and say, or say to Andrea: "no, I'm not interested in sustainability".»</i></p>	<p>It is clear here that the management line of VIMEC fully supports the transition to a more sustainable business, and shows its interest in sustainability topics and its willingness to help as much as possible to make the process effective. These two extracts from the interview confirm the findings of the literature analysed in Chapter 3 to create the theoretical framework, where the importance of a strong management will and interest on sustainability topics is highlighted (Mahpour, 2018; Morseletto, 2020; Parchomenko <i>et al.</i>, 2019; and Sharma <i>et al.</i>, 2021)</p>

PART	ISSUE	CONVERSATION	THEORY TESTING
Part1	MA	<p>Pierapaolo Piccoli, Head of Sustainability, VIMEC: <i>«an attitude that we must all have, when faced with problems, when faced with any possibilities that may arise, is to think in the same way, in the sense that you have to do the good of the company, it's not that we have to think personally. I think it's essential that we all pull in the same direction, with the same goal, otherwise the objectives will not be achieved.»</i></p>	<p>When asked about what kind of attitude towards sustainability managers should display to start and support the project, the VIMEC Head of sustainability said that managers must show that they want to pursue the same path, thinking collectively for the good of the company. This confirms the findings of the literature on managerial attitudes (Zhang <i>et al.</i>, 2019), views (Cordano and Frieze, 2000), and interpretations (Sharma, 2000) that should be in line with sustainability goals to effectively achieve aimed results.</p>
Part2	CC	<p>Andrea Veggian, CEO VIMEC: <i>«We know that sustainability in reality is a very broad universe; therefore, starting from a very concrete example, I believe that one of the most disruptive projects that deals with sustainability was probably the Great Place to Work.»</i></p> <p>And also added: <i>«it exposed and denuded us completely, leading to a series of conditions that expose you to what is an absolutely democratic judgement. This probably created some kind of discomfort at the beginning, in the sense that it is so specific that it also helps you to make considerations for the various departments, because basically the analysis that comes out of it is not a univocal and perfectly homogeneous analysis. You can go into the merits of the answers and analyse them to go and see of the various departments those that really have a lesser involvement with the various projects, including, now, sustainability.»</i></p> <p>The CEO also added: <i>«Coming back to the values, I believe that the culture of the company is fundamental and having this kind of transparency can also give those who work with us the opportunity to express themselves freely, so without fear. Having this kind of transparency can also give people who work with us the chance to express themselves freely, so without fear of being judged. To guarantee this condition, feedback is mostly anonymous, and we can only draw clusters from it, which are then useful for our internal analysis.»</i></p>	<p>Talking specifically about culture, in Part 2 of the interview, the CEO of VIMEC stressed the importance of collaborating with Great Place to Work, exposing the company's problems and supporting the resolution of these frictions. It is another example of how the organizational culture can help in change processes. VIMEC has exposed its culture and way of work, which are willing to change and respond to criticism and thereby improve themselves. The role of culture as an enabling factors to achieve sustainability, or change in general, has been supported by Baumgartner (2009), as previously said, and Linnenluecke and Griffiths (2010).</p>

PART	ISSUE	CONVERSATION	THEORY TESTING
Part2	SA	<p>Pierapaolo Piccoli, Head of Sustainability, VIMEC: «<i>as far as internal information is concerned, let's say that we started to publish a few newsletters only within VIMEC, presenting ourselves as a team. Obviously, there was an official communication initially from human resources, addressed to the entire company, saying that this team had been created and that it would deal with corporate sustainability, and then as a team we started to publish a few newsletters, I'm talking about two or three, in which there was a presentation of what we wanted to do in general, of what we would like to do at company level. I remember the first one I did was a kind of list to make people understand what they could do to raise awareness on this issue.</i>» and also: «<i>One of our main goals is to bring this awareness to all our colleagues, but, as I said, it is difficult, because there are those who are not interested in any way, and that's fine, but there are those who are quite enthusiastic about our initiatives, about this new policy of ours.</i>»</p> <p>He also added: «<i>we tried to launch an initiative to get people to use as few cars as possible, not each person coming to the company in their own car, but maybe on the way to the company each person passes through a different country where there are other colleagues and maybe all come together in one car. We then took this initiative further by creating a small contest to make it fun, so that the more colleagues who took advantage of the initiative, the more points they would earn. At the end, we had a small award ceremony for the person who had done the most car sharing. Honestly, this initiative wasn't very effective, I mean, it didn't go very well, but in the meantime, people were talking about it, which is something.</i>»</p> <p>Andrea Veggian, CEO VIMEC: «<i>we also started a contest with the aim of making the place of the heart accessible to people; therefore, places were chosen through social networks that people were particularly fond of but were not accessible to people with disabilities. We offered the winner the supply, as a donation, of an installation to make these places accessible. Two places won, one in Padua and one in Naples, which, as a city, also thanked us by sending an official thank-you letter.</i>»</p>	<p>With reference to the creation of stakeholders' awareness concerning sustainability and concerning the commitment to pursue a transition towards a more sustainable way of conducting the business, the interviewees pointed out that the company's efforts have focused on internal communication, and on creating consciousness among internal stakeholders. This aspect is not clearly mentioned in the literature on the preconditions for sustainability, but from these testimonies it appears to be a necessary activity to ensure effective change towards sustainability.</p> <p>Although the creation of awareness on sustainability issues was mainly addressed within the company, with the newsletters and the car-sharing initiative, the company also used social channels to launch an initiative aimed at making blocked places accessible to people with disabilities, which would bring positive effects on society, a key theme of social sustainability, and increase the level of awareness of people involved on these issues and on the company's commitment to social issues as well. This latter initiative, however, complements the periodic reporting of various sustainability metrics to the parent company, Latour, and the publication of the annual sustainability report.</p> <p>To sum up, the company's initiatives are in line with suggestions found in the literature, in particular the adoption of initiatives aimed at the creation of stakeholders' awareness proposed by Smol <i>et al.</i> (2019), and Hazen <i>et al.</i> (2017).</p>

PART	ISSUE	CONVERSATION	THEORY TESTING
Part2	MC	Pierapaolo Piccoli, Head of Sustainability, VIMEC, talking about the objective of the various initiatives: <i>«that is the main aim, basically: to try to motivate and get all our colleagues to start thinking in exactly the same way. It's clear that it's a difficult thing because, for a person like me, of a certain age, who grew up in a certain way, this discourse (sustainability) is more difficult to pursue, to start and to continue. I am convinced that a younger person already faces this subject in school and therefore comes with a different mentality, of course.»</i>	The objective of the newsletters and of the internal initiatives adopted by VIMEC, as highlighted by the Head of Sustainability, is to create motivation within employees and colleagues to pursue sustainability. This fundamentally confirms what has been found in the literature, where a critical precondition for success of these programmes is to create motivation to pursue change (Sharma <i>et al.</i> , 2021).
Part2	TS	Andrea Veggian, CEO VIMEC: <i>«I wanted to add a few points that may be of interest: Pierpaolo and his team working on sustainability did a training course with a lecturer from the University of Milan; they did a series of days in which they saw a number of examples, trying to get some inspiration and perhaps some good best practices as regards methodologies or ways of doing or operating.»</i>	Here the CEO of VIMEC confirms that actual training on sustainability issues is important for managers and change agents that are accountable for managing the change process. This answer confirms the role of training associated with sustainability issues in impacting the successfulness of these programmes (Sharma <i>et al.</i> , 2021; Barquet <i>et al.</i> , 2020; and García-Quevedo <i>et al.</i> , 2020).
Part2	MP	Andrea Veggian, CEO VIMEC: <i>«it is the pressure of the market for productive factors that is pushing us more and more to consider sustainability, and it derives for example from the increase in the cost of energy, from the cost of materials.»</i>	Here, again, the CEO of VIMEC confirms the role played by market pressure in creating sense of urgency for change, as supported by authors such as Bowen (2000).
Part2	RP	Andrea Veggian, CEO VIMEC: <i>«Paradoxically, a brake on creativity and innovation from this point of view is given by state incentives, in the sense that today one buys a product and has an incentive of 75% of the value; therefore, he has no incentive to rent. We need to evaluate alternative business models, not incentivise the consumption and sale of products that are often paid for at 25% of their value. The problem is precisely this paradox which, on the one hand, drives the traditional economy, but from our point of view as manufacturers slows down creativity.»</i>	In this excerpt of the discussion it is possible to notice one of the most interesting comments about the role of regulatory pressure in favour of sustainable business policies. Although the literature suggests that regulatory pressure is fundamental in getting companies to initiate sustainable policies (Porter and van der Linde, 1995), the role played by incentives in Italy in these last few years has led the company to put partially the brakes on its sustainable momentum, as these incentives would promote the traditional system, and consequently waste.
Part3	TK	Andrea Veggian, CEO VIMEC: <i>«there are processes of contamination, which can be exploited if we have an open mind to start looking around and see where and what the sources might be that we could start to draw on to improve. Our goal is to always improve, so we need to have this kind of openness, and as we implement these things we learn and we realise that we have gaps, so we realise that it would be good to go deeper into certain topics.»</i>	Here the CEO of VIMEC is talking about the technical knowledge needed to improve their processes and reach the determined goals. He supports the idea that the knowledge on specific issues (in this case sustainability) can be attained and improved by continuously analysing the deficits in the company and working on them. However, a clear confirmation of the role of technical knowledge in starting sustainable change processes, as suggested by Dey <i>et al.</i> (2020), Franco (2019); Paletta <i>et al.</i> (2019); and Rossi <i>et al.</i> (2020), was not found.

PART	ISSUE	CONVERSATION	THEORY TESTING
Part3	TS	<p>Andrea Veggian, CEO VIMEC: <i>«I wouldn't call it training, I would say no, in the sense that we could probably do better on this part.»</i></p> <p>Pierapaolo Piccoli, Head of Sustainability, VIMEC, also added: <i>«rather than training, I see it more as trying to get people to start thinking in a certain way, training can lead you to a method of thinking in a certain way, if at all. The experience comes from the continuous confrontation among us, not from the type: "OK, I do the course, I become sustainable".»</i></p>	<p>Continuing the discourse on technical knowledge and training for employees related to sustainability issues, both the CEO and the Head of Sustainability of VIMEC confirmed that training courses designed for this specific issue were not provided. This might be due to the fact that the company is still in a phase of creating motivation and awareness for this change, where knowledge and training are not needed, thus partly confuting theoretical proposals on training (Sharma <i>et al.</i>, 2021; Barquet <i>et al.</i>, 2020; and García-Quevedo <i>et al.</i>, 2020)</p>
Part3	ES	<p>Pierapaolo Piccoli, Head of Sustainability, VIMEC: <i>«training for me, because I have to carry out a certain discourse and manage the course makes sense, but for other colleagues it would be more appropriate to deal with it in a different way, rather than doing a general course for everyone, through the continuous confrontation and the example of the key figures.»</i></p>	<p>The point of this part of conversation is that the formation of colleagues derives from the example provided by key agents like the CEO and the Head of Sustainability, which are expert in this field and can give employees and colleagues useful guidelines, and, as already said, examples. The role of expertise concerning sustainability, analysed by Sloan <i>et al.</i> (2013), is therefore confirmed.</p>
Part3	I14	<p>Andrea Veggian, CEO VIMEC: <i>«we have also talked a lot about soft activities that we have carried out, working on culture and therefore on the proselytization of certain types of concepts, and then alongside these initiatives there are pillars that basically establish the guidelines.[...] At the end of last year, we added another fundamental pillar, that of completing the process to receive ISO 14001 certification, which we should officially receive in the next few days, and it represents something objective, regulated.»</i></p>	<p>Darnall (2001) supports the idea that companies certified in their commitment towards sustainability, in particular through the ISO 14000 certification, are more likely to develop suitable internal capabilities and thus effective sustainability paths. As can be seen, VIMEC is expecting to receive its certification this year, and is following a path towards corporate sustainability, thus the theory seems to be confirmed.</p>
Part4	OI	<p>Andrea Veggian, CEO VIMEC: <i>«so if operations want to do, as they have done on several occasions, a kaizen site to improve logistics, it organises itself by contacting a consultant who supports the operations manager, who is obviously a lean expert. We are a company that produces to order, so we do make-to-order of fairly complex objects, because one is different from the other, typically a servo staircase has to be made to measure. For this reason, the processes we considered to be the most critical, the most strategic, concerned the order flow, order management and drawings, modifications, purchases and so on. We did this part by mapping the flow, bringing in experts from outside who basically did a specific analysis, and with them we identified where there was Muda, so where there was waste, and how this flow could be improved. We then completely revised these processes.»</i></p>	<p>The company is initiating its path to become sustainable. One precondition that the literature mentions is the presence of previous operational improvement processes as pre-implementation factors that could get companies in starting the sustainability journey. Here the theory proposed by Zhu and Sarkis (2004) seems to be confirmed. VIMEC has in fact pursued operational improvement processes and this could have led to an effective pianification and implementation of the change towards sustainability.</p>

PART	ISSUE	CONVERSATION	THEORY TESTING
Part4	I9	<p>Pierapaolo Piccoli, Head of Sustainability, VIMEC: «<i>We have had ISO 9001 certification for many years.</i>»</p> <p>Andrea Veggian, CEO VIMEC: «<i>I would like to add that without ISO 9001 we would probably not have done ISO 14001, and it will give us a little more help with the company's sustainability policy.</i>»</p>	<p>King and Lenox (2001) support the idea that companies achieving quality certifications such as the ISO 9001 have more probability of getting also certifications on sustainability and of starting a process aimed at corporate sustainability. The two extracts presented here seem to corroborate the theory on the matter.</p>
Part4	PI	<p>Andrea Veggian, CEO VIMEC: «<i>In my opinion, the real transformation will take place when business models change, because that's where the real difference lies. Without digitisation, you will never change your business model. By now, all modern business models use digitalisation as a pivotal element, in my opinion this is the element that lays the foundations.</i>»</p> <p>Talking about the adoption of Innovative technologies in new products he also added: «<i>For us it is something innovative, also because through this innovation we would have the possibility to use the data to make other types of considerations, to start updating software and perhaps implement artificial intelligence or predictive maintenance software. This would open up another world, providing an additional service to what we already do, and we would have a new source of information that would allow us to make a whole series of considerations to improve processes, and both the product and its life cycle.</i>»</p>	<p>The CEO of VIMEC here is talking about the role that new technologies and digitalization could play in developing new business models and in innovating services and processes through which these services are delivered. The company is therefore actively pursuing process innovation to become more sustainable, and confirms the literature proposed by authors such as De Jesus and Mendonça (2018), Ormazabal <i>et al.</i> (2018), and Ritzén & Sandström (2017).</p>
Part4	IT	<p>Andrea Veggian, CEO VIMEC: «<i>in April we will be launching a new product, a completely redesigned machine, and basically one of the most distinctive elements will be the ability to interface with voice assistants such as Alexa and Google Assistant.</i>»</p>	<p>This is the product which the CEO was referring to in the last extract in the previous point. The company is actively adopting innovative technologies to better support their clients, and, as can be read at the end of the previous point, refine their services and improve the product and its life cycle. The linkage between adoption of innovative technologies and sustainability suggested by Lacy <i>et al.</i> (2020), and Katz-Gerro & López Sintas (2019) is therefore confirmed.</p>

The analysis carried out on VIMEC S.r.l. has revealed that the company is now approaching sustainability issues in an organic way and is indeed a typical case, which essentially respects almost all the considerations developed over the years concerning the *Sustainability Preconditions*. From the analysis, some further considerations can be drawn. Considering the model proposed by Dunphy *et al.* (2003), VIMEC S.r.l. seems to fit in the second wave, more specifically, between the *Efficiency* and the *Strategic Proactivity*

stages. The company is in fact shifting its thinking from a focus on “savings” and increasing efficiency, to more focused considerations on innovation, products, and society.

The CEO has repeatedly stressed the almost destabilising role of the regulatory policies pursued by the Italian legislature in recent years in response to the crisis triggered by the COVID-19 pandemic. These policies have relied heavily on the use of incentives to jumpstart the economy and enable companies to have work. As stressed by the CEO, however, these incentives have stopped the drive for sustainable innovation by companies, as clients and consumers receive goods and services for a fraction of their true value, thus encouraging buying at the expense of more sustainable models such as pay-per-use or renting. This particular situation, however, is not found in the literature on regulatory pressure as a precondition for sustainability (Porter and Van der Linde, 1995), and could be further analysed to understand whether this problem is also found in other Italian industries, whether it is an industry-related problem or whether it is more widespread at national level.

Another topic that was not treated during the conversation was the role of social pressure, supported by Hoffman (2000). On this last point, however, it is interesting to note the role played by the parent company, Investment AB Latour, which has begun to periodically request various metrics, including some designed to measure corporate sustainability. This pressure could therefore be part of a broader conception of social pressure, where the bearer of interests is another company, and not environmental groups, citizens groups, or the media, as suggested by Hoffman (2000).

Respondents also pointed out that training activities are currently unplanned for employees, although key figures and members of the sustainability team have participated training courses, thus developing further considerations on the role of training as a precondition (Sharma *et al.*, 2021; Barquet *et al.*, 2020; and García-Quevedo *et al.*, 2020), on whether it is necessary for all or only for key figures, who will then serve as an example for the proliferation of best practices.

This last point is also linked to the availability of technical knowledge and capabilities, defined as a precondition of sustainability within companies in the literature (Dey *et al.*, 2020; Franco, 2019; Paletta *et al.*, 2019; and Rossi *et al.*, 2020). For VIMEC, access to specific technical knowledge and capabilities is not preponderant as suggested by the theory, and this could be the consequence of two different reasons: the first could be that the

company, as testified by the interviewees, turns to external consultants who are experts in specific fields in case of need; the other reason could be that VIMEC is at the beginning of its considerations about products sustainability, thus technical knowledge is not yet a priority, nevertheless, top management and the management line appears to make up for these shortcomings with their technical expertise, which is useful for creating awareness. The qualitative analysis of the interview conducted showed that a predominant role in the decision to embark on the path of corporate sustainability was played by corporate leadership, the experiences and expertise of top management and key agents, and by the support played by an organizational culture capable of involving the entire organization through values and attitudes in line with these issues.

Data analysis seems to have helped in responding to the research questions developed in Chapter 4. As regards the motivation that make companies embrace corporate sustainability, this case study seems to suggest that the motivation is a combination of factors, mainly a drive for change by top management, supported by a suitable organizational culture, and external pressures of various kinds, in this case market pressures, followed by all the other *Sustainability Preconditions* that, acting organically, influencing and being influenced by each other, contribute to the drive towards sustainability. Sustainable change seems to start with simple activities aimed at creating momentum and motivation to pursue change, as suggested both by the interview and by the literature on change management. VIMEC has indeed focused its initiatives on creating awareness, a vision for the future, and searching for small wins to increase momentum. This is substantially in line with suggestions developed by Kotter (1995) and later by Doppelt (2003). To conclude, both hypotheses developed seem to be true, confirming the role of *Sustainability Preconditions* in having an impact on sustainable change processes and in making it possible for organizations to initiate sustainable changes.

5.3 Conclusions

The analysis of a specific reality by means of a semi-structured interview allowed the study of the theoretical model proposed in the third chapter and the expansion of the knowledge on organizational realities that have recently engaged in policies aimed at corporate sustainability. The VIMEC case highlighted the importance of careful and effective leadership in achieving important goals such as corporate sustainability, the critical

role played by culture and the support of middle managers in creating the necessary stimulus for change.

The theory underpinning the framework seems to be confirmed for the most part, with the role played by *Sustainability Preconditions* confirmed for most of them. Table 12 represents the final summary of the results of the analysis, and highlights the results obtained from the case study for each of the preconditions, divided into the respective Areas.

Table 12 Summary of case study findings

PRECONDITIONS	THEORY COMPLIANCE
LEADERSHIP AND STRATEGY&PROCESSES	
Experience of a wake-up call	YES
Presence of effective leaders for change	YES
Supportive role of middle management	YES
Managerial attitudes, views, and interpretation in line with sustainability	YES
CULTURAL ORGANIZATION AND STAKEHOLDERS	
Culture enabling change towards sustainability	YES
Creation of stakeholders' awareness	YES
Create motivation to pursue change	YES
Regulatory pressure	NO
Market pressure	YES
Social pressure	NOT FOUND
SKILLS AND COMPETENCES	
Expertise concerning environmental and social issues, and sustainability in general	YES
Training associated with CE/sustainability practices	BLURRED FINDINGS
Technical knowledge and capabilities	BLURRED FINDINGS
Mandating ISO 14000 certificate	YES
EXPLOITATION AND EXPLORATION	
Previous operational improvement processes (TQM)	YES
Achievement of ISO 9000 certification	YES
Pursue of process innovation and implementation	YES
Adoption of innovative technologies (I4.0)	YES

Source: Own design

Further considerations emerge, created by a number of factors specific to the time frame in which the analysis was carried out, to the country where the company is located, and to the industry to which the company belongs. This leads to a number of proposals that could improve the model on *Sustainability Preconditions*: future research could focus on broadening this qualitative analysis by considering more cases, in different industries and with different backgrounds, or on the role played by post-pandemic incentives introduced in Italy in corporate sustainability pathways.

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