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**"HOW SUSTAINABILITY ACTIONS ARE INFLUENCED BY
MANAGEMENT CONTROL SYSTEMS: A LEVERS OF CONTROL
PERSPECTIVE"**

RELATORE:

CH.MO PROF. EMILIO PASSETTI

LAUREANDO/A: GIULIA GRAZIANO

MATRICOLA N. 123227

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Introduction

The growing importance of the sustainability theme and the surrounding aspects no more as mere element to have a competitive advantage but as a matter of success' maintenance in the business context and in the competitive market have guided the study towards a better comprehension of those important issues.

The sustainable development that brings to the concept of sustainability is generally defined as the process to satisfy the actual environmental, social and economic needs, by also considering the future generations' needs (WCED, 1987).

The study analyses the concept of sustainability by declining it into the three aspects of environment, society and economy then transposed into the business scenario through the triple bottom line.

Once defined, the next step is to describe how sustainability is incorporated within the organizational strategy through the activity of the control systems.

The logic pursued into the study includes MCS as the middle term between strategy and sustainability and each element is individually analysed before exploring the interconnections among the different components.

The importance of the role that sustainability has into the business linked to the long-term value creation, the success factor of the business, the compliance to legislation, the stakeholders' expectation satisfaction and the company's brand reputation, have made the implementation into the business strategy and into the companies' strategic and operational processes fundamental.

The empirical support is given with the study of the active involvement of the MCS over the activities held by the sampled companies in a perspective of social, environmental, and economic contribution.

The study of the application of MCS through the levers of control give an answer to the ways in which companies manage all the sustainability activities and actions undertaken. The final explanation of the sustainability integration process comes from the study of diagnostic control systems, interactive control systems, belief and boundaries systems then combined in their utilization. As theorized by Simons (1995) only the simultaneous application of all the forces allows the control of the strategy, thanks to the counterbalance of all the tensions created in the organization, by enabling both intended and emergent strategy to be implemented.

The aim of the research is to get an empirical application of the theorized concepts and mechanisms through a questionnaire/interview that has been submitted to a sample of eighteen Italian companies.

The findings evidence how different managerial control systems (MCS) and different uses have helped sustainability to be deployed into the business strategy.

The diagnostic control systems have been used to manage critical performance variables related to sustainability through specific KPI and tailored measurement and reporting mechanisms. Interactive systems contributed to manage strategic uncertainties and opportunities linked to new sustainable strategic and operational activities.

Belief and boundary systems helped to communicate core values and handle risks associated to the new sustainability implementation.

The research is structured into five chapters. The first one frame the concepts of sustainability and sustainable development and decline sustainability into the three main aspects: environmental, social and economic. Then, the second section is dedicated to the relationship among MCS, business strategy and sustainability; a central part is dedicated to the expression of the MCS through the Simons' (1995) framework of the four levers of control. The subsequent chapter discuss the research method implemented. This is followed by data findings and discussion. Finally, the conclusion chapter ends the dissertation.

1. Sustainability general framework

1.1 Sustainable development definition

The linked concepts of sustainability and sustainable development have been used at least since the second half of the last century and they have found place in a multiplicity of different contexts and fields. They come as a result to the need to answer and find a resolution to three main problematics concerning the environment and in particular the climate changes, the social difficulties, and the economic and financial crisis.

Indeed, the thesis will deeply analyse later in the chapter the three different aspects (environmental, social, and economic) that are all interconnected and that arose in response to the problematics mentioned above.

But now, by presenting an excursus of the definitions of the terminology under discussion, the aim is also to point out the gap between sustainability and sustainable development and to clarify how the two notions have evolved during those last fifty years.

Even if the two concepts are sometimes used as interchangeable, there is a gap between those two definitions since the sustainability is, in a sense, more static, it represents the endpoint, while sustainable development is more dynamic, it embodies the process. So, basically, sustainability is the long-term goal that can be reached through the implementation of sustainable development processes¹ (Diesendorf, 2000).

On an international perspective, the first time the concept of sustainable development appears was in 1972 during the United Nations Conference on the Human Environment in Stockholm. The aim of the conference was to debate on the relationship between environment and economic development as interrelated dimensions. After the conference, the United Nations Environmental Program (UNEP) was created and in 1980, with the contribution of the International Union for Conservation of Nature and Natural Resources (IUCN), the World Wildlife Fund (WWF), the Food and Agriculture Organization of the United Nations (FAO) and the United Nations Educational, Scientific and Cultural Organization (Unesco), they worked on a document titled “World Conservation Strategy: Living Resource Conservation for Sustainable Development”. Here, the development has been defined as sustainable when, in addition to economic effects, it takes into account social and environmental ones, available limited resources on the planet, long-

¹ <https://en.unesco.org/themes/education-sustainable-development/what-is-esd/sd>

term and short-term advantages and disadvantages of any alternative actions (IUCN, UNEP, WWF, 1980).

This report was the preliminary work for the definition given few years later in the Brundtland report in which the concept was extended and, from that moment onwards, it was at the basis of many other definitions and studies over the sustainability.

Indeed, the most known definition of sustainable development was given in 1987 by the World Commission in Environment and Development (WCED) also called Brundtland Commission. The explanation of the term was included in the Brundtland report, entitled “Our Common Future”, that state that sustainable development is the “development that meets the needs of the present without compromising the ability of future generations to meet their own needs.” (WCED, 1987).

This broad definition comprises an equilibrium of all the three interconnected aspects of environment, society, and economy when it refers to the needs; environmental development should be treated by considering also social and economic development, because they all contribute to the achievement of the sustainable development process. It focuses also on the long-term feature of the sustainability because it takes into account the future dimension and consider the notion of fairness between present and future generations. The definition also expresses a limitation of the concept by looking at the scarce available resources of the planet that need to be in equilibrium with the needs of different generations and at the limited potential and ability of the ecosystem to keep up with human activity (Diesendorf, 2000).

Then, the official definition of sustainable development was coined during the United Nations Conference on the Environment and Development (UNCED) held in Rio de Janeiro in 1992. The so called “Rio Earth Summit” involved representatives, heads of states, NGOs from 179 countries, thus becoming a global conference with an unprecedented magnitude, in order to globally deal with environmental issues. The “Rio Earth Summit” posed the attention on the interrelationship of environmental, social, and economic development, that have the ability to affect one each other in their development and in the capacity of being successful over time. It came to light from the conference that the achievement of sustainable development is possible at each international, national, and regional level by looking at the same time at social, environmental and economic issues.

What emerged from this global conference were: Agenda 21, a programme of actions for the XXI century in order to pursue the sustainable development at global, national and regional level; the Rio Declaration on Environment and Development that included 27 principles for each nation to move towards a sustainable development; the United Nations Framework Convention on Climate Change (UNFCCC) that imposed some limitations to reduce and stabilize the greenhouse gas concentrations in the atmosphere; the Convention on Biological Diversity and the Declaration on the principles of forest management.

The “Earth Summit” gave also birth to the Commission on Sustainable Development (CSD), with the aim of reviewing the evolution in the implementation of Agenda 21 and the Rio Declaration on Environment and Development².

The next step was the Kyoto protocol, the first legally binding agreement over climate, that was signed in 1997 but came into force in 2005; it involved the reduction of the emissions of greenhouse gases with respect to 1990 levels for the period 2008-2012.

After this first commitment, the Kyoto protocol will be extended for the years 2013-2020 with the Doha amendment. In order to regulate the period from 2015 to 2030, another climate agreement to reduce greenhouse gases and carbon dioxide, the Paris Agreement, will be signed, also from countries not participant of Kyoto protocol. The aim of the Kyoto protocol was to reach a proper level of emissions in order to avoid dangerous influences of human activity over the climate system, one of the main players that affects sustainable development³.

A brief explanation of the aforementioned Paris agreement is due.

The agreement was signed to regulate the global average temperatures in order to set it “well below” (UNFCCC 2015, Article 2) 2°C and to limit the rise to 1.5°C above preindustrial levels. The long-term aim was also to reach the net-zero emissions of greenhouse gases by mid-century, to adapt to the negative effects of climate change and to support the path towards climate improvements with adequate finance. Each country that ratified the treaty is required to set targets and commitments to achieve the final goals, better called NDCs (nationally determined contributions).

The reasons why the Paris agreement was signed lies in the catastrophic consequences the rising of temperatures is leading to, such as ocean acidifications, species loss, water shortages and

² <https://www.un.org/en/conferences/environment/rio1992>

³ https://unfccc.int/kyoto_protocol

flood, rising seas and so on. With respect to the Kyoto protocol in which only developed countries and mostly European countries were involved, the Paris agreement was signed by 192 Parties, by recognizing the global reach of the treaty. On the other side, the Paris agreement is not legally binding as Kyoto protocol, it has instead a voluntary feature for participants that are monitored in their commitments every five years⁴.

In 2000 the Millennium Summit was held in New York, where 8 Millennium Development Goals (MDGs) among which “ensure environmental sustainability” and “develop a global partnership for development”, in addition to other six social goals, were defined, with 18 targets to be met by the year 2015. They embodied, at global level, a sort of concrete explanation on how to pursue the sustainable development, in particular by focusing on the reduction of extreme poverty, human rights, security and on other social aspects of primary importance, especially referred to the most vulnerable groups⁵.

Then in 2002 the World Summit on Sustainable Development (WSSD) took place in Johannesburg. It was a kind of evolution and extension of Rio 1992 because it reviewed the implementation of Agenda 21 and all the progresses made since that Earth Summit, in addition to the discussion, partially anticipated in the 8 Millennium Development Goal, mainly on poverty alleviation, health but also biodiversity and climate change as aspects of sustainable development. Here the social pillar took great relevance over the economic and environmental ones (Von Schirnding, 2005).

The concept of sustainable development was moving from a predominant meaning based mainly on environmental and economic issues to a definition that included also social aspects, health, poverty for example, as seen from Rio Earth Summit onwards, especially during the Millennium Summit and the WSSD in Johannesburg (Bac, 2008).

The following international step was the United Nation World Summit held in New York in 2005 that was scheduled also for the evaluation of progresses in the implementation of MDGs, set in the Millennium Summit 2000. What emerged was an improvement and a progress towards the Development Goals but with huge differences among the different areas. The Summit stated and

⁴ <https://www.un.org/en/climatechange/paris-agreement>

⁵ https://www.un.org/en/events/pastevents/millennium_summit.shtml

reconfirmed also the commitments previously set (Agenda 21 and Johannesburg plan of implementation) in order to obtain and to reach the sustainable development (Hyvarinen, 2006).

In 2012 the UN Conference on Sustainable Development was organized in Rio de Janeiro. This time the process for building Sustainable Development Goals (SDGs), based on MDGs, was inspired by a document named “The Future We Want”; here the steps to implement the SDGs were defined by strengthening the three dimension of sustainable development and the intergovernmental arrangements for sustainable development, in order to renew the global commitment to the sustainable development. Moreover, the High-level Political Forum on Sustainable Development (HLPF) was created to monitor and revise the SDGs⁶.

Last, in 2015 New York hosted the UN Summit on Sustainable Development. Here the main development was the adoption of 2030 Agenda as post-2015 development agenda, with 17 Sustainable Development Goal and 169 target to be reached by the year 2030. As a result of a long process and difficult debate on environmental, social, and economic issues since 1972, the 2030 Agenda includes a wider meaning of sustainable development.

In addition to the three basic pillars of society, economy and environment, translated in 2030 Agenda into people, prosperity, and planet, there are two additional dimensions, partnership and peace, that characterize the evolved concept of sustainable development. While peace refers to the connotations of a society characterized by justice and inclusivity without violence and fear, partnership relates to the global commitment and the joint participation of all countries and people in working towards the implementation of 2030 Agenda. In the end, the Sustainability Development Goals have been developed to transform the principles and beliefs of 2030 Agenda into practical measures and actions⁷.

What emerges after more than 30 years from the first definition of sustainable development and after many attempts and efforts in that direction is the difficulty in the implementation of the concept itself to reach satisfactory results, especially at a global level, and the important differences regarding that theme that are still present among different countries (Tomislav, 2018).

⁶ <https://www.un.org/en/conferences/environment/rio2012>

⁷ <https://sdgs.un.org/2030agenda>

1.1.1 Sustainable Development Goals and latest events

A brief focus on the 17 SDG, on the latest update of the 2030 Agenda, and on the concept of sustainable development discussed at the Glasgow UNFCCC is necessary.

The core part of the 2030 Agenda for sustainable development is represented by the 17 SDG, as mentioned in the previous paragraph.

The agenda and the relative goals and actions were defined in New York in 2015, during the UN Summit on Sustainable Development. The time frame for the implementation and achievement of the results discussed has been set for 2030.

For each goal a series of targets, events, publications and actions have been defined.

The key themes represented by the goals concerns:

- people, with reference to the ending of poverty and hunger and to the assurance of healthy environment characterized also by dignity and equality.
- planet, in relation to the preservation of the environment to satisfy the present but also future needs, by acting through sustainable processes of consumption and production and by taking the necessary measures.
- prosperity, by securing flourishing lives and a sustainable economic, social and technological evolution.
- peace, in connection with the implementation of a peaceful and fair society, far from violence and marginalization.
- partnership, with reference to the collaboration of everyone in order to reach the goals, by removing poverty as much as possible and by leveraging on global cohesion.⁸

⁸ <https://sdgs.un.org/2030agenda>

Figure 1. Sustainable Development Goal. *Source*⁹



Moving to the most recent event, at the end of 2021 the Glasgow UN Climate Change Conference of the Parties was held. It was the event planned after 5 years from Paris agreement but then delayed because of the pandemic.

As set in 2015 during the Paris agreement, all the parties have to revise their nationally determined contributions planned in order to reduce emissions and limit global warming, to keep the rise of temperature at 1.5 degrees maximum by 2030 and to look forward the net zero by mid-century.

The result of the Glasgow conference was a confirmation of the goals established in Paris and an urgent speedup of climate actions pursued through a global action; in addition, the “Paris Rulebook” with the rules and guidelines to implement the agreement was completed¹⁰.

The concept of sustainable development was resumed in the attainment of a “just transition” with reference to the workforce quality jobs, the technology-transfer towards modern technologies, the mitigation of poverty, social inclusion, just economy and more. In connection with the objectives

⁹ <https://sdgs.un.org/goals>

¹⁰ <https://ukcop26.org/wp-content/uploads/2021/11/COP26-Negotiations-Explained.pdf>

of a sustainable and just transition there are the climate changes effects that have been the core theme discussed at Glasgow, that influences resource distribution, health conditions and wellbeing, work opportunities, social inequalities and all the aspects included in the process of transition¹¹.

1.2 Environmental sustainability

The first aspect of sustainability is the environmental one, that is mentioned in the Brundtland definition when referring to the needs that have to be satisfied considering the scarce available resources of the planet and the limited potential and ability of the ecosystem to keep up with human activity. So, environmental sustainability is the actual and future effort to preserve natural resources and protect the ecosystems to support health and wellbeing.

Another definition given by the Oxford English Dictionary state that environmental sustainability is “the degree to which a process or enterprise is able to be maintained or continued while avoiding the long-term depletion of natural resources”.

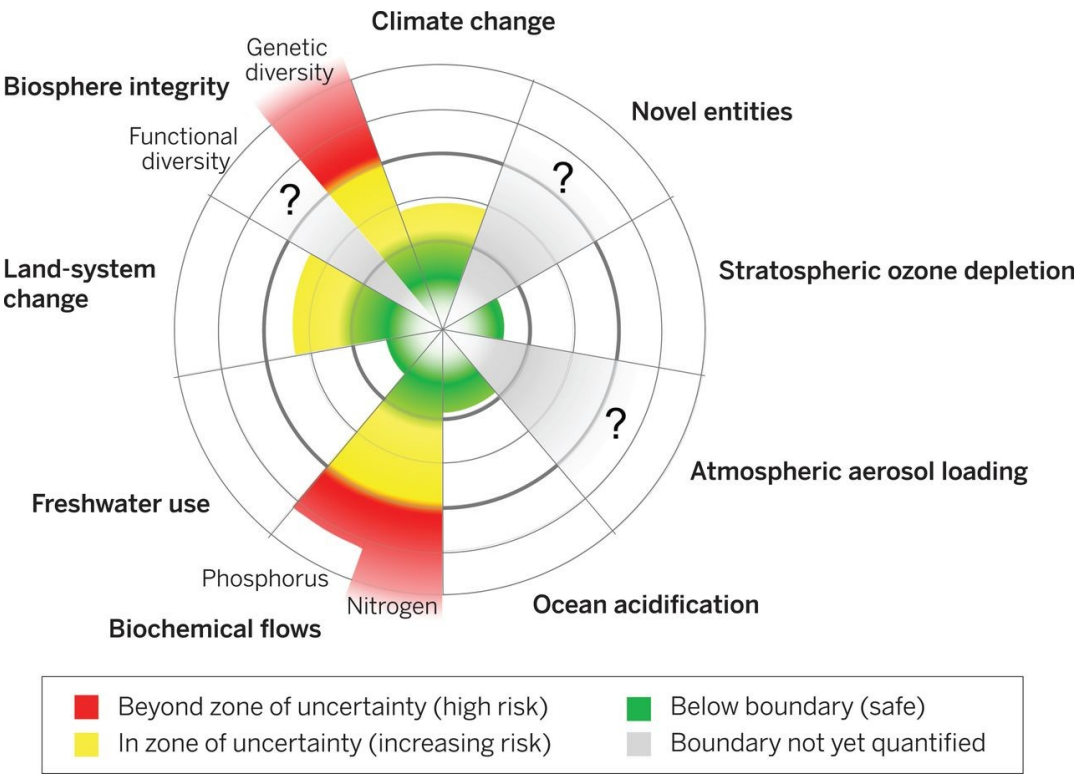
With the industrial and technological growth, we faced a rapid evolution of the human activity towards the planet, an important increase of the necessity of resources and, consequently, we have witnessed rapid changes on the environment itself. Some evidence are, for example, global warming due to greenhouse gas emission, environmental degradation of air, water and land including deforestation and water and air pollution. In addition, we now live in a world in which resources and the capacity to bear the human modification on the environment are limited. The adverse consequences and the possibility of irreversible human damages on the natural environment have brought to the attention of this topic worldwide (Foley et al., 2010).

In order to be able to measure the human impact and to find sustainable solutions to it, in 2009 nine planet boundaries have been identified with a corresponding threshold that define the level after which the planet ecosystem is compromised, and the existence of the humankind is threatened. Seven out of nine have a well-defined number to be measured; the remaining two, atmospheric aerosol loading and global chemical pollution, have not a clear limit. The comparison given in order to set the value of the threshold of each planet boundary is between the Anthropocene situation and the Holocene steady state.

¹¹ <https://ukcop26.org/supporting-the-conditions-for-a-just-transition-internationally/>

The seven processes that are well-measured are: biosphere integrity, land system change, global freshwater use, biogeochemical flows (nitrogen and phosphorus use), stratospheric ozone depletion, ocean acidification and climate change. Today, the threshold set for four of them has already been overcome; we are referring to the biodiversity loss, the nitrogen and phosphorus use, climate change and land use. For the remaining four parameters, they are all moving towards the limit. What is relevant to counteract the environmental issues is to understand which are the causes that push them towards a sharp deterioration.

Figure 1. Planet boundaries. *Source: Steffen et al., 2015*



Starting from the climate change, one of the two most important processes, we are rapidly facing an increase of extreme atmospheric event and an exacerbation of the global warming. What is significant in this process to be monitored is the level of CO₂ into the atmosphere, that should be present in a range between 350 and 450 ppm (parts per million). It is necessary to diminish the greenhouse gas emission currently produced, responsible in large majority for the drastic climate changes. Another dimension to be monitored is the top-of-atmosphere radiative forcing, that should be in a range of +1.0 W m⁻² to 1.5 W m⁻²; it is mainly affected by greenhouse gases, included CO₂, aerosols and other elements that influence the Earth’s energy equilibrium. The

main consequences of the rapid exacerbation of the climate situation that should be avoided are the melting of polar sea ice and the consequent rising seas, the growing number of extreme weather phenomena and rainfall from one side and drought and significant heat waves from the other side.

Moving to the biosphere integrity, where, as mentioned above, the limit imposed has been already overcome, we are referring to the risk of biodiversity loss. Many causes are indirectly linked to the phenomenon, such as the necessity and request of higher quantity of natural resources, food and water that has, as consequence, the land development which in turn is a direct reason of the biodiversity loss. On the global scene, the Strategic Plan for Biodiversity 2011-2020 has been set in Nagoya, Japan, in the international Convention on Biological Diversity (CBD) held in 2010. Different actions have been planned to be taken to stop the loss of biodiversity, in order to ensure that “by 2020 ecosystems are resilient and continue to provide essential services, thereby securing the planet’s’ variety of life, and contributing to human well-being, and poverty eradication”, as stated in the mission of the Strategic Plan. (CBD, 2010)

As post-2020 global biodiversity framework, new target and goals have been set with an eye towards the 2050 vision set in the Strategic Plan 2011-2020; nearer actions have been planned for the years to come, to reach part of the targets by 2030. After a first virtual session, the biodiversity conference CBD is still underway, with a second part of the meeting that will be held in 2022 in Kunming, China to take the final decision on the post-2020 global biodiversity framework¹².

When referring to the conservation of biodiversity, ecosystems, species, genetic resources and biotechnology are all included in the concept and the preservation of all the four aspects is pursued¹³.

The next process is the ocean acidification that is linked to the CO₂ emissions just as climate changes but with respect to ocean water instead of atmosphere. As a consequence of this phenomenon, the level of pH of the ocean water is going to decrease and this is gradually modifying the amount of aragonite (a form of calcium carbonate) present in the surface, by threatening many marine species.

¹² <https://www.cbd.int/process/>

¹³ <https://www.un.org/en/observances/biological-diversity-day/convention>

Dealing with the biogeochemical flows, what is in danger here is the chemistry of the Earth, in particular in relation to nitrogen and phosphorus pollution but also other substances. The principal reason of dangerous level of nitrogen and phosphorus is assessed to agricultural fertilizers and what is in danger are: the water pollution and consequently the loss of marine biodiversity, soil acidification and depletion with effect on human health and harvest and the degradation of numerous lakes and rivers.

Global freshwater use is that process that monitor the quantity of blue water utilized and drawn from rivers, lakes and aquifers because the quantity required in the Anthropocene epoch, both for agriculture and for industry, is rising more and more, by causing the erosion of water resources and by endangering the human livelihood. Moreover, the withdraw of huge quantity of water but mainly the manipulation and pollution of the blue water undermine the ecosystem balance. Also, the green water (soil water held from rainfall) has to be considered and protected with some limits imposed and some devoted actions.

A relevant issue is the Stratospheric ozone depletion in the atmosphere, whose function is to protect human life from ultraviolet sun radiation, in particular from UVB. So, the O₃ layer is necessary to prevent some dangerous effects on human like skin cancers and retina damages but also to avoid negative consequences on crops and marine species and on the whole ecosystem. The problematic situation finds concreteness when the ozone molecules are destroyed at a higher speed rate with respect to the natural time for the creation. And the main actors of this O₃ layer reduction are some pollutions coming from the human activity, like the chlorofluorocarbons.

Land-system change regulate the conversion of uncultivated land, better defined as ice-free land, in all biomes into agricultural land; this can threaten the ecosystem balance and biodiversity and for this reason a limitation on the rate of conversion has been set. Moreover, this process is strictly interconnected with climate change, but also biodiversity loss and water use.

The remaining two processes are still part of the nine planet boundaries, but the limit threshold has not been set yet, because of difficulties in finding the proper measurement. We are talking about atmospheric aerosol loading and global chemical pollution.

The first one is relevant in the environment sustainability because of potential human health damages and because of its effects on climate change, by contributing to alter the energy balance

and the water cycle. Looking at the human health aspects, the aerosol components are responsible of many deaths due to cancer, cardiopulmonary and respiratory diseases.

Moving to the chemical pollution, more widely named novel entities, to include also other new substances on the planet, the main issue here are the unexpected negative effects of something that was believed to be innocuous both on the ecosystem itself and the other mentioned planet boundaries. In fact, in addition to a negative impact on the health of humans and on the functioning of the ecosystem, it also affects other boundaries like biodiversity and climate change. (Steffen et al., 2015)

Despite all the parameters have a different threshold, what should be taken into account is that all the nine dimensions are interconnected and should be simultaneously monitored and held into consideration. Also, the solutions proposed to improve one factor, should consider all the others at the same time (Rockström et al., 2009).

1.3 Social sustainability

As explained in the Social Sustainability study requested by the EMPL committee, the social sustainability concept is not constant over time, but it is an evolving notion that change with the different geographical and temporal circumstances, also because social needs differ according to various scenarios. Before 2000, the social aspect weighted much less than the environmental and economic ones in the pursuing of the triple bottom line. In the last two decades, it seems that all the three components, social sustainability included, have been equally weighted (McGuinn et al., 2020).

A definition of social sustainability, seen as an independent aspect, is given by Sachs (1999). He stated that “Social sustainability includes achieving a fair degree of social homogeneity, equitable income distribution, employment that allows the creation of decent livelihoods, and equitable access to resources and social services, a balance between respect of tradition and innovation, and self-reliance, endogeneity and self-confidence” (Sachs, 1999, pp. 32–33). “A strong definition of social sustainability must rest on the basic values of equity and democracy, the latter meant as the effective appropriation of all human rights – political, civil, economic, social and cultural – by all people” (ibid., p. 27).

As can be deduced from the definition above, the concept of social sustainability embeds several aspects that affect the social sphere. For example, some factors that are part of the social

sustainability aims are the basic human needs, the equal income and resources distribution, justice and parity for race, gender and ethnicity, issues related to employment and education, quality of life and well-being, social cohesion and community identification and more.

Another definition given in a McKenzie (2004) work state that social sustainability is reached when actual and future generations concentrate their efforts in creating healthy and liveable communities and define five characteristics that characterize socially sustainable communities: good quality of life, equality, diversity, interconnectedness or social cohesion, democracy and governance.

Starting from the beginning, the quality of life is related to the human basic needs and promote a good living standard for each level or category of people, that concerns education, employment, safety and security, health, housing.

Equality refers to the fair behaviour and parity respect to all the groups, to the reduction of inequalities, disadvantages and marginalization; on the other side, diversity promotes recognition and acceptance of different groups, values, cultures.

Analysing the interconnectedness, it means the sense of belonging to the same community, in a cohesive society with shared values.

Last, democracy and governance dimension refer to the democracy that applies in the community and the decisional processes, resources, budgets in view of the social sustainable desired objectives (McKenzie, 2004).

1.4 Economic sustainability

In a generic sense, the economic dimension of the sustainability links the economy itself and the economic value of the organization that influence and support the growth of the economy; the economic sustainability explains how the organizations affect the community they are in and how it can sustain the wealth of their stakeholders.

A first definition of economic sustainability is represented by the necessity to keep a permanent income, enabled by constant stocks of capital, either man-made or social and natural, that imply a global continuous and long-term growth. In this first definition, the economic aspect does not negatively influence the other two dimensions, social and environmental. The constant economic stock of capital is not to the detriment of natural or social capital (strong sustainability).

In a second definition, what is relevant to define the economic sustainability is the continuous and long-term growth, that allows the economic capital to increase, also at the expense of social and natural capital, that are considered easily substitutable with man-made capital (weak sustainability).

With reference to the concept of capital in the first economic sustainability definition, we are not referring to the traditional economic meaning, as in the second case, in which each type of capital, natural and social included, can be translated into monetary terms and can be totally replaced; here, in the first approach, the utilization and deterioration of the natural and social capital is usually irreversible. (Spangenberg, 2005; KTH, 2020).

1.5 Triple bottom line

In the previous paragraphs, when we defined sustainability and sustainable development related to a business context, we implicitly referred to the concept of the triple bottom line (TBL).

The triple bottom line is the transposition of the three field of sustainability we mentioned above (economic, environmental, and social) in a business scenario.

The definition of this concept was given for the first time in 1994 by John Elkington, then used as foundation for its book “Cannibals with forks” in 1997, where he wrote “today we think in terms of a “triple bottom line”, focusing on economic prosperity, environmental quality, and ... social justice.” (Elkington, 1997, p70).

TBL gave the instruments to measures the performances of an organization by looking simultaneously at the three dimensions: social, environmental, and economic or, as named by Elkington in 1995, people, planet and prosperity (the three “P’s”). The three lines are all interconnected and equally weighted when referring to the triple bottom line and should be all accounted in order to determine the “full cost involved in doing business” (Elkington, 2018).

In the subsequent years, most organizations began to understand that the simple bottom line, focused only on the financial dimension, was not enough to have a sustainable success and to keep it in the long term; it was necessary also to combine the environmental health and social well-being in addition to a just economy (Slaper and Hall, 2011; Carrick, 2012).

What is important is to consider each dimension as bottom line of the company and measure it in that direction; for sure, one difficulty lies in the measurement of the social and environmental dimension in a way that is compatible with the economic one, but the TBL approach is born with the aim of facilitating this activity.

By resuming the concept of environmental sustainability, it can be seen in an industrial context where the environmental impact is measured from an organization standpoint and all the processes and practices should be built to allow a sustainable functioning of the company.

Here, working towards the environmental sustainability means the adoption of practices and processes that allow a potential future growth in economic terms and prosperous social communities by taking into account environmental sustainability. In that way, it is possible to balance the dimension of the planet with profit and people.

That means that environmental sustainability is crucial in pursuing the triple bottom line and in achieving better financial performances, as we will see also for the other two dimensions.

In this context, proper indicators of environmental sustainability inside the company should be set; in particular, to define those indicators, it is common to follow ISO certification (ISO 14001), EMAS scheme and GRI (Global Reporting Initiative) guidelines.

A methodology frequently used inside the company to measure the impact of products and services on the environment is the life cycle assessment (LCA). It is implemented, by following the ISO certifications (ISO 14040 and ISO 14044), to quantify the potential impact during the whole life cycle of the product or service in question.

To have other measurement indicators for the environmental dimension, it can be useful to look at the GRI guidelines that propose many different aspects to be analysed with proper factors.

The aspects taken into account in this field are materials, energy, water and effluents, biodiversity, emissions, waste, environmental compliance and supplier environmental assessment. Each of them has some specific indicators that allows to measure the dimension as a whole (GSSB, 2020).

It can be useful, in order to value the management of the environmental sustainability process' performances, to measure the industry impact on the environment. What all the companies should focus on is the norms and legislation compliance, the reduction of environmental impact and the decline in the environmental risks. Once pursued, the environmental sustainability will bring to a reduction in costs and consequently a profit increase, to a better client satisfaction and to higher trade opportunities.

Moving to the second dimension, the inclusion of many different faces, not easily measurable sometimes, makes the social sustainability more difficult to quantify, with respect to the other two aspects of the triple bottom line.

When referring to a business context, what matter is the company's impact over the surrounding social system. By surrounding social system, we mean that the company cares about all the stakeholders, including customers, employees, communities, suppliers, investors, and not only shareholders. This reminds the concept we will analyse in a subsequent paragraph of corporate social responsibility (CSR).

As industrial indicators to measure this dimension, a proper scheme is provided by the GRI guidelines that, as explained before, includes indicators for all the three dimensions of the triple bottom line.

Some specific aspects are set in order to take into consideration the social category, presenting dedicated indicators to give a measurable dimension to the social sustainability.

This is the list of aspects proposed by the GRI guidelines: employment, labor/management relations, occupational health and safety, training and education, diversity and equal opportunity, non-discrimination, freedom of association and collective bargaining, child labor, forced or compulsory labor, security practices, rights of indigenous people, human rights assessment, local communities, supplier social assessment, public policy, customer health and safety, marketing and labelling, customer privacy and socioeconomic compliance (GSSB, 2020).

Another tool used to regulate and disclose some aspects of the social sustainability is the SA (Social Accountability) 8000. It is a certified international standard related to ethical and social aspects. The main purpose of the standard is to protect the fundamental human rights, employees' rights, safety and health condition on the work environment and the exploiting of child labour¹⁴.

Last, an additional instrument to guide the companies towards social responsibility is ISO 26000:2010. It explains what social responsibility is and how to effectively integrate it in an organization, not through specific indicators but by articulating actions and expectations related to the stakeholders' interests (Buck et al., 2014).

Analysing the third dimension of the triple bottom line, in order to pursue economic sustainability, specific indicators are set to measure the economic situation of various stakeholders and the economic systems at each level, from local to global. We are not referring to indicators for financial performances that determine the profitability and financial wealth of the company, but we are considering specific metrics that analyse the business contribution to manage and optimise the available resources.

¹⁴ <http://www.bilanciosociale.it/sa.html>

In the GRI sustainability reporting guidelines, indicators for economic sustainability dimension are also present. The GRI model contains few main measurable aspects that allow to identify some concrete indicators for each one, in order to translate the economic category into quantitative terms.

The aspects in question are economic performance, market presence, indirect economic impacts, procurement practices, anti-corruption, anti-competitive behavior and tax (GSSB, 2020).

The economic performance includes the measurement of:

- the direct economic value generated and distributed, that means revenues (relationship with clients), operating costs (relationship with suppliers), employee wages and benefits (relationship with employees), payment to investors (relationship with investors), payment to government by country and community investment (relationship with public administration).
- financial implications and other risks and opportunities due to climate change, that can heavily influence operations, revenues, or expenditures.
- defined benefit plan obligations and other retirement plans, by detailing the amount of pension liabilities and how they are planned to be covered and also the contribution rate of employees and employers.
- financial assistance received from government, that includes subsidies, royalty holidays, financial incentives, different types of grants, tax relief and tax credits and more (GSSB, 2018a).

Moving to the market presence, it indicates the economic effects the organization has on the market where it operates, for example how it locally influences and manages remuneration policies and hiring (GSSB, 2018b).

The indirect economic impacts include additional economic impacts as a consequence of the direct ones, from the organization over its stakeholders, mainly expressed at local level and in non-monetary terms. In addition, it comprises also the implications of the organization's investments in infrastructure and of the services provided (GSSB, 2018c).

Next is the procurement practices aspect that refers to the relationship between the organization and the local suppliers and the characteristics of the procurement process that affect the supply chain (GSSB, 2018d).

The anti-corruption aspect in few words is referred to the identification and disclosure of all those potential practices that makes the company carry out illegal, dishonest actions, that consequently negatively affect the surrounding environment (GSSB, 2018e).

Anti-competitive behavior aspect includes the disclosure of specific actions to avoid anti-competitive behavior, including anti-trust and monopoly practices. (GSSB, 2018f)

Last, tax aspect has been more recently added, in 2019. It involves the disclosure of taxes, revenues, and business activities at a country level, to promote transparency and trust from the organization (GSSB, 2019).

1.6 CSR: when a company is paying attention to sustainability

To give a first, updated and inclusive definition of corporate social responsibility (CSR), we have to consider two main aspects that characterize it: first, the organization that pursue CSR has to consider all the stakeholders' interest and not only shareholders' ones; second, CSR allows the company to identify the impact it has on the social and environmental dimensions also, to reach a sustainable equilibrium between economic, social and environmental aspects (Ahmad et al., 2015).

The term CSR was coined for the first time in 1950s in the United States from Howard Bowen, considered as the father of the Corporate Social Responsibility. In 1953 he defined CSR as the social obligation "to pursue those policies, to make those decisions, or to follow those lines of action which are desirable in terms of the objectives and values of our society". (Bowen, 1953).

When in the 1970s the concept began to be taken on board, the American economist M. Friedman was responsible of the so-called shareholder theory, in which he certainly affirmed that the only concern of a business is to satisfy shareholders' wealth and maximize their profit.

As he explained in the article for The New York Times Magazine of 1970, the responsibility of the business, expressed through the management or agent of the company, is to satisfy the desires and wishes of the owners or better called stockholders, that usually correspond to the maximization of money. In any case, what is important is that the first responsibility of the business is the shareholder of the company (Friedman, 1970).

In contrast with the previous theory, a new vision of the business began to delineate with the Freeman's stakeholder theory of 1984 in which the responsibility of the business is no more only towards the owner of the company, but it considers all the stakeholders, that means all those

figures that have an interest into the organization, including employees, suppliers, customers, communities in addition to stakeholders.

Moreover, when the American philosopher discussed about business responsibility, he expressed the concept no more as mere profits but as creation of value. Here the focus is not only on money earned but concerns also other aspects referred to the social and environmental sphere and the relationship between the organization and the community that it relates to (Freeman and McVea, 2001).

From this theory onwards, the concept of Corporate Social Responsibility was better delineated, with some overlay with the Freeman's stakeholder theory.

The CSR is a business model frequently used to pursue the sustainable development of a company. The definition of CSR implies a focus on the implications over the public sphere, in addition to the private one, looking for a consensus from the external environment and community on the strategy pursued, in order to be able to maximize the economic value. As the term responsibility suggests, the power of integrating the CSR lies in the ability to measure and communicate the responsibility and annexed results of the company towards different stakeholders in all the three dimensions.

To give a better framework for the aforementioned term, six key characteristics can be identified. First of all, CSR is a voluntary business model that goes beyond the compliance of the traditional business law. Then, what CRS deals with is all those impacts that the business has over third parties that means external environment, as natural but also social environment and all those stakeholders that are part of it. Third, as already anticipated, CRS is directed to the needs and interests of all the stakeholders that are directly and indirectly involved into the business activity. Another core characteristic is the equilibrium among the three dimensions, not giving precedence to profitability but aligning it with the social and economic aspects. A fifth feature concerns the values and culture that drives the companies' CSR application and influences the practices adopted to pursue social sustainability. Last, the CSR is no more only about philanthropy, as it was in the 1950's-1960's, at the very beginning, because it has been developed also for the impact it has on economic value and the business company itself, on its goals and activities. Moreover, it is necessary for the satisfaction of the stakeholders' interests, going further into the philanthropy meaning (Ahmad et al., 2015).

The CSR concept was formally introduced in the European Union Agenda in 2000, when the Lisbon European Council took place. The CSR was introduced to act as a strategic tool in order to establish a more cohesive society capable of improving the European Social model.

The official definition of the concept is stated as “a concept whereby companies integrate social and environmental concerns in their business operations and in their interaction with their stakeholders on a voluntary basis” that comes from the Green Paper drafted in 2001 by the European Commission.

By voluntarily integrating CSR in the business strategy, going beyond the simple observance of the laws, companies are investing to increase the economic value of the company and therefore to lead to a profit enhancement, in addition to a beneficial impact over the business scenario. Moreover, they pursue the satisfaction of all shareholders’ interests by trying to achieve social development and environmental sustainability for a future sustainable perspective¹⁵.

As explained into the Green Paper of the EC, the CSR can be divided into two dimensions, an internal and an external one.

When referring to the internal social responsibility of the company, the focus is on the internal stakeholder (employees, shareholders), on aspects concerning the management of human capital and the safety and health at work from a social point of view, and on natural resources consumption during the business activity from an environmental point of view.

Moving to the external influence of the CSR in a business context, it affects a wider range of stakeholders, including suppliers, customers, business partners and impacting also on local communities and the global environment (Commission of the European Communities, 2001).

In the European Commission of 2006 CSR was said to “play a key role in contributing to sustainable development while enhancing Europe’s innovative potential and competitiveness” and in 2011 EC explained the function of CSR to make the society more cohesive and to push towards a “sustainable economic system” and defined it as “the responsibility of enterprises for their impacts on society” (Commission of the European Communities, 2006; Commission of the European Communities, 2011).

From a compliance point of view, there are some global instruments that help companies in implementing CSR strategy and in moving towards a social sustainability. The OECD Guidelines for Multinational Enterprises must be mentioned, in addition to the ten principles of the UN

¹⁵ <https://www.unioncamere.gov.it/csr/P42A0C385S370/Che-cos-%EF%BF%BD.htm>

global compact, ISO 26000 standard for social responsibility, the ILO Tri-partite Declaration of Principles Concerning Multinational Enterprises and Social Policy and the United Nations Guiding Principles on Business and Human Rights (Yıldız and Özerim, 2014).

To give an example of some issues related to the CSR strategy, it is possible to name human rights, labour and employment aspects, that includes diversity, equity and inclusion, gender equity and employee safety and health, environmental concerns, community implication and employee volunteering.

The next steps are to define when a company can be thought to pursue CSR and how it is communicated to the various stakeholders.

As introduced by the OECD, the term RBC (Responsible Business Conduct) refers to a company that operate with the aim of "making a positive contribution to economic, environmental and social progress with a view to achieving sustainable development and avoiding and addressing adverse impacts related to an enterprise's direct and indirect operations, products or services". From the definition it is clear that the conditions to behave as a socially responsible company are the following two: the positive input the company gives in pursuing the sustainable development and the help in avoiding and addressing negative impacts linked to the business activities¹⁶.

Many advantages can be obtained from implementing a CSR strategy. From a better perception and reputation in the clients' mind to an higher retention rate of employees and improved working efforts; from a positive and incentive signal for the company's investors to a reduction in costs (Heyward, 2020).

The last important point is how to communicate the CSR business model application from the company to all the stakeholders. A common tool frequently used is the sustainability report that allows the company to transparently express the environmental and social performances and results. The sustainability report has begun to globally spread in 1970s; in an official document of the United Nations dating back to 1977, is stated that the company has to account for all the activities regarding human and natural resources but also environmental implications to the whole society.

A formal definition of the sustainability report describes it as a synthetic tool used to manage, control and report the social responsibility of a company towards various stakeholders. The aim is to report the business activity effects on the social and environmental context to whom is entitled

¹⁶ https://ec.europa.eu/growth/industry/sustainability/corporate-social-responsibility_en

to have expectations over the business activity. As public, autonomous document, it has to follow some general requisites developed in 17 points, that allows it to present the minimal information requested to have a value as sustainability report. It is considered a final report to be compared with the previous year reports, but also a future-oriented document (GBS, 2013).

In addition to the sustainability report there are various approved standards that have both the function of certificating and communicating the CSR aspect of a company and of providing some guidelines in order to implement a socially responsible behaviour.

SA8000 (Social Accountability 8000) is one example of certified international standard related to social aspects, as already explained in the previous paragraph.

Other standards are ISO14001 and EMAS, both dedicated to the environmental aspects of an organization.

While ISO14001 is an international certificate that regulate the creation of the environmental management systems used to manage and improve the environmental aspects and to develop an environmental policy, EMAS incorporates ISO 14001 and is regulated at European level. The aim is always to improve the environmental results and to evaluate the impact of the organization in addition to transparently communicate the information regarding the environmental aspect¹⁷.

AA1000 (AccountAbility1000) and GRI standards are worth to be mentioned not as certifications to communicate the social responsibility of a company but as guidelines to encourage sustainable reporting.

AA1000 is a standard dedicated to the quality of the auditing and reporting process with regard to ethical and social aspects, in order to push the company towards the sustainable development¹⁸.

GRI standards are dedicated to sustainability reporting of an organization, helping it in communicating and measuring the impacts over all the three dimensions of the triple bottom line¹⁹.

Once defined the concept of sustainability, the situation in which a company is perceived as sustainable and how sustainability is communicated to stakeholders, the next step is to explain how the MCS are used as tools to integrate sustainability into the strategic decisions, as deepen into the forthcoming chapter. Many authors have expressed their view into their studies by

¹⁷ https://ec.europa.eu/environment/emas/join_emas/emas_iso_14001_en.htm

¹⁸ <http://www.bilanciosociale.it/accountability.html>

¹⁹ <https://www.globalreporting.org/standards/>

analysing the relationship between MCS, strategic goals, performance measurement approaches and sustainability within company's actions.

2. MCS, strategy and sustainability

Revising the existing literature on the argument, the complex relationship between MCS and the strategy-making process, and the integration of sustainability within the organizational strategy through control mechanisms have been investigated in many scientific research.

The next paragraphs are going to explain the theoretic connection MCS and the organizational strategy, to depict control systems under the lens of levers of control and finally to articulate how sustainability is incorporated within the organizational strategy through the activity of control systems.

2.1 The relationship between MCS and strategy

With the growing importance of studying the connections between the management control system (MCS) and the business strategy, many authors have expressed they research studies on the topic since 1980s.

According to Langfield-Smith (1997), the relationship that links MCS and strategy is investigated to study how a competitive advantage can be achieved through the business strategy. The role of the MCS is to control and monitor the achievement of the organization's goal by properly using and gaining resources. It is a system that provides an instrument to reach the overall goals of the company.

In order to classify control mechanisms, it is possible to distinguish between formal and informal controls as studied by Anthon (1989), focusing on the main differences in the management process. While formal controls processes and instruments are based on monitoring, measuring and adjusting actions to reach the final objectives, informal control are less standardized and formalized and mainly comes from organizational culture.

Another classification is the one proposed by Ouchi (1977) that distinguishes output and behaviour controls; while behaviour control focus on the continuous monitoring of activities, output control concentrates on the outcomes to achieve, thus monitor, and compare results and in case of necessity it is responsible of taking corrective measures, relying on a feedback system. In a subsequent article Ouchi (1979) distinguish also among market, bureaucracy, and clan controls. Market controls deploy measurement and reward tools while clan controls are mainly informal controls that rely on shared values and culture of the company to support the goal achievement

and finally, bureaucracy controls are reliant on performance measurement as market controls but also on shared social values that conduct to the objectives' attainment.

Hopwood (1976) divides between administrative and social control describing the former as the set of rules and standard processes and the latter as the control over common goals and objectives to reach.

Last, according to Merchant (1985), results, action, and personnel control are identified. Result controls are performance-oriented, and they monitor and act over results thanks to a feedback system; action controls focus on the activity implemented by individuals to reach the organizational goals; personnel control act to encourage the proper employees' behaviour in order to carry their tasks out in a successful way.

Moving to the strategy concept, it is defined as a set of choices oriented towards a future status of the organization, that concerns the future fixed goals, the relationship between activities and resources, the stakeholders involved, and their interests.

From a width point of view, strategies can be divided in three different classes: corporate strategy is the one related to the type of business to enter, the methods to acquire a sustainable competitive advantage, how and where to invest resources, and the structure of the company as a whole; business strategy regards each SBU (strategic business unit), how each business unit is positioned respect to its competitors, and how it contributes to the position of the company; operational strategy is at a more detailed level that focuses on the contribution of each functions to the business strategy and to the competitiveness of the company.

For the purpose of studying the relationship between strategy and MCS, authors usually refer to business strategy.

In short, the strategy of a business is firstly formulated by the management, then translated into practical actions, and implemented. When translating it into actions, it involves the allocation of resources for the achievement of the strategic objectives and the delineation of proper systems to make it feasible, including MCS.

By looking at how the strategy is created, the distinction is between intended and realized strategies. The difference is that realized strategies are the ones that are implemented in the end, regardless of the provenience from a planned strategy or an emergent one, while intended strategy are always planned but not always put into effect.

Then strategy can be classified in different ways according to the typology.

For example, Miles and Snow (1978) differentiate defenders, prospectors and analysers strategies for their level of product and market change, respectively characterized by a reduced product variety and a poorly evolving market, a wider range of products and a constant development of the market, a combination of the characteristics of defenders and prospectors.

Porter (1980) delineates three typology of strategy, cost leadership, differentiation, and focus, respect to the source that allows a sustainable competitive advantage that are respectively the lower costs, higher value for customers, and a mix of the two advantages in a narrower segment. As in the previous case, each of those strategies require a different control mechanism and different resources and capabilities.

Another classification comes from Miller and Friesen (1982) that delineate two types of firms according to the degree of product innovation and by dividing them in conservative or entrepreneurial; also in this classification, the use of the control system differs depending on the strategy utilised.

Gupta and Govindarajan (1984) identify four different strategies according to the strategic mission. The build strategy aims to improve the company position and market share while harvest strategy tries to achieve higher profits and liquidity in the short term. A hold strategy has the goal of achieving good returns while maintaining a discrete market share and position, and last, a divest strategy has the final mission of terminating the business.

To easily group all those different typologies of strategies, it can be useful to identify three main criteria to classify them: typology (prospector, analyser, defender), strategic mission (build, hold, harvest), and competitive position (cost leadership, differentiation).

By analysing the relationship between the control system and strategy, it emerges for example, according to Miles and Snow (1978), that the control system for a defender strategy is characterized by accuracy, standardization, centralization, and anticipation and has the aim to protect from uncertainties and not to encourage products or market development while for a prospector strategy the control system is defined as decentralised and results-driven and works to allow more flexibility and ability to changes adaptation to processes and structures. Looking at the Porter (1980) classification, while cost leadership strategy has to be supported by formal control, differentiation is more inclined to complex coordination process that is appropriate to encourage innovation. Miller and Freisen (1982) identify for the conservative strategy a control system that indicates the necessity for innovation while for entrepreneurial firms they find a control mechanism that focuses on the drop of efficiency and productivity. It is noticeable the

connection between the type of control implemented in combination with a defender and a cost leadership strategy and the one implemented by a prospector and differentiator (Langfield-Smith, 1997).

Another study on the argument is the one developed by Chenhall (2003), in which the guideline is that the strategy influences the MCS. The level of focus is the business unit one, and the research suggest a link between the strategy, cost control, and performance evaluation as aspects of MCS.

What emerges from the relationship between strategy and MCS is that according to the typology of strategy, the MCS has some specific characteristics. Strategies oriented to cost leadership, conservatism, defender, and harvest behaviour have the formal MCS in common, characterized by cost control and severe budget control, specific targets, and budget performance goals, features that are not typical of strategy focused on differentiation, entrepreneurship, prospector and build attitude, that are instead associated with informal MCS, more flexible and subjective control, and interactive budgeting process (Chenhall, 2003).

Third research on the topic is the one that belongs to Kober and Paul (2007) that analyses the mutual relationship between MCS and strategy, not considering the MCS as a mere outcome of the business strategy anymore. The aim of the study is to reveal that both the MCS and the strategy have an active role in influencing a change in the strategic process: MCS is interactively used by taking a full part in the process facilitation and MCS mechanisms change to keep up with the strategic changes. In this way, the bilateral relationship is brought to light as an evolution of the one-way relationship, showing both the active and the passive role of MCS towards the strategy.

The first result given by the study reveals that when the MCS is used in an interactive way, it contributes for a change in the strategy. According to Simons (1995), interactive use refers to managers that utilize control systems to gain information and dialogue with subordinates in order to face strategic uncertainties and to allow new strategy to emerge.

The second point focuses on the how MCS is set and adapted to be aligned with the changing strategy. In this case, it is the MCS that is passively forged to match with the strategy (Kober and Paul, 2007).

Anthony (2014) gives a detailed vision on the topic in his book “Management control system”. Starting from the definition of strategy as a connection between the objectives of an organization

and the MCS, he describes the MCS as a tool influenced by the strategy but also an instrument used to actively change and implement the strategy itself. The key point is that the MCS has always to be in line with the strategy implemented, and to fit with it.

A first broad difference on the MCS depends on the level of strategy focus we are referring to. With reference to a corporate level strategy, the MCS is more centred on financial measures like profits, costs, and revenues while relying on a business unit level strategy, the control system is focused on non-financial, operational measures (volumes, productivity, quality, and so on).

Then, looking at the business unit level, Anthony (2014) takes up the main strategic frameworks studied by Porter (1980) and Miles and Snow (1978), and explain how the MCS is adapted to the strategy pursued, associating the differentiation strategy and the prospector approach to an organic management control, while a low-cost strategy and a defender approach to a mechanistic control system.

Indeed, in describing the MCS he distinguishes between two different approaches: the mechanistic control and the organic control.

The mechanistic control is characterized by specialization and defined responsibilities, hierarchic communication in which there is a formal and strict control and supervision by the management, internal focus and measurement of internal dimensions like productivity and costs often compared in the budgeting process after an important planning phase in order to analyse deviations in precise reports, and incentives connected with quantitative measures of performances.

The organic MCS is instead defined by teamwork, collaboration, informal interaction and communication, flexible structure of the organization, external focus that leads to performance measurement of non-financial dimensions in addition to the financial ones, and flexibility on meeting budget results that gives more space to creativeness and new initiatives (Anthony et al., 2014).

2.2 A levers of control approach of MCS

An important vision of the MCS is the one depicted by Simons (1995), a professor at the Harvard Business School, who describes it through four levers of control in his book “Levers of Control: How Managers Use Innovative Control Systems to Drive Strategic Renewal”.

The aim of the book is to explain how business strategies are controlled by managers through four levers (belief systems, boundary systems, diagnostic control systems, and interactive control systems) that manage tensions inside the business by acting simultaneously.

Simons (1995) starts with a definition of control as the “formal, information-based routines and procedures managers use to maintain or alter patterns in organizational activities” (Simons, 1995, p.5).

Information-based systems means information that managers use to communicate strategies, goals to lower levels of the organization but also information that they receive from the bottom levels, that concerns new emerging threats and opportunities, and progress in the intended strategy. These information systems are used to affect organization activities by allowing both intended and emergent strategy to be implemented.

Then, Simons (1995) describes four aspects to be taken into consideration for a successful achievement of the strategy. He mentions core values, risks to be avoided, critical performance variables, and strategic uncertainties, each monitored by one of the four levers of control.

Belief systems, associated to core values, is used to guide and motivate the new opportunities search; boundary systems, linked to risks to be avoided, limit and restrict the search for opportunities; diagnostic control systems, used to manage critical performance variables, monitor and rewards the realization of specific objectives; interactive control systems, connected to strategic uncertainties, promote the learning process and the formation of new strategies.

While the belief and interactive control systems are viewed as positive forces, promoting opportunities and new development, boundary and diagnostic control systems are seen as negative ones because they encourage constraints and rules.

Only the simultaneous implementation of all the forces allows the control of the strategy, thanks to the counterbalance of all the tensions created in the organization.

2.2.1 Tensions to be controlled

Speaking of tensions to be managed inside the company, Simons (1995) identify three main reasons and topics around which tensions are created: the value creation in the organization, the strategy making process and the human behaviour.

Starting from the first dynamic, the aim of the organization is to create value by transforming opportunities in goods and services valued by the market. It is affected by the countless number of opportunities present among which managers have to choose, according to the resources and

capabilities available. Another variable that affects the creation of value is the organizational attention, that is the collocation of the ability to process information to a specific issue in the organization. Giving the fact that organizational attention is limited, and the objectives are numerous, it is necessary to allocate and use it in an efficient way (limitless opportunities vs scarce attention). The last element present in the creation of value is the maximization of the return on management by successfully employing the scarce attention for some most challenging opportunities, bypassing ordinary operations.

Moving to the second topic that create tension inside the organization, the analysis dealt with the process of making strategy. The common basic strategic process is a top-down hierarchical process to implement intended, planned strategy through formal instruments; here MCS is utilized only to monitor the progress of the strategy, and eventually to take remedial actions. An alternative strategic process involves the implementation of an emergent strategy not previously planned by top management, coming from new opportunities. It can arise from all levels of the organization, following also a bottom-up approach. Despite the evident differences between the two approaches, intended and emergent strategic processes can coexist in an organization, and the control systems have to balance the tension (intended strategy vs emergent strategy) that can arise from this dynamic.

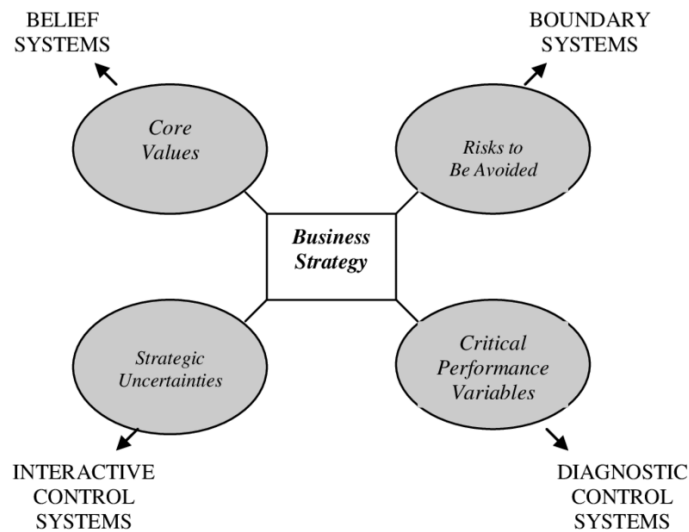
Last, the third aspect that create tensions is the human behaviour, affected by the working and social interaction in addition to the financial incentives and self-interest. The objective is to balance the contrasting views of how people behave inside the organization (self-interest vs contributing behaviour) considering both the basic innate characteristics but also rules, pressures, commitments, and other factors that influence the orientation of the behaviour.

All those tensions mentioned above have to be balanced and managed in order to allow the strategy to be controlled. To do so, the MCS, declined through the four levers of control, acts in order to deal with the general conflicting question between innovation and goal efficiency shared among all the three dynamics.

Next step is to define and explain all the four levers of control: belief, boundaries, diagnostic control, and interactive control systems.

Figure 1. Levers of Control. *Source: Simons, 1995, p.7*

Figure 2. Levers of Control. Source: *Simons, 1995, p.7*



2.2.2 Belief and boundary systems

The first two levers are used to approach the strategic concern by focusing on the management of opportunities: from one side belief systems encourage the search for new opportunities while boundaries restrict and limit the opportunities field.

Belief systems is formed by all those definitions and statements that are used by managers of the organization to communicate core values, purposes, aims of the company reflected in the strategy that guide and direct the actions and behaviours within the firm.

The belief system is reported through a formal communication such as mission, credos, and statement of purpose.

The aim of the belief control systems is to find and solve problems related to the strategy implementation; in addition, it also encourages people to search for new opportunities in order to create value, by ensuring that individuals understand the direction and the purposes of the company, and by giving the organization stable values in a constantly changing environment.

The necessity to understand the organization direction is fundamental for people inside the company to understand how to contribute to the final goal and to give new ideas and proposals, in addition to the motivation it gives them in searching for new opportunities.

As said before, belief system is used to give the direction of the organization and core values that belong to it, but it cannot be utilized as a tool for performance measurement because too vague and not so concrete.

The next lever is the boundary control system that defines the range of activities for individuals who operates into the organization.

The aim of this lever is to frame the search for opportunities by imposing limits, after having considered the risk to be avoided by the firm. What people do in the organization is to find ways to exploit new opportunities for the value creation or the resolution of certain issues.

It is true that what managers know about problems and opportunities is surely less than what employees dealt with; for that reason, when managers dictate how to search for opportunities, they reduce the possibility of creation of new solutions and value from individuals.

On the other side, the boundary system is necessary to avoid individuals to waste resources and energies by focusing on new opportunities that are not in line with the purpose of the organization.

For that reason, managers have to define boundaries within which employees have to create value and decide in which opportunities area they should not act, thus limiting their possibility of action, expressing the limitation in negative statements.

The restriction of the area of action allows the organization to be more flexible and encourage managers to delegate more decisions and to give employees more freedom of innovation.

The combination of belief and boundary systems allows to exploit new opportunities coming from an illimited opportunity space in a restricted area where to focus efforts.

Going deeply in the boundary system, two types of boundaries can be identified: business conduct boundaries and strategic boundaries.

Business conduct boundaries dictate the codes of conduct, coming from the laws of the society, the belief system, and the codes of behaviour. The codes of conduct are created to protect the company from risks connected to the business strategies, in a situation of uncertainty of the external environment and low internal trust. The codes of conduct have the role to define what is the shared behaviour accepted by the firm, to avoid situations of self-interest conducts or behaviours that are not in line with managers will.

Strategic boundaries frame the search activity for new opportunities, limiting the opportunities' domain where managers don't want employees to waste resources. They are set when the

unlimited search for new opportunities only disperses energy and resources, and a focused search activity is preferred.

Linked to the boundary system, in order to ensure people to follow the limits imposed, an incentive system, mainly made of punishment and sanctions for people who don't respect the boundaries accepted and defined by the organization is present.

Even if the boundary systems are for nature constraining and limiting systems, the positive meaning they have for organizational individuals is the freedom of action in a specific frame, and the possibility to enforce the rules with superiors when improper behaviour is used.

2.2.3 Diagnostic control systems

The third lever of control analysed are the diagnostic control systems. They are used to effectively implement intended strategies in order to assure the attainment of the organization goals. Thus, they record and monitor performances in a formal way, and deal with deviations from standards. In addition to the attainment of the planned strategy, diagnostic control systems help managers to conserve attention and focus the scarce resource over issues where deviations from standards are significant.

The main characteristics diagnostic control systems have, are the following: the capacity to measure the performances, the ability to compare those outputs with standards, and the capability to adjust the deviations from the results expected.

Product or services processes are used to transform input into valuable output that are subsequently compared with performances expected and adjusted in case of discrepancies.

The main tools used as diagnostic control are budgets and profit plans.

An alternative of the control over final results as the one accomplished by the diagnostic control is the supervision of the transformation processes starting from inputs or the inputs themselves. By intervening over the processes, managers introduce standardization when they indicate how activities should be carried out and ensure that people follow instructions. Another possibility is to directly act over inputs and choose them so that activities in the transformation processes are done as expected.

The solution proposed have some limits that make the diagnostic control over outputs the preferred system. Control over the processes that means standardization, leads to a reduction of creativity and innovation while control over inputs is too expensive.

Given the monitoring task over outcomes as main activity of diagnostic control system and given the utilization of targets of planned strategies to check the adherence of the organization with strategies, diagnostic control is a key player in the implementation process of intended strategies. Talking about outcomes, the author refers to factors that are key for the success of the intended strategy and of the business itself. By analysing the strategy and the related objectives, it is possible to identify the “critical performance variables”, and consequently to measure them (ivi, p.63).

Once identified and measured the aforementioned variables, by focusing only on relevant variances, diagnostic control systems allow the achievement of objectives without the constant presence and involvement of management, but instead giving large autonomy to organizational individuals. The functioning of the diagnostic control based on goal measurement, feedback, rewards, and variation measurement guarantees the participants effort towards the organization goals without the constant surveillance of management.

In order to make the diagnostic control function, it has to present some specific characteristics. First, appropriate goals defined by managers and subordinates, with a proper system of rewards and incentives. Then, a second important feature is a periodic report that let managers to be updated. Last, an important feature of the diagnostic control is the ability to supervise the fulfilment of the goal for key performance variables and, in case of deviations, to take variables back to the target.

In order to satisfy those three characteristics, critical performance variables have to be well defined before the control process, easy to measure, and largely influenced by individuals in the organization.

Regarding goals, they are a tool to encourage the accomplishment of key performance variables. The identification of top-down defined goals allows to supervise the implementation of strategies through the attainment of specific objectives and the provision of necessary resources but also to visualize problems and analyse them.

Once defined specific goals, the diagnostic control system is required to measure actual performances and compare them to expected results in order to check if variances or errors are present and if so, it is demanded to take corrective actions.

An important variable that can help in the process of diagnostic control by motivating the individuals' behaviour is the incentive system, directly connected to performance measures.

Also, negative development of the diagnostic control system can emerge, including the choice of wrong variables to measure, the slack into goals that means the voluntary creation of easier target to reach, and the manipulation of the process to get higher rewards.

2.2.4 Interactive control systems

Last, the fourth lever of control are the interactive control systems.

In opposition to the diagnostic control systems, interactive control systems promote innovation, an active response and adaptation to opportunities and threats, allowing new emergent strategies to be created. Those systems are exploited in order to guide the process towards strategic renewal, passing through internal pressures to catch new opportunities and new strategic ideas coming from strategic uncertainties.

Defining what strategic uncertainties are, the author describes them as events and uncertainties tailored for each business and perceived by top managers, that can negatively affect the premises for the actual strategy.

Focusing on the uncertainties perceived, top managers want to be involved into subordinates' decisional processes and get the search process for new opportunities as a response to uncertainties started. This is possible thanks to dialogues through the company and information flow through all hierarchical levels.

Four characteristics define interactive control systems: the focused attention of top management on the information produced by the control system, the constant attention also from operating managers at all hierarchical levels, the comparison, discussion, and debate of data coming from the control system among the individuals of the organization and the aspect of continuous discussion and challenge of information and premises.

In order to encourage and guide the uprising of new emergent strategies from the bottom, interactive control systems act in the process that start from new ideas and actions, and through experimentation and thus learning it brings to new strategies.

Interactive control systems guide the process from the strategic vision of senior management to a new emergent strategy consolidated as business strategy, facing strategic uncertainties interactively and going through dialogue and learning. It focuses on the process that leads to the creation of a bottom-up strategy instead of monitoring final outcomes; during the process, it helps to reasonably allocate attention and analyse information of strategic uncertainties, then encourage the learning activity to reach a new strategic idea.

What is known about interactive control systems is that it is the way that tools are used that make them interactive or not, not the instruments themselves and the technical design features they present.

Here are presented the five characteristics for a control system to be utilized in an interactive manner: to have the future forecasting made in accordance with present information, to present comprehensive information, to be used from all managers included into hierarchical levels not only top managers, to start the revision of the action plan, and last, to gather information concerning how the strategy is affected by strategic uncertainties.

The next step is to think about which control systems to use in an interactive way, that vary from firm to firm according to some influence factors.

The variables in question are the technological dependence, the degree of regulation and protection, the complexity of the value chain, and the ease of tactical response.

When the company present an high technological dependence, the interactive control system focuses on the development of new technologies, otherwise, it focuses more on evolving customer needs; moving to the degree of regulation and protection, when it is high, the business focuses on the socio-political environment, otherwise it focuses more on competitive threats and opportunities; analysing the value chain complexity, the company uses accounting-based measures when the determinant is high, otherwise it uses input and output based measures; last, when it is easy to copy a tactics of a given competitor, the company use short planning horizon, while, on the contrary, when it is difficult to copy competitors' strategies, planning horizon used are longer.

Once identified which instruments are suitable to be used in an interactive way, the following choice is to decide how many systems to use interactively. The answer is usually a few or even one only, because of economic reasons, cognitive causes linked to an overload of information, and strategic reasons because of the limited attention and energy of managers not to be dissipated.

Moreover, senior managers have also the duty to change the interactive control systems in accordance with changes in the vision and in competitive market.

An important topic related to the interactive control is the incentive system. Here incentives are not connected with final results and pre-determined by an equation; on the contrary, incentives are determined in a subjective way, taking into consideration the contribution given to the control

systems. In doing so, it is possible to reward creativity and innovative ideas and promote the learning process within the organization, as long as senior managers who define the reward system have a deep knowledge of the business and the industry (Simons, 1995).

2.2.5 Four levers into operation

After describing the four levers, it is fundamental to explain, as briefly described at the beginning of the paragraph, how the four levers of control act in the strategy implementation process.

First thing to bear in mind is the combined effort of all the four levers in the strategy control and implementation. Thanks to the actions carried out by all the four levers together, they balance the positive and negative tensions, and create a proactive struggle between emergent innovation and planned goal achievement.

Looking at the different meanings of the strategy concept, each system recognises a specific definition of the term, and acts to impact on it.

Belief systems visualize the strategy as a perspective, referring to both planned and emergent strategies. The contribution they give is the motivation, direction, and guidance in line with the organizational vision in order to search for opportunities to actively achieve the defined mission.

Boundary systems focus on the meaning of strategy as a position, by ensuring that the realized strategies are accepted by the organization in terms of risks and market position and are not considered as a waste of energy and resources. This is possible by limiting the opportunity domain individuals act over.

Diagnostic control systems operate to ensure that intended strategies are effectively realized, starting from the concept of strategy as a plan, and working towards the realization of the planned goals. In fact, the focus of those system is the final output and results, in comparison with standards already planned of profit plans and performances.

Interactive control systems refer to the strategy definition of patterns of actions because they control the process of emergent strategies created, by guiding the opportunities search and the creative experimentation.

Thus, belief and interactive control systems encourage individuals within the organization to search for opportunities and creativeness, thanks to the learning process and information sharing promoted; they are considered as positive systems.

On the contrary, diagnostic control systems and boundary systems are viewed as negative systems that limit the opportunity domain and direct the managerial scarce attention.

When the well-known tension between innovation and efficiency bring to a profitable growth, control systems have reached its aim through the combination of control and learning, by pursuing both stability and change.

In the strategy implementing process, the four levers act also on the behavioural aspects of people inside the organization, by proposing valid solutions through management actions over the organizational blocks that limit the employees' desired attitudes.

First assumption of the human behaviour is the desire of contribution of individuals, but because of the uncertainty of purpose and the difficulty in understanding how to effectively contribute, belief systems come into play to communicate values and beliefs.

Then, a second characteristic of human behaviour is the desire to act in the right way, but, considering temptations within the business, boundary systems help to limit the behaviour accepted and define the rules.

Achievement is another orientation of individuals but here the difficult recognition of goals and the scarce availability of resources take over; in this case, diagnostic control systems help to solve the goal and resources issues.

Last, people have the boost to create, but they are often hindered by the organization lack of opportunities or fear of associated risks. Here, interactive control systems occur to promote opportunity experimentation, learning process and share of information (Simons, 2013).

2.3 The sustainability incorporation within the strategy through MCS

After having analysed the relationship between MCS and strategy, what the thesis wants to focus on is the entrance of the sustainability aspect in the business strategy, bearing in mind the involvement of MCS in the strategy implementation.

Many authors discussed the topic although this is a quite recent argument, constantly being updated and studied.

A first idea given by Epstein and Roy (2001) is that MCS to be appropriate should give not only feedback on financial performances but should also include information on both environmental and social impacts, sustainable ideas and actions, sustainable results, and stakeholders' responses.

Ball and Milne (2005) take into account five points developed by Otley to give an answer to the relationship between sustainability and managerial control framework.

Starting from the beginning, the first two points concern objectives identification and measurement in order to make the organization successful, and all the strategic processes and planned activities to enable it. Since the planning process of key success factor and future objectives, sustainability has to be taken into account and included in order to reach the new defined concept of success.

Next step is the setting of the level of performance and target to reach in order to implement sustainability actions. New accounting frameworks, report and control tools are focusing more on financial aspects than environmental and social ones. In order to introduce sustainability, also performance tools and accounting approaches need to be changed, by introducing for example ecological and social accounting. Consequently, new targets have to be set in order to make non-financial dimensions of the triple bottom line measurable.

Even in the rewards aspect of the MCS, some changes have to be made to adapt them to the new targets set.

It is necessary to revise the economic framework of incentivization or penalization, financial rewards enlarged but also the priorities and the system itself, taking into account the new environmental and social interests.

Last, informational flows concerning environmental and social dimensions are easily provided when individuals are able to move their knowledge on the issue from a personal context to the working one. The introduction of new accounting and control instruments that includes sustainability and the updating of organizational processes and activities also help to get the necessary environmental and social informational flows (Ball and Milne, 2005).

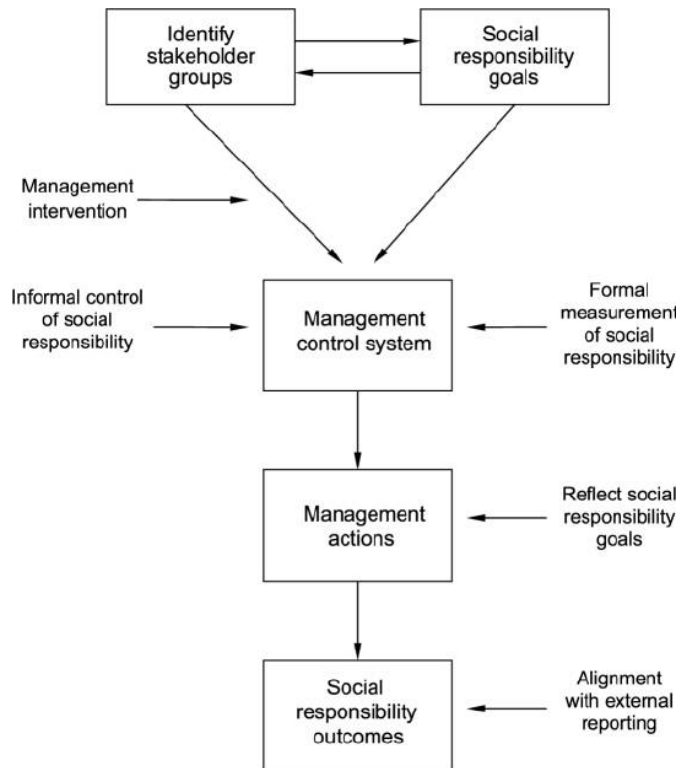
Durden (2007) in its research “Towards a socially responsible management control system” wants to provide a framework to combine MCS and social responsibility issues.

First important aspect he points out is the dual reason of the social responsibility issue: a legislative motivation for stakeholders and a managerial legitimation of the organization position towards stakeholders. In any case, both reasons are dedicated to stakeholders and the MCS takes part in operational processes that are based on stakeholders’ objectives and interests.

In order to include social responsibility in the strategy and influence it through the MCS, it is fundamental to incorporate also social responsibility goals and related measures, and to give guidelines on how to effectively use them to measure performances of social responsibility.

The research wants to propose a framework to move in the direction of a socially responsible MCS.

Figure 3. MCS and social responsibility framework. *Source: Durden, 2007, p. 687*



The framework includes a first identification of main stakeholders and social responsibility goals, defined in conjunction with the stakeholders from the perspective of the organizational needs but also in relation to the needs of stakeholders. Those mere descriptive features of the organization are then translated into practical actions in the MCS through formal and informal control of social responsibility. While formal control regards the measurement and monitoring of social responsibility issues, informal control deal with the inclusion of social responsibility in the organizational culture. Then the framework includes managerial actions guided by the control systems to reach the determined goals; in absence of inclusion of social responsibility in the MCS, also the management bypasses the social responsibility aspect, because of the missing link in the chain. Last component is the social responsibility outcomes that reflect how the determined

goals have been integrated with MCS, by leading to the expected results. In addition, what is generated through the socially responsible outcomes has to be in line with external reporting of social sustainability (Durden, 2007).

Moving to an article of Riccaboni and Leone (2009), the two aspects analysed are how the MCS help in the implementation process of sustainable strategies through both formal and informal control, and how it is adapted to make the process possible.

Once the sustainable strategy is determined, the next fundamental step is the identification of targets and objectives related to sustainability. Concerning the sustainable aspect, the study highlights the difference between environmental issues and social ones, the latter being more qualitative, subjective, and difficult to measure.

For the first point of the research, what emerges is the necessity to integrate the sustainable strategy with traditional systems of planning and control, by focusing on sustainable issues as business activities.

The authors remind how it is important that both formal control for the monitoring and evaluation of performances and informal control for shaping the culture of the organization, work together to implement sustainable strategies. In that way it is possible to internalize sustainability in the planning process as well as in the structures of the organization and in the measurement of performances.

Regarding the changes that affect MCS to implement sustainable strategy, the study provides evidence of no drastic changes in the traditional way of planning and monitoring objectives. Instead, the adding value that allows the organization to implement sustainable strategy is the gradual integration of sustainability in the actions as well as in the values of the company (Riccaboni and Leone, 2009).

Further research conducted by Wijethilake, Munir and Appuhami (2017) studied how the organization answer to sustainability institutional pressures by using MCS. What the study explores is the types of institutional pressures that push the organization to look at sustainability, the answer given from the company to those pressures and the position and contribution of MCS in responding to sustainability implementation.

Focusing on the last point, analysing the usage of MCS for institutional pressures for sustainability, three main parts of MCS are identified.

Firstly, the sustainable objectives identification, that allows to adequately communicate the specific goals among individuals of the organization but also to external stakeholders; it is fundamental in order to allow the organization to effectively answer to pressures for sustainability, by reducing miscommunication and conflicts. To reach the objective identification, MCS act in the organization as sustainable internal structures and operational processes, planning tools and policies.

Then, the measurement and monitoring of sustainable performances and results, where MCS has the responsibility to make the organization reach the planned goals through proper operations and activities, considering all the time and budgetary limitations.

Last, the pressure towards the achievement of sustainable results through incentive and reward systems, linked to financial but also non-financial indicators (Wijethilake et al., 2017).

A 2017 article by Crutzen, published on the Journal of Cleaner Production, theorize the use of sustainability management controls, either formal or informal.

Sustainability management controls include all those systems and tools used by management, in a formal or informal way, to guarantee a correspondence between the sustainable goals and strategies of the organization and the attitudes and behaviours of employees.

The framework utilized is the one proposed by Malmi and Brown (2008) that considers not the single control systems but the MCS as a package of formal and informal systems and the linkages among the different components.

Analysing the formal sustainability control systems implemented in the research, the framework proposes four types of control packages to dealt with sustainability. The first two control systems, structure and cybernetic controls, concern the reporting process and the measurement of performances, taking into consideration information over sustainability within the organizational activities. The third control tool is about planning, divided between long term, by looking at sustainable plans and activities and the action planning control, a system focused more on the short-term sustainable actions implementation. Last, the fourth type of control concerns reward and compensation.

Moving to informal sustainable managerial controls, companies can present weak or strong informal controls that refers to cultural control. It helps to enhance understanding with reference to sustainability aims and to motivate employees in that direction (Crutzen et al., 2017).

Important research in the field is the one conducted by Gond et al. (2012) that studied the involvement and uses of sustainable control systems (SCS) and MCS over the sustainability implementation within the strategy. The framework proposes eight different configurations that differentiate for the degree of integration between SCS and MCS and for the diagnostic or interactive use of the control instruments; the purpose of each configuration is to represent possible ways to get a certain level of sustainability implementation within the strategy of the organization, depending on the degree of integration or marginalization between MCS and SCS and on their usage.

Starting from the study of the role and uses of MCS, referring to Simons (1995), the role of formal control over risks and opportunities in the process of strategy implementation is recognised. A distinction between diagnostic and interactive control systems that respectively act on intended and emergent strategies is taken up from Simons (1995). The difference lies in the way control systems affect the strategy implementation; diagnostic control helps in the realization of the intended strategy and the achievement of goals planned while interactive control pursues the formation of new emergent strategies through the evaluation of risks and opportunities and through the dialogue promoted within the organization.

Once specified the traditional role of MCS in the strategy implementation, the research highlights control systems more appropriate for the consideration of environmental and social aspects. In answering the new sustainability issues and embracing the needs of a wide range of stakeholders, sustainable control systems (SCS) has been developed. The difficulty now is in the interaction between MCS and SCS. To study the linkage between the two types of control systems, the author specifies three forms of integration: technical, organizational, and cognitive. Technical integration is related to the systems, activities, practices, and methodology of sustainability and management control. Organizational integration refers to the structure of the organization and the role of individuals in the control processes in a way that can or cannot be appropriate to link and partially overlap MCS and SCS. Cognitive integration refers to the level of sharing knowledge, discussing ideas, and finding a common standard framework. The characteristic of those three forms of integration between MCS and SCS is that they can co-exist within the organization, and the higher degree of overlapping of one dimension can leads to stronger connection in one or both the other dimensions, or can compensate the missing integration.

Eight different configurations have been identified according to the level of integration between MCS and SCS and to the diagnostic or interactive use of both the typology of control systems.

Once identified, the author expresses a qualitative evaluation for three variables taken into account: stability, frequency and triple bottom line dimension.

Figure 4. Configuring uses and integration of control systems. *Source: Gond et al., 2012*

		USES OF CONTROL SYSTEMS (DIAGNOSTIC VS. INTERACTIVE)			
		DIAGNOSTIC USE OF MCS		INTERACTIVE USE OF MCS	
		DIAGNOSTIC USE OF SCS	INTERACTIVE USE OF SCS	DIAGNOSTIC USE OF SCS	INTERACTIVE USE OF SCS
LEVEL OF CONTROL SYSTEMS INTEGRATION (COGNITIVE, ORGANIZATIONAL, TECHNICAL)	LOW <i>DECOUPLING</i>	Configuration A Dormant decoupled strategy Stability: Low Frequency: Low TBL: Low	Configuration B Strategy emergence through sustainability Stability: Medium Frequency: Low TBL: Medium	Configuration C Compliance-driven sustainability strategy Stability: High Frequency: High TBL: Medium	Configuration D Schizoid sustainability strategy Stability: Low Frequency: Medium TBL: High (short term)
	HIGH <i>TIGHT COUPLING</i>	Configuration E Dormant integrated strategy Stability: Low Frequency: Low TBL: Low	Configuration F Sustainability-driven organizational Strategy Stability: Low Frequency: Medium TBL: Medium	Configuration G Peripheral sustainability integration Stability: High Frequency: Medium TBL: Medium	Configuration H Integrated sustainability strategy Stability: High Frequency: Low TBL: High (long term)

The first configuration is named “dormant decoupled strategy”, characterized by a low level of integration between MCS and SCS considering technical, organizational, and cognitive dimension of integration and distinguished for a diagnostic use of both MCS and SCS. It emerges a concurrent control system for management and sustainability that implies a static behaviour towards any new strategic change, including sustainable issues. The missing element here is the lack of a future vision. According to the three dimensions analysed, the configuration in question presents a low stability because it tend to be a temporary condition for organizations in a sense that make it move towards another configuration or otherwise push it out of the business; for that reason it brings also a low frequency, limited to some periods of the company and last, it presents a low development level of the triple bottom line, showing difficulties in simultaneously managing environmental, social and economic issues.

The configuration B is called “strategy emergence through sustainability” and it is characterized, as the precedent configuration, by a low level of integration between MCS and SCS, a diagnostic use of MCS but an interactive use of SCS. It represents an evolution with respect to the precedent configuration because, even if the control systems are not integrated, the SCS is used to

implement a sustainability strategy. The strategic renewal is pursued through sustainability in a static and dormant context. In the end it emerges a medium stability and attainment of the triple bottom line and a low frequency of utilization.

The third configuration is the “compliance driven sustainability strategy”. Unlike the previous model, the MCS is the main control system that affects the strategy, and it is used interactively while SCS is used diagnostically because sustainability issues are not the focus of the organizational strategy. For that reason, the organization presents a high level of stability. The lack of integration remains, so sustainability aspects are not included in the main business of the company, and they are managed by a diagnostic control; this points out the low level of triple bottom line dimension.

The last configuration characterized by a low level of integration between MCS and SCS is the “schizoid sustainability strategy” that differentiates from the other three for the interactive use of both the control systems. In this unusual configuration, both sustainable strategies and conventional ones are simultaneously implemented through SCS and MCS. Looking at the three dimensions, it is defined as a configuration of medium frequency, low stability because of the possible use in a temporary situation to reach a sustainability organizational change and finally a high level of triple bottom line maintained in the short-term.

From now on, the following configurations are characterized by a high level of integration between MCS and SCS in technical, organizational, and cognitive aspects.

The next configuration is the “dormant integrated strategy” characterized by a diagnostic use of both MCS and SCS; in fact, even if the two systems are well-coordinated, this does not mean that they are necessary exploited for strategy implementation. This model is similar to the first configuration depicted because of low frequency, stability and triple bottom line dimensions. The only exception are the coupled control systems that make the configuration move more easily towards a configuration with sustainability implementation from one of the control systems.

Then we have the “sustainability driven strategy” in which MCS is diagnostically used while SCS guide the sustainability strategy implementation in an interactive way. Stability and frequency of this model are both intermediate because of the transitoriness feature within organizations. Regarding the triple bottom line dimension, it is also medium because of the well-

performing social and environmental results it may lead to but also for the difficulties in the financial aspect.

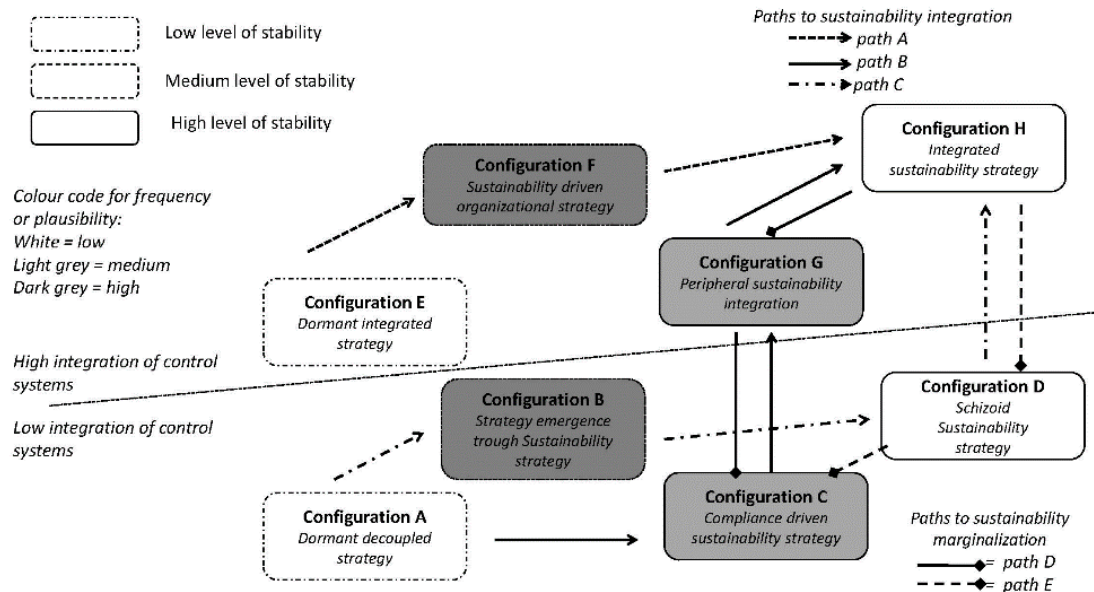
The “peripheral sustainability integration” configuration has the MCS that interactively act for the strategy deployment while SCS is diagnostically used. In this situation, sustainability is included as a constraint over strategy more than a new opportunity to guide strategy making process. Analysing the three dimensions, frequency is high while stability is at a medium grade. The triple bottom line performance is at a medium level because of a focused orientation towards financial performances at the expense of social and environmental results.

Last, “integrated sustainability strategy” is the optimal configuration, defined for the sustainability strategy implementation process guided by both the MCS and SCS that are interactively used and well-integrated. The sustainable strategy totally matches with the strategy-making, leading to a complete level of sustainability deployment. The performance level of triple bottom line is high because of the simultaneous focus on social, environmental, and financial dimensions. Stability is high because of the mutual support between sustainability strategy and managerial one, but frequency is low, because it represents a rare empirical model.

As described before, the aim of those ideal configurations is to frame some types of relationship between control systems and strategy implementation, in particular sustainability strategy, and the shift of the organization from one model to another. Some routes towards sustainability integration within strategy have been identified, considering the diagnostic-interactive use moves and the low a-high integration shift. By referring to the first mechanism, it can shift the control systems from a diagnostic to an interactive use to renew the managerial strategy in case of MCS or to implement a sustainability strategy in case of SCS; it brings a positive effect over the triple bottom line dimension anyway. On the contrary, the mechanism can also move the control systems from an interactive use to a diagnostic one, by demobilizing its utilization. The second mechanism affecting the sustainability integration paths concerns the level of coupling between MCS and SCS, including organizational, technical, and cognitive integration that can shift from a low to high level in order to facilitate the sustainability inclusion in the strategy making process or vice-versa.

By simultaneously considering the two mechanisms, three paths to depict sustainability integration within the organizational strategy are highlighted in the research.

Figure 5. Exploring paths to sustainability integration. *Source: Gond et al., 2012*



A first route the organization can run over starts from the “dormant integrated strategy” to move to a “sustainability driven strategy” to reach in the end a “integrated sustainability strategy”. In all the three configurations MCS and SCS are well-integrated, the usage of the control systems changes from a dominant to an interactive use firstly with reference to SCS, then also in relation to MCS. In that situation, the organization focuses on a sustainability strategy first and then it also combines the integration of the managerial strategy in order to lead to an improvement of the triple bottom line.

A second option of sustainability implementation process starts from the “dormant decoupled strategy” to “compliance driven sustainability strategy”, both with a low level of integration between control systems; then it moves to “peripheral sustainability integration” and finally to “integrated sustainability strategy”, both characterized by a high integration level between control systems. The starting point here is different with respect to the first path: first the company moves the MCS to exploit it in an interactive way in order to renew the organizational strategy while utilising SCS diagnostically. By maintaining the same usage of control systems, the enhancement of the level of coupling between MCS and SCS allows the organization to go through a sustainability integration that is finally reached with the last step, when also SCS is mobilized.

The third path presented has the same starting and ending point of the previous one, starting from “dormant decoupled strategy”, passing through “strategy emergence through sustainability” and

“schizoid sustainability strategy “, and ending with the “integrated sustainability strategy”. With the mobilization of SCS the organization introduce the focus over sustainability strategy, then the mobilization of MCS lead to the organizational strategy making process, still separated to the sustainability strategy for the low level of integration of the two control systems. The last step, indeed, push the organization to the ideal configuration in which both the control systems are mobilized but also integrated to jointly work on the organizational strategic objectives.

What emerges in the end is the combined importance of the usage of control systems with the integration between MCS and SCS to reach a renew in the organizational strategy that includes sustainability as a long-term goal (Gond et al., 2012).

Another important literature contribution on the argument comes from research of Arjalies and Mundy (2013). The study proposes an explanation of the use of MCS described through Simons’ levers of control to act over CSR strategy. Thanks to the simultaneous utilization of diagnostic and interactive control systems to achieve both planned and emergent strategies and beliefs and boundaries systems to manage new opportunities and threats, the MCS is able to influence the strategy-making process and in particular the attainment of the CSR strategy. Each of the four levers of control implemented is useful for the deployment of a CSR strategy. Starting from belief systems, they are used for the communication of sustainable values and objectives within the organization and to guide the search for new opportunities in the desired direction. Boundaries systems delineate an opportunities’ frame to limit risks in the achievement of sustainability goals. Moving to diagnostic control systems, it is useful in the CSR goals achievement by giving the possibility to monitor the progresses done and, in case of variances from the expected results, to adjust actions. Last, interactive control systems are fundamental in the CSR strategy-making process because they allow to manage new opportunities, uncertainties and risks that arise with a new strategy creation or renewal.

From the empirical study, it emerges that belief systems contributes keep CRS strategy up with organizational strategy. Boundary systems are involved in the definition of the action frame with respect to CSR plans and goal. The implementation of the diagnostic control systems involves proper CRS indicators to report and compare and an appropriate reward system. Interactive control systems favour the management of risks and uncertainties and the deployment of new opportunities coming from the emerging of a new CSR strategy (Arjalies and Mundy, 2013).

This paragraph concludes the analysis of an equation in which MCS represent the middle term between strategy and sustainability and each element has been individually analysed before exploring the interconnections among the different components.

This is a theoretical view of the involvement of sustainability actions within the organizational strategy through MCS. Many different frameworks have been developed to introduce the sustainability dimension and to manage the process with the support of different uses and typologies of control systems. In the following chapters, after a brief explanation of the research method, a more concrete analysis over the issue is presented.

3. Research method

The purpose of this chapter is to analyse how the research has been conducted and what methodology has brought to the discussion proposed and the results obtained.

In this section an introduction over the qualitative analysis as the approach utilized to conduct the study is presented and then a brief description of how data has been collected and subsequently analysed is provided.

3.1 Qualitative analysis

From the literature analysed, the research process is developed differently according to the approach of research implemented.

Three typologies of approaches are possible in this field: qualitative, quantitative, and mixed methods. The approach selected reflects the decision in three different aspects: the philosophical view of the researcher, the research design, and the research method.

We are now focusing on the qualitative approach that determine a qualitative design and a qualitative method.

The qualitative design includes five sub-categories that represent procedures to guide qualitative studies; they are narrative research and phenomenological research, both based on the study of individuals from researchers; grounded theory and case studies, that find concreteness in the research over activities and events; ethnography that involves the study of individuals' behaviour.

Moving to the research method, it makes the research process articulate of many steps that can be simultaneously or sequentially accomplished. They mainly involve an initial phase of data collection, an analysis of information collected and an interpretation of them. According to the research approach deployed, qualitative, quantitative, or mixed, the elements of the research process unfold in different ways.

In the qualitative method, the role of the researcher is personally involved in the relationship with collected and analysed information and with participants engaged in. This implies a certain influence from backgrounds and experiences of the researcher but also from the relation with participants and research sites, over the guidance of the study and over the interpretations of information collected.

First step in the research method is the data collection phase that involves many activities to give a framework to the study.

First of all, sampling activity and recruitment to select individuals and sites for the research, depending on the typology of research design implemented; then the actual collection of multiple sources of qualitative data through observations the researcher write down at the research site, interviews with participants that can be conducted in person, by phone or in group, documents, public or private, audio-visual and digital materials, including web pages, e-mails, photographs, social media contents; last, establish how to record information collected that can be reported through an observational protocol to keep track of information when observed or a qualitative interview protocol to note answers to the questions proposed.

Then, data analysis is a key step. It is not sequentially after the data collection as in the quantitative approach, instead it is concomitant with the other two steps of the qualitative research method, data collection and interpretation. An important activity concerning the analysis is the selection of most important information and the neglect of some superabundant data. Another relevant task is to organize and code data, by hand or through a computer program.

Four phases characterize the data process analysis: the organization and preparation of data, a look over all the information collected, the coding of all the data, the establishment of a description and themes with reference to the information gathered, the representation of the description and themes according to the research design implemented.

Finally, the qualitative interpretation of data. It concerns the summary of the overall outcomes, the comparison of those findings to the literature, a personal and subjective interpretation of the findings, limitations and weaknesses in the present research and suggestion for future studies.

After the research process has been conducted, an important element is to state the validity and reliability of the findings achieved through the qualitative process utilized. Talking about validity, it concerns the procedures to deploy in order to reach certain accurate results and findings; moving to qualitative reliability, it is about the consistency of the approach employed with different researchers and studies (Creswell, 2017).

3.2 Data collection

The approach that has been utilized is the qualitative one.

Data collection phase has been developed through qualitative interviews, partially conducted through videocall, partially through email written questionnaire. In addition to the responses received, other sources of data have been collected from website, documents including historical

reports, sustainability information, strategic plan, in order to triangulate and enrich the confidence in the findings.

The advantages of this typology of data collection are represented by the possibility to guide questions of the interview or the questionnaire and the possibility to gather also past information from participants that are not directly observed in their present behaviour, but they are asked some specific questions.

On the contrary, the disadvantages of this methodology are represented by the possibility of questions to be affected by biases from the researcher or answers to be influenced by subjectivity of respondents.

The study has been carried out on a sample of 18 Italian companies, between September and November 2021. The choice of the sample has been limited to the Italian territory, considering size and typology. 50 million Euros turnover was the minimum threshold, in a cluster of manufacturing and services companies. The starting point of the cluster was a list of firms with some specific attention to the sustainability theme, because of the presence of B Corp certification, ISO 14001 certification or SA 8000 certification and coming from a ranking created by Statista in collaboration with Il Sole 24 Ore named “Sustainability Leader” that present the 150 Italian most sustainable companies²⁰. A sample with the characteristics mentioned before has been selected as respondent to the questions proposed.

The companies were then contacted through email, by a specific contact dedicated to sustainability or to thesis project when it was available or through personal contact when present; for the remaining companies, a general information email contact was the reference point to be in contact with the responsible figure. Different figures have been interviewed according to the respondent firm.

In the table below some data on the interviews are summarized: the business area of the company, the first contact, the figure requested, the typology of interview or questionnaire, the duration in case of interview.

²⁰ <https://lab24.ilsole24ore.com/leader-della-sostenibilita-2021/>

Table 1. Information related to the interviews.

COMPAN Y	BUSINESS SECTOR	FIRST CONTACT	FIGURE INVOLVED	INTERVIEW/ QUESTIONNA IRE	DURATION
1	fashion and luxury	Info email contact	HR Director	Interview	45 min
2	textile	University email contact	HR Director	questionnaire	
3	manufacturing	CEO	CEO	questionnaire	
4	manufacturing	executive assistant	CEO	Interview	30 min
5	food and beverage	Info email contact	Finance and Operation manager	questionnaire	
6	food and beverage	Info email contact	CSR Manager	questionnaire	
7	manufacturing	Financial Planning and Analysis Specialist	CSR Manager	questionnaire	
8	energy	ESG Director	ESG Director	Interview	45 min
9	food and beverage	Info email contact	HR Director	questionnaire	

10	healthcare	Info email contact	CSR Director	Interview	30 min
11	food and beverage	Sales manager	Quality, Health, Safety and Environment manager	questionnaire	
12	textile	Production manager	Production manager	questionnaire	
13	food and beverage	Info email contact	HR Director	questionnaire	
14	chemical	Info email contact	Corporate Environmental Sustainability Manager	Interview	1h
15	fashion and luxury	University email contact	CSR Manager	questionnaire	
16	food and beverage	Info email contact	CSR Manager	questionnaire	
17	energy	CSR Manager	CSR Manager	questionnaire	
18	food and beverage	CEO	Quality, Health, Safety and Environment Manager	questionnaire	

Because of specific request made by the companies interviewed, some questionnaires were substituted with videocall semi-structured interviews that followed the questionnaire track.

For this reason, in presenting the questions' protocol utilized, interviews and questionnaires are grouped together.

The questions of the questionnaire/interviews were structured keeping in mind the final goal of the research. Given the aim of digging into the sustainability implementation of the companies through the MCS explicated through the levers of control, the logic of the questions was to investigate those four levers in the relationship with the business strategy.

Except for the initial question made to know the general reason why the sample of the companies have decided to pay attention to sustainability, the formulation of the remaining questions was structured to reflect the support of the MCS in: managing the critical performance variables of sustainability strategy, by analysing the sustainable objectives definition process, the method and tools for the measurement of sustainability performances and the relationship between the sustainability performances and the reward system; dealing with uncertainties and new opportunities coming up with the implementation of sustainability actions into the strategy, analysed through the knowledge of how the strategic decisions are influenced by the sustainability information and the stakeholders involved; communicating sustainability values and goals within the company and coping with the risks that arise with the sustainability introduction into the strategy.

Here the questions are proposed in a schematic way.

Table 2. Questionnaire framework.

- Reasons for the company's attention towards sustainability
- Process of communication of sustainability values and objectives within the company
- Sustainability objectives/responsibilities definition process
- Measurement and evaluation method of sustainability performances
- Tool implemented for the sustainability results measurement
- Link between sustainability goals and remuneration and incentive systems
- Connection between sustainability information and decision-making
- Stakeholders' involvement in the definition of sustainability objectives

3.3 Data analysis

The aim of the questions proposed was to investigate the four levers of control in each of the sampling companies to get an analysis of the sustainability implementation through them.

Eight open questions related to the management of sustainability have been structured in this regard, by digging into four aspects related to the MCS.

The materials collected, notes of the interviews and questionnaire replies were first compared with other sources of information as company website, documents including strategic plan, historical sustainability report and non-financial disclosure when available, to give more validity to information gained.

Then, data were hand coded into four key themes that reflect the Simons' levers of control. Once coded, the results were reported in chronological order, following the sequence of the four themes, and then translated into English.

The letter A was used to code the first generic question proposed to understand the reasons why companies have focused their attention on the issues of sustainability. Then the remaining questions were coded according to the four key aspects of the levers of control, by exploiting sometimes the same question for more than one theme.

The diagnostic control system was coded with the letter B that was attributed to the questions number 3, 4, 5 and 7 that were used to analyse how the critical performance variables concerning sustainability were managed.

Then, in order to study the strategic uncertainties and opportunities through the interactive control system, the letter C was assigned to questions 6 and 8.

To analyse the communication of the companies' sustainability information through the belief systems, the letter D was ascribed to the second question of the survey and the last aspect of the boundary systems was analysed through the questions number 2,3 and 8 which the letter E was given.

Once all the questions of each questionnaire were coded with one or more letters, they were grouped according to the code in a chronological order and then used to study the reference aspect.

4. Data

The chapter intends to look at the responses collected, summing them up for each question proposed and then it intends to give an interpretation from the perspective of the four levers of control.

4.1 Findings

Analysing each question individually, it is possible to compare the answers given by different companies that complete an overall view over the integration of sustainability within each of them.

Starting from the beginning, the first question was formulated to investigate the different reasons why the companies sampled have decided to pay attention to the sustainability aspect, given for granted their efforts and commitments towards sustainability actions because of the intrinsic value in the sample choice itself, then also corroborated.

One reason in common with all the companies interviewed is the creation of value in the long term, in particular shared value, and the maintenance of success and competitiveness in their own business. Another key motivation is represented by the obligation to be compliant with legislation, in particular for listed companies, including the organizational and management models. Considering the stakeholders' expectations, some companies pay attention to what concerns with sustainable actions because of internal stakeholders' requests, benefits to offer and better conditions to give but also because of market pressures that involves external expectancies from clients, suppliers and investors.

“...sustainability is for the company a key element in defining strategic and operative actions and a leverage for a sustainable growth in the long term: in few words, an important development driver for all the business areas. Sustainability also represents an urgent request coming from the legislative context and from all the stakeholders, especially investors.”
Company 17

Other aspects that have been mentioned from the respondents as reasons that move towards sustainability are the improvement of the company image and brand reputation and the enhanced ability to attract people with the proper skills.

What has been highlighted by some companies is the aspect of the sustainability as intrinsic feature in the business culture and beliefs, coming from the intention and determination of the chairman first and from the employees' will as second step. Connected to this last reason, the sustainability intrinsic culture as foundation for the strategic plan: starting from an idea and a choice, moving into the strategy.

The second question was offered in order to examine the process of communication of sustainable values and aims implemented within the company to understand the sustainable direction that affect the business strategy. By analysing the answers given, in addition to informal instruments like word-of-mouth and verbal confrontation, many companies utilize more formal instruments.

The communication process often follows a top-down approach because it is initiated by the top management sometimes supported by a sustainability dedicated team or committee; some tools internally used includes sustainable policies and formal plans with future sustainable goals to share with certain levels of employees, corporate bulletin boards, newsletters, periodic meetings, webinar and information emails addressed to employees.

“Within the company, values and goals related to the sustainability strategy are communicated mainly through:

-internal communication (newsletter, ad hoc publications, website communications, corporate bulletin boards)

-annual sustainability report, in which a particular section is dedicated to goals of the following three years, for each stakeholders involved

-meeting with heads of departments” Company 9

An important resource for all workers is the employees training in the sustainable direction but also many sustainable activities and projects addressed to both internal and external stakeholders that allow the companies to communicate their values.

Talking about all the stakeholders including external stakeholders' communication, also annual sustainability report when drafted, company reports as the non-financial disclosure, strategic plan and codes of conduct have to be mentioned.

With reference to the time we are living in, the company website and all the social media channels are widely used as communication instruments.

Moving to the third question proposed, the research concerns the process of determination of sustainable objectives and responsibilities.

In some responses it emerges that it is not about a formal process of definition of objectives, but it is an integral part of the business philosophy.

Most of the respondents claim that the process begins from the Board of Directors and top management that define the sustainable objectives according to the materiality matrix that takes into account internal and external stakeholders' suggestions, according to the KPI measurement and the peer evaluation and best-in-class comparison in the business sector.

The definition of the objectives sometimes begins from a sustainable dedicated team or committee composed by members from different business area in order to be able to talk with the several business function. The sustainability plan proposal coming from that group is approved by the BoD in the end.

“The sustainability team with managers of the relevant functions identifies the improvement areas and dedicated projects and it develops a proposal of sustainability plan... The drafted plan is then submitted to the Strategic Committee that analyse the whole content and the feasibility. In the end the plan is evaluated by the Control, Risks and Sustainability Committee that verify the coherence with the business strategy and express an opinion to the Board of Director that has the formal approval.” Company 15

And despite the top-down approach in the definition process, employees are often involved in the sustainable objectives' formulation through internal meeting and round tables to bring out new ideas in view of continuous improvement process. In this perspective, objectives are sometimes better delineated, confirmed and tested during the whole process, going through the actual implementation. In case of corporate groups, objectives of the parent company are firstly defined, and they are then declined for the subsidiaries, in order to guide them towards appropriate activities and measures to implement. It is not uncommon that also subsidiaries contribute to the sustainable goal definition for their branch.

The fourth question of the survey was formulated in order to dig into the actual measurement and evaluation of performances related to sustainability actions. The timing aspect of the performance measurement is different according to the company in question, mainly monthly, quarterly, or semi-annually, to ends up in an annual revision in view of the sustainability reporting document

drafted by most of the companies according to GRI standards. The formal way the performances are evaluated is by using specific indicators (KPI) and by monitoring the implementation of the courses of action defined.

“Sustainable performances are measured by KPI and action lines that define objectives. The reporting system is semi-annually presented to the ESG committee and to Control, Risks and Sustainability Committee, and it is annually approved by the BoD. The reporting system process is structured as follow: an information flow coming from the owners on the previously defined KPI to be compared with objectives planned; it is then communicated to the Control and Risks Committee that the KPI analysed is or is not in line with the goals and in case of a higher than 5-10% qualitative deviation action lines are defined.” Company 8

A point raised by one specific company claim that, except for the legal requirements of performance measurement, sustainable objectives are not monitored and evaluated because they are totally integrated in the business philosophy and intrinsic feature in the individuals' DNA that is not necessary to measure in order to impose some obligations. Few smaller companies have recently introduced sustainability goals and values and therefore they haven't adopted formal instrument yet.

Moving to the fifth question proposed, the intent was to clarify which are the tools practically implemented to measure results concerning sustainability objectives. Some bigger companies present a dedicated software capable of collecting and processing specific internal indicators that have to be approved and validated and that are then compared with the objectives planned and the past performances to evaluate the actual trend.

“Each plant must fill in a data collection form within the company management system which is quarterly illustrated to the central management for those factors that are more related to the environmental area. Other social activities are directly monitored through a continuous reporting to the member of the board in charge of these aspects. The collected data is then processed by using a specific program that allow to compare them with previous years performances and to monitor the actual trend in comparison with the planned objectives” Company 7

In absence of a specific software, indicators are defined anyway and collected through specific instruments like scorecards, flanked by spreadsheet programs. Other self-assessment instrument used to monitor sustainability results are tools that are defined to compare the performances with other businesses through an industry benchmark and be aware of the improvement actions needed.

Following the analysis over the sustainability goals, the next aspect that have been investigated is the link between sustainable objectives and remuneration systems, if any.

The respondents are divided between who considers sustainability results when deciding for remuneration and who doesn't. In some cases, in which the remuneration system is connected to the sustainability goals, only few figures are involved, including the CEO, the chairman, the top management and few others, and only a percentage of the variable compensation is affected; in others, most figures are involved but with different percentages.

“Since 2021 objectives related to sustainability have been introduced over a share of the variable remuneration for managerial figures, CEO and chairman” Company 1

A series of objective is defined to be monitored and reported in order to evaluate remuneration and incentives. For those who already has the sustainability goals included into the remuneration policy, the future goal is to integrate the sustainability indicators even more.

“In our company, reward systems are linked to economic sustainability indicators governed by our new remuneration policy. In the future, the company has the goal of integrating sustainability and financial indicators more and more, in order to acquire ah higher degree of awareness of their correlation.” Company 9

In 14 companies out of 20 there is no link between remuneration and incentives system and sustainability goals and actions; however, some of them are evaluating and studying the possibility to introduce them.

A further question was proposed to dig into the relationship between sustainability data and information and the decision-making process. Given that the strategic plan is at the basis of the sustainability actions, the aim of the question was to investigate how the sustainability information can affect following strategic and operative decisions. Many actions, investments and projects of the organizations are analysed also on the impact the three ESG (environmental, social

and governance) components has, once the sustainability aspect is introduced into the business strategy.

“Sustainability take a crucial role for the company when we think about new products. The aim is to produce more sustainable products considering all the aspects of sustainability when going through all the steps of the production process. Sustainability is also used for decision-making purposes when it is necessary to choose new partners and suppliers, when the company has to rethink systems and processing methods and for all those decisions in the short and long term that are useful to be consistent with the mission.” Company 16

This is made to put the right attention and effort over certain activities in order to make them be in line with the business philosophy that involves also sustainability and in order to evaluate also cost changes because of sustainability involvement.

Other characteristics the sustainability information give to the decision-making process are transparency and stakeholders' involvement. The ESG components are not only used to take new opportunities, but they are analysed also when considering risks.

“Part of the strategic decisions the company takes are affected by sustainability information. In addition, the company has a risk control framework (enterprise risk management) that works also with sustainability parameters. Some ESG information is viewed in terms of risks other than opportunities when taken into account for the decision-making process” Company 10

The last question has been useful to investigate the influence of internal stakeholders such as the managerial team, all the employees and the chief in the development process of sustainability objectives. Many of the company interviewed presents a recently introduced materiality matrix that includes suggestions of both internal and external stakeholders on the most relevant sustainable objectives through a survey.

“The company has introduced sustainable objectives into the strategic plan, by elaborating them through the materiality matrix. The material issues have been evaluated by a sample of internal (employees) and external (clients, suppliers, media, business partner, network) stakeholders through a survey” Company 5

In any case, all the companies involved in the research indirectly communicate with all the stakeholders in the attainment of sustainable objectives through annual audit received for example or through research made in partnership with them, even without the materiality matrix. This sustainability information is taken into account when planning and defining future sustainability objectives.

“To establish and maintain stable and lasting relationship is a key element to create long-term and shared value. By understanding the specific needs and priorities through dedicated functions, a proactive approach is pursued towards the plurality of interlocutors the company constantly interact with. It is particularly relevant for the years to come to put effort in rethinking new ways of communicating with the community in a more digital way.” Company 18

This is a summarizing table to highlight the answers collected for each question proposed that follow the chronological order of the eight aspects investigated.

Table 3. Questionnaire responses.

<p><i>Reasons for the company's attention towards sustainability</i></p>	<ul style="list-style-type: none"> ○ creation of shared value in the long term and maintenance of success and competitiveness in the business ○ compliance with legislation ○ stakeholders' expectations and market pressures ○ improvement of the company image and brand reputation ○ sustainability intrinsic feature in the business culture and beliefs
<p><i>Process of communication of sustainability values and objectives within the company</i></p>	<ul style="list-style-type: none"> ○ informal instruments: word-of-mouth and verbal confrontation ○ formal instruments: sustainable policies, formal plans, corporate bulletin boards, newsletters, periodic meetings, webinar, information emails, training, sustainable activities and projects, company reports, strategic plan, codes of conduct, website, social media ○ top-down approach usually
<p><i>Sustainability objectives/responsibilities definition process</i></p>	<ul style="list-style-type: none"> ○ sometimes not a formal process but integral part of the business philosophy ○ often top-down approach (BoD, top management) according to materiality matrix, KPI measurement and peer evaluation ○ starting point sometimes is a sustainable dedicated team or committee ○ employees often involved in the sustainable objectives' formulation through internal meeting and round tables
<p><i>Measurement and evaluation method of sustainability performances</i></p>	<ul style="list-style-type: none"> ○ timing: mainly monthly, quarterly, or semi-annually, to ends up in an annual revision ○ formal instruments to evaluate and monitor the implementation of the courses of action through specific indicators (KPI)

<p><i>Tool implemented for the sustainability results measurement</i></p>	<ul style="list-style-type: none"> ○ dedicated software capable of collecting and processing specific internal indicators then compared with objectives ○ specific instruments like scorecards, flanked by spreadsheet programs to define KPI ○ other self-assessment instrument to monitor sustainability results and to compare performances through an industry benchmark
<p><i>Link between sustainability goals and remuneration and incentive systems</i></p>	<ul style="list-style-type: none"> ○ In some cases, remuneration system connected to the sustainability goals, a variable number of figures involved, and only a percentage of the variable compensation affected ○ In other cases, no link between remuneration and incentives system and sustainability goals; however, future possibility to introduce them
<p><i>Connection between sustainability information and decision-making</i></p>	<ul style="list-style-type: none"> ○ actions, investments and projects analysed also on the impact the three ESG components has ○ transparency and stakeholders' involvement in the decision-making process brought by sustainability info. ○ ESG components not only used to take new opportunities but analysed also when considering risks.
<p><i>Stakeholders' involvement in the definition of sustainability objectives</i></p>	<ul style="list-style-type: none"> ○ materiality matrix with suggestions of internal and external stakeholders on the relevant sustainable objectives ○ communication with stakeholders in the attainment of sustainable objectives through annual audit received or research made in partnership with them

4.2 Discussion

The purpose of the following analysis is to deepen how the levers of control have been helped the sustainability strategy to implement in practice.

Independently from the reasons why all the companies in the sample have decided to deploy sustainability actions, it is visible from the data collected how different MCS, explained through the levers of control have helped sustainability to be included into the business strategy.

4.2.1 Critical performance variables handled by diagnostic control systems

What emerged from the conducted research is the utilization of the diagnostic control system as formal control mechanism to help the successful implementation of sustainable actions.

The starting point is the definition of clear sustainable objectives. They are a crucial phase in the implementation of the business strategy because they define where to focus. From the information gathered, it emerges that most of the times they are defined by using a top-down approach because of their origin from the BoD or the top management. Sometimes, objectives and actions are planned by sustainability dedicated committee or teams that have been nominated by the BoD which they refer to. In some companies interviewed, employees are also involved in the sustainable objectives' formulation through internal meeting and round tables in order to bring out new ideas from enriching discussions.

A key step is the identification of the key performance variables to define proper indicators that have to be kept under control in order to measure the company performances. The difficulty is to identify the right critic variables that determine the success or failure of the sustainability strategy and consequently the proper indicators that reflect those variables. Depending on the business involved and the life cycle of the company, different KPI belonging to all the three aspects of sustainability have been mentioned from the respondents. For example, the energy and water consumption, waste production, rate of recycled materials, reduction of environmental impact, customer satisfaction, gender gap over salary, training courses made, number of work-related accidents, improvement of social standards, sustainable supply chain, support for the local communities and so on.

Those KPI are monitored at specific time intervals, mainly monthly, quarterly, or semi-annually. The measurement of the performances is realized when the reported results are then compared with the objectives planned and in case of variances, corrective actions are taken.

The diagnostic system is based on a proper feedback mechanism of reporting of results to signal the substantial variances. The figures involved in the reporting mechanism are mainly ESG dedicated teams or committees or Control and Risk Committee, that support the activity of the BoD or directors of different functions. The tool mostly utilized by the companies is the annual reporting through the sustainability report or through the NFD drafted according the GRI standard. To allow the reporting mechanism of proper information, companies have specific software or tools to elaborate the KPI and collect data and to compare actual information with previous years' results in order to evaluate the trend. In addition, other performance management tools like scorecards and spreadsheet programs are implemented for the ESG performances and also tools that utilize industry benchmarks to monitor the actual performances.

By looking at the tailored reporting systems company have introduced for measuring sustainable activities, it is evident the importance the diagnostic systems have for the sustainability strategy implementation.

In addition to the clear definition of the objectives and performance measurement to make the systems work, it is also important the development of clear incentives that motivate employees in the attainment of the results.

From the information gathered, it emerges that only six company out of eighteen have introduced a connection between sustainability results and reward systems. Those companies pay attention to ESG factors in order to delineate the incentive and reward systems in the short and long term. According to the business and the company in questions, different indicators concerning the social, environmental and economic fields are considered like indexes for the accidents of employees, the increase in the value of sustainable financing, the reduction of emission, the gender diversity representation in the management, the improvement of the sustainability rating, the energy efficiency and so on. Depending on the policy utilized, the company involves some figures exposed to this incentive mechanism for a certain percentage (between 5% and 20% in the company analysed) of their variable compensation.

By looking at this aspect of the diagnostic systems, what emerges from data in the research is an uncomplete integration of the MCS to support the sustainability actions, given the high proportion of companies that have not included sustainable variables in the reward and compensation process yet.

A positive explanation of the actual reason why reward and incentive systems are not linked to some sustainable indicators has been given by one company of the sample selected that claim the

intrinsic linkage sustainability has with the business culture and values; for that reason, it is not necessary to reward it in order to be able to impose it within the company.

4.2.2 Strategic uncertainties and opportunities managed by interactive control systems

Because of the incomplete integration of the diagnostic control systems as said before, the introduction of the formal interactive control systems helps companies in the management of strategic uncertainties and contribute to bring out new emergent strategies, including those concerning sustainability.

As highlighted from the respondents, the ESG factors are analysed both when considering new opportunities to take but also when looking at risks that affect strategic decisions reflected over actions, projects and investments. This informative control mechanism is useful for the top management that communicate with lower hierarchical figures in order to be involved in their decisional processes and in order to be informed about new information and perceptions of changes that undermine the stability of the strategy.

As analysed in the last question of the survey, all the companies interviewed take into account the suggestions of internal stakeholders in order to achieve the sustainable objective, mainly through the materiality matrix that exploit a survey to collect advice for the formulation of future sustainable goals. The functioning of the interactive system is based on the induction of employees to ask questions in order to work towards the improvement of the business performances and success by perceiving threats and by seizing the opportunities. Other ways interactive systems are implemented are the organization of meetings and brainstorming, in which new sustainable information and ideas are collected and debated and sustainable objectives are revised to define the sustainability implementation plans. The contribution employees give through those tools is exploited to help in defining new sustainable objectives and coming up with new proposals.

The tools utilized are the same also used in the diagnostic control as informative systems, project management systems, reports, plans, but they are implemented in an interactive way, by fostering the discussion of the information with employees. The difference lies in the source of the information to produce that is known in the diagnostic systems while it is unknown in the interactive systems.

From the data collected, it emerges also an active participation of external stakeholders in the profiling of the sustainability actions. Their suggestions and opinions are also given through the materiality matrix and add new information to consider when discussing the sustainability implementation.

4.2.3 Core values communicated by belief systems

As informal systems that support the diagnostic and interactive control there are belief systems that express core values and beliefs of business companies.

The aim is to inform individuals about the sustainable intentions and foundations of the company and to verify the compatibility of behaviour with the company itself. It is a way to align employees will with the company mission and credo and to guide the behaviour of employees towards new opportunity seek directed to sustainability. The communication of values it is not aimed only at a simple statement of the strategic orientation, but it has to motivate employees towards the implementation of sustainability actions at operational level. At the end, the purpose of the company interviewed is to communicate their sustainable values and direction in a clear and resolute way and to provide a consistent plan in line with the sustainability strategy.

The ways in which values of the companies interviewed are communicated are formal tools as sustainable policies and formal plans with future sustainable goals, corporate bulletin boards, newsletters, periodic meetings, webinar and information emails addressed to employees, in addition to informal instruments like verbal confrontation and word-of-mouth. Another effective instrument used with regard to employees is the training activity concerning the sustainable aspect, but also sustainable project and activities that internally and externally communicate the direction of the companies. Other tools that have to be mentioned as promoters of the business beliefs are reports such as sustainability report, non-financial disclosure, strategic plan but also the company website and social media channels. The control is indirect because there is not information produced ex-post in order to monitor the projections done but the credo of the company is communicated ex-ante and aligned with the individuals' behaviour.

This system of control is implemented in highly competitive and dynamic contexts and in phases of strategic changes as in this case for the incorporation of sustainability into the business strategy, in order to stimulate a sense of belonging of employees.

4.2.4 Risks to be avoided managed by boundary systems

This last informal system is made of rules, limitations and boundaries that frame the area of sustainable intervention activities of employees.

In the companies those limitations and behavioural rules concerning sustainable initiatives are given by using codes of conducts, strategic plans, external guidelines to frame the research area of new opportunities related to sustainable actions and thus to limit the belief systems that pushes employees in the research of new opportunities to catch. Other tools, as for the communication of core values are the training courses and internal standards belonging to the company. They give employees instructions on how it is not appropriate to behave by limiting their freedom of action in order to be aligned with business strategy.

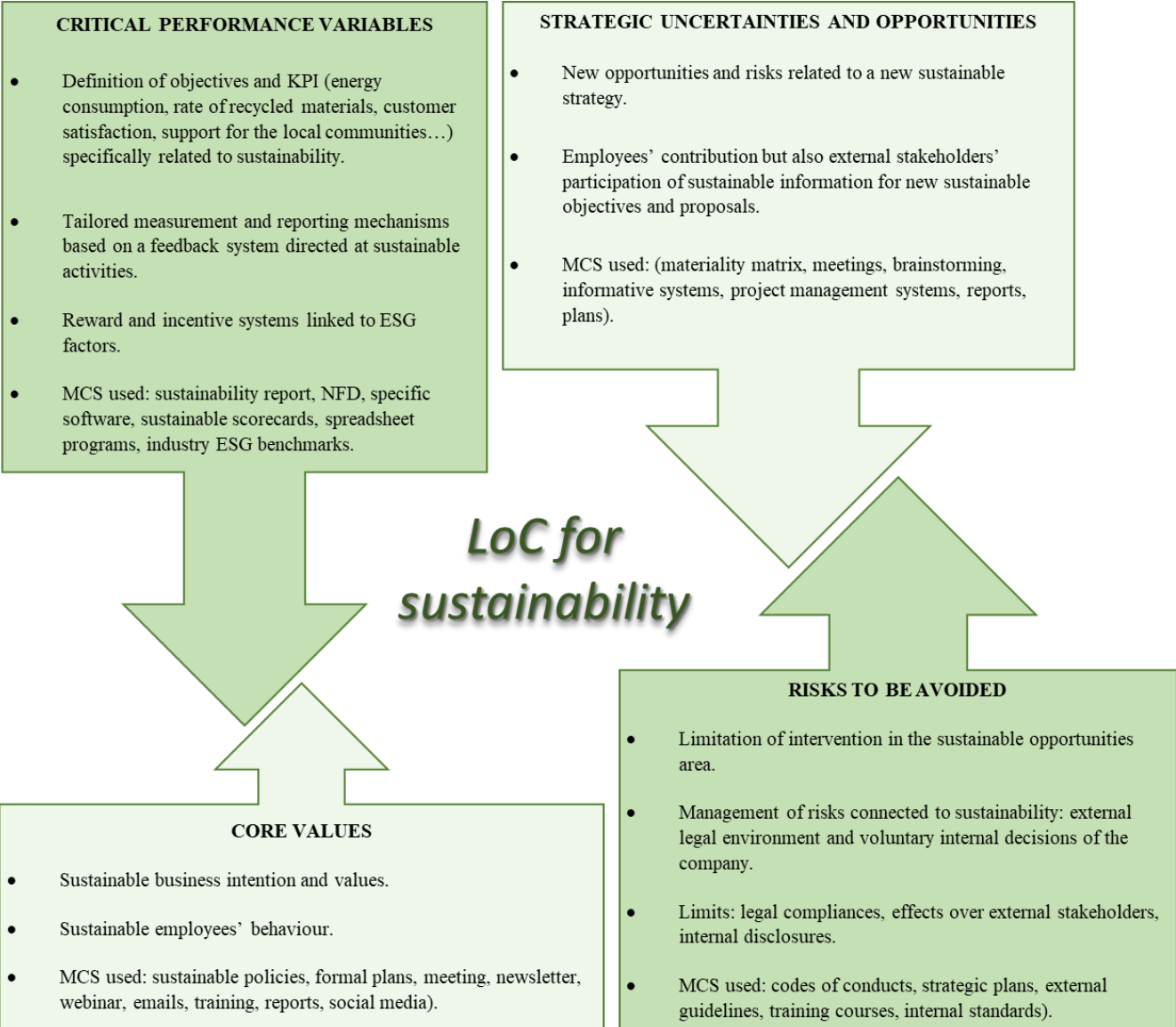
This type of informal control is used when there is high risk of dissipating resources and costs linked to the reputation of the company are high.

The set of limitations can come from the external legal environment or from the voluntary internal decisions of the company.

In the end, the aim of the boundary systems is to manage risks that companies incur when changing and reviewing the business strategy by introducing sustainability in this case.

The intervention of the boundary systems is thus connected to the definition of sustainable objectives and activities that are determined considering the properly mapped associated risks. As said before, the risks related to the integration of sustainability activities can be external and lead to limits such as legal compliances concerning the non-financial disclosure for example and consequences because of external stakeholders such as agreements with suppliers to allow a sustainable supply chain or some sustainable actions to be attractive for investors even more conscious of the ESG issues; on the other side, internal risks regarding sustainability actions concern employees' behaviour and results in limitations communicated by internal disclosures such as codes of conduct.

Figure 6. How the sampled companies utilize the levers of control (LoC) to manage sustainability actions.



5. Conclusion

What the paper has given to the existing literature is an insight into how MCS are used in different ways to manage the implementation of sustainability into the business strategy by affecting multiple aspects of the strategic and operational processes, regardless of the purposes behind the sustainability implementation.

First, an important impact is observed in the strategic and operational processes that involves performance measurement and reporting systems.

The influence of sustainability implementation starts from the very beginning with the strategic planning and definition of the objectives and actions to persecute; it then finds operativity in the delineation of proper KPI to measure sustainability aspects' performances and in the adapted reporting mechanisms with regards to the figures involved and the tools utilized.

A second point is focused on the management of uncertainties and opportunities that come up with the creation of the sustainability strategy. At strategic level, ESG factors are taken into account in the decision-making process that affect actions and business projects. In an operational dimension, it signifies the constant flow of information within all the hierarchical levels and with all the stakeholders through different formal and informal tools that make discussion to rise in order to define the sustainability implementation plans.

Another dimension regulated by MCS that influence sustainability strategy is what concerns values and beliefs of the companies; at operational level is translated into the motivation of employees towards sustainability in order to encourage actions in line with the sustainable strategy.

Last, considering a strategic dimension, MCS act to frame the opportunity area in which sustainable strategies find application and operate in order to manage the new emerging risks connected to the implementation of sustainability at strategic level. Moving to the operational aspect, the employment of MCS give a direction to the employees on how to behave in order to be in line with the sustainable business strategy.

The study proposed is thus limited in some aspects that can be further explored. For example, a first characteristic that can be changed in future studies is the research method, here focused on a qualitative approach proposed through structured questionnaires and interviews. The reference subject for each company in the data collection also limits future research that can involve more than one figure for each company and particularly individuals from different business functions.

Other two aspects that can be expanded are the reference geographic area, limited to the Italian territory and the dimension of the sampled companies.

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