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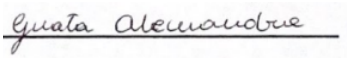
Firma (signature) 

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ABSTRACT

The impact of companies on sustainability is a trending topic in today's social environment. The agenda of every formal governmental meeting is addressing this issue and most citizens are becoming more aware of the consequences we will go towards if we do not take action now. Recent studies have shown that when talking about corporate pollution, the majority of the environmental and social damages are originated from entire value chains, rather than just from the leading multinationals that drive the operations. For this reason and due to the fact that value chains are becoming more and more disperse globally, it is relevant to focus on the development of Global Value Chains. In particular, the following thesis is focused on understanding what lies behind one of the most dynamic and controverse industries, namely the food and beverage one and to try to individuate a complete set of actions that food and beverage companies can adopt on order to be socially, economically and environmentally more sustainable. The research question that I will address later on in the empirical part of the thesis is focused on analyzing the ability of food companies to spread their sustainability actions downstream, towards their suppliers, creating a cascading effect; this analysis was conducted through the interpretation of the Corporate Information Transparency index (CITI) that is an index that lists several companies belonging to different industries and gives them a score from 0 to 100 based on their ability to positively influence the behavior of their suppliers in terms of sustainability and the Corporate Climate Action Transparency Index (CATI), that assess the performance of firms on corporate and value chain climate action performance.

CHAPTER 1

1.1 Global sustainability trends

In September 2020, overlooking New York's Union Square, a 25-meter-long sign has been installed; its orange-colored letters count down the time span available for humans to take action in order to save oneself from the tragic consequences of climate change. One of the main objectives of this countdown is to act to keep global warming under 1.5 degrees and to prevent, or at least alleviate, the most severe effects of climate change; the clock tells us that we only have approximatively 7 years to undertake radical changes, transitioning towards a greener path. It quickly established as an iconic reference point highlighting the urgency for action.

In the past, and as the literature taught for several years, the main objective of companies was to maximize profits and to fulfill the requirements of the owners, regardless the impacts that this may have had on the outside world. Environmental and social concerns started off as a marginal theme, something that was there, but did not have any precedent of being a pressing matter; being interested in the impact that companies had on the environment and in the effects of their actions on the well-being of communities was something that corporate management never had to stress about since it was not considered as a critical threat so far.

Back in 1972 several scholars ascertained that the consumption of natural resources was, year after year, reaching a critical threshold, highlighting the excessive dependance of many countries on non-renewable energy resources; furthermore, it became clear at an international level the inequalities that were separating developed countries from underdeveloped countries, raising awareness on poverty and poor life conditions of numerous communities. In order to highlight the excessive consumption of resources an index has been created, the Earth Overshoot Day (EOD) which is given by the ratio between the yearly biocapacity of the earth and the yearly ecological footprint of humanity, multiplied by 365.

This ratio indicates the day of the year on which we consume all the resources produced by the planet in the whole year. In 2021 the Earth Overshoot Day fell on July 29 and this analysis shows a negative trend since, for instance, in 1972 it fell on December 10 and, before that, the amount of resources that were being used were appropriate to ensure a sustainable development. To put those calculations in other terms we can say that, nowadays, the consumption of resources corresponds to the use of 1.75 planets per year.

During the XXI century a new menace increased the awareness around sustainability, which is represented by the greenhouse effect and the countless consequences that come with it.

Extreme weather events, increasing global temperature, desertification, rising sea levels and many others are consequences of climate change that together with a number of issues on the

social side such as inequalities, poverty and hunger are a powerful mix that is a real menace for the world's economic development.

Following these terms, more and more governments and organizations took action and increased their efforts in creating new regulations and guidelines for companies to follow and implement, many social and environmental issues are tackled among the Sustainable Development Goals (SDGs) identified by the United Nations in 2015; all 193 members of the United Nations approved a plan that illustrates a path for the following years, approximatively to be implemented before 2030, towards a "better future", as they stated. These seventeen points are meant for every country, both developed and developing ones, to be used as guidelines for the implementation of wiser and more sustainable choices. Fourteen of these goals are intended to tackle social issues, namely: decrease of poverty conditions, eradication of world hunger, insurance of good health and well-being, the access to a qualitative education system, gender equality, the access to clean water for everyone, the possibility to have affordable and clean energy, being part of the economic growth, need for a solid innovation and infrastructure system, the reduction of inequalities, the sustainability of entire cities and communities, producing in a responsible way and ensuring peace, justice and cooperation among states and institutions. For what concerns the environmental matters, on the other hand, the three very wide dispositions are ensuring the wellbeing of life below water and life on land and, in the end, maybe the most open to interpretation, climate action.

Figure 1 - UN sustainability principles

Source: United Nations website (https://www.un.org/en/)

Another pressing factor is that according to the estimates calculated by the United Nations in the World Population prospects of 2019, world population will increase up to 11 billion by

2100; the risk is that the associated increase in demand for goods, services and, most of all resources, is likely to put increasing pressure on an already fragile social, economic and environmental system (Moore et al., 2017).

All the issues stated before, led individuals and corporations to rethink the concept of economic development as it was and try to reshape it in order to consider it in a more economic and social friendly manner, oriented to a more sustainable development.

And so, also thanks to the pressures exerted by national and international institutions on the matter, companies started to comprehend the sustainability dimension into their management plans, and we are living in a time where the awareness towards sustainable practices has never been higher.

Being sustainability an extremely vast and general concept, coming up with a comprehensive definition is a particularly difficult task, two challenges that needs to be overcome are, as stated before, the lack of standard definition and the wide variety of synonyms that are used in the literature to refer to this concept; without a proper standard, however, there might be the risk of misunderstandings and the scarce comparability of different measures and actions.

For these reasons it has been developed the idea that, in order to give a proper definition of sustainability, there is the need to include four constructs in it: to add a defined period of time when referring to sustainability enhancing actions, the description of the intervention and the strategies to be implemented to obtain a sustainable outcome, how the individual behavior is planned on changing and the social and environmental benefits that will be the direct consequence of these actions (Santillo, 2007).

Focusing for a moment on the environmental side of sustainability, in 2009 a group of scientists introduced the concept of planetary boundaries, some lines that should not have been crossed in order to preserve the socio-economic resilience of the planet; they highlighted nine boundaries to respect, for which a time threshold exists, a sort of upper limit after which it becomes almost impossible to stop the effects coming from this abuse. These are:

- Climate Change: it is the most common and known one, the goal is to keep the global warming process under 2 degrees Celsius to minimize the negative effects and the disruption process that is associated with an excessively high temperature.
- Ocean acidification: it consists of an increase of carbon dioxide into oceans, leading to a decrease in the water's pH. This process is a threat to all marine organisms causing reduced chances of survival.

- Global freshwater use: now more than ever we have realized how real the threat of drought is, and the effects of the excessive use of fresh water are evident both in terms of loss of fertility of the soil and the shortages of water for humans.
- Biodiversity loss: it is one of the consequences of environment misuse, several species become more vulnerable, resulting in the extinction of animal species as well as plants and microorganisms.
- Stratospheric ozone depletion: the ozone layer is the element that protects the earth from the effect of the ultraviolet radiations coming from the sun, these latter are considered to be dangerous for human health. In this context the ozone hole represents a threat causing the entrance of more intense ultraviolet radiation in the atmosphere.
- Interference with the global phosphorus and nitrogen cycles: this is caused typically by environmental pollution, especially by the fertilizers used in agriculture that can change the balance of lakes', rivers' and marine ecosystems.
- Land-system change: the biodiversity of land has been dramatically modified by the conversion of several ecosystems into agricultural land, changing the characteristics of many countries and undermining the wellbeing of different species and communities.
- Aerosol loading: it is an impact both on climate by absorbing radiations and on human health since it is often the cause of cancer, respiratory issues, and cardiopulmonary diseases.
- Chemical pollution: most pollutants have human origin, they derive from human activity especially from the industrial and agricultural sectors; furthermore, water is one of the agents that contributes to the spread of pollutant substances, becoming part of our food chain, and harming marine and land ecosystems.

These nine boundaries are deeply interconnected and this is the reason why it is fundamental to act in every aspect of environmental respect as the damages in one of these nine aspects can easily spread through every other dimension (Rockström et al., 2009).

The most recent global trend that shocked global economy is of course the Covid-19 pandemic. The contemporary world has been challenged in an unprecedented way, with significant negative effects on the society.

The pandemic affected companies and their ability to carry out operations smoothly; a report published in 2020, in fact, communicated that the 94% of the companies belonging to the Fortune 1000 list were dealing with some degree of disruption along their value chains; and these affected the customers in terms of delays in products delivery and shortages in the supply of several everyday products; manufacturing plants were partially or totally shut down, airports worked with strict restrictions and the priority was given to medical equipment. This disruption

was enhanced even more due to the fact that, often, production is carried out in nations far from the ones where the products are really used and the negative effects coming from the difficulties in production and distribution spread quickly throughout the entire world.

The diffusion of disruptive effects can come both from the supply side and the demand one, in the first case when one nation decreases or totally stops its production, the export activity is blocked or diminishes and it negatively affects the economies of the countries dependent on that nation as a supplier; on the other hand the disruption spreads through the demand side, when the reduced income of one nation reduce its ability to import goods from its business partners. For example, China is considered one of the world's biggest factories and since Covid hit, the disruption in supply chain spread, in turn, everywhere in the world; countries where the virus was not circulating yet, approximately around the last months of 2019 (such as United States and Europe), already found it more expensive and hard to purchase most of the products imported from the hardly hit regions. These chain of events made basically every country more vulnerable from the very beginning of the disease expansion (Queiroz et al., 2020).

Since the late 1980s the production started to be carried out on a global basis and worldwide production is increasingly more reliant on semi-finished products manufactured outside national borders; the Covid-19 pandemic was the first one hitting the modern interconnected world so heavily, the propagation and the ripple effects have been faster than ever before. Since almost every activity in the value chain is strictly interconnected with the other ones, the disruption of one single function can create a ripple effect and affect the other functions (Pinna and Lodi, 2021).

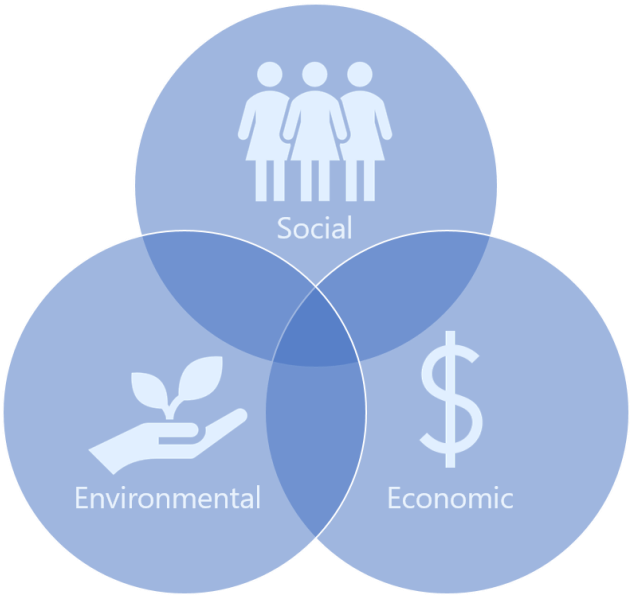
In these critical conditions, researchers found that the social and environmental sustainability efforts of companies have been negatively affected as many companies had even difficulties to stay afloat. For example, creating a healthy and balanced work environment was not a priority of several companies; the risks for inequalities have increased, including job losses, health issues, the dominant power of few brands and ethical violations. In addition, because of delays in transportation and demand changes many producers of perishable goods were left with tons of waste and unsellable products, furthermore a negative impact on environmental policies was given by the short life cycle of pharmaceutical products which had, and keeps having, an impact on waste and emissions flow and pollution (Chowdhury et al., 2021).

1.2 Triple bottom line

Even though the concept of sustainability has been and keeps being studied deeply, all the facets of this theme are very hard to grasp; since the term sustainability can be declined in several

subgroups and is extremely subjective and open to interpretation, there is the risk that it can be hard for companies to prepare a strategy that leads to success. For this reason, in order to find a possible way to try and make order in such dispersed circumstances, the concept of Triple Bottom Line has been developed. This latter implies that three dimensions, namely economic, environmental and social, need to coexist within the strategy of companies in order to create an actual sustainable development. The idea that lies behind the triple bottom line paradigm is that an enterprise's success should be measured not only by its financial and economic health but also by its social and environmental performance in terms of fulfillment of responsibilities towards communities, customers, employees and suppliers; this is related to the theory according to which the long term success of a company is related to their care about the interests of the main stakeholders (Norman and MacDonald, 2004).

Figure 2 - Triple bottom line elements



Source: Social Accountability website (https://sa-intl.org/)

1.2.1 Economic sustainability

The economic bottom line is the one which, typically, the top management of an organization is more interested in; it refers to the economic value added or economic profit, that differs from the common definition of accounting profits (that still is the starting point of this valuation) in the sense that it measures the value generated by a company from the funds that this latter

invests in it: it can be defined as the additional difference in the rate of return on an investment over the cost of capital. This concept, however, in terms of sustainability should be calculated considering the economic benefits that one or more company and industries can bring to society and communities.

Four useful factors to consider when analyzing the economic dimension are: economic performance, or the ability to sustain and increase the market value of a company; financial stability, or the ability to maintain financial health along the entire value chain; market and structure where to create an effective and efficient company's network and value chain and, in the end, institutions and systems that relates to the infrastructure of an organization and its outside connections (Berglof E., 2017).

1.2.2 Social sustainability

Social sustainability focuses mostly on the ethic management of human capital; this is usually the most complex dimension because the factors that are used to measure its performance are hardly transformable into quantitative terms like human rights respect, ethnicities and gender differences, and the work environment. Companies that are active in the field of social sustainability often seek to provide individuals and communities with benefits and not to expose them to any risks or held them in an exploitation situation; this, of course, is not limited to the people associated with the focal company: from a global value chain point of view this treatment should be extended to the human capital that works along the entire value chain including, for example, raw material producers or the employees in the manufacturing facilities.

Some of the most relevant and concrete examples on how to handle the social dimension of the triple bottom line are avoiding child/underage labor, providing fair salaries, making sure the working environment in safe and planning working time to ensure a tolerable schedule and work/life balance. Another idea is the one of giving back something to society by contributing to the healthy growth of communities through means like affordable health care and an effective education system.

However, since, as stated before, social sustainability is hard to quantify and as consequence, to measure, it is often the most neglected one among the three even though its relevance is undeniable.

1.2.3 Environmental sustainability

Environmental sustainability is the dimension that, in recent years, has become more popular; the meaning of this term is the reduction of the impact on the environment caused by productive activities throughout the value chain. The main aim is to make the most out of resources or, at least, avoid harming them, reducing at the minimum the waste and reducing the companies' footprints by managing carefully the consumption of energy and its sources. As before, the efforts cited above, should not be made only in the last steps of the production process but, on the contrary, sustainability measures should be adopted starting from the procurement of raw materials, all the way to the manufacturing process and the correct disposals of products by the customers, always keeping a close eye to the life cycle assessment of products to determine the actual impact they have on the world. Often, being proactive in the environmental field will ameliorate the performance in the other two dimensions of the triple bottom line, namely the social one and the economic one; however, engaging in green policies is costly for companies and several studies showed it to be more profitable in the long run rather than in the short one.

Given the growing importance of the green revolution and the effort put into it, the reporting metrics for this theme are much more reliable and better quantifiable than the social ones; in general terms they can be divided into five macro categories of indicators that are:

- Air: it refers to the impact of companies on the atmosphere and emissions' pollution
- Water: it refers to the impact on the damages of extreme fishing, pollution, quality and the fair use of water sources
- Land: it is related to the negative effects and pollution caused by companies to lands
- Materials: it refers to the quality, safety and sustainability of raw materials
- Minerals and energy sources: it is referred to the consumption of non-renewable resources

In conclusion, the selection of the right supplier is a key activity in value chain management, in addition establishing a relationship with the appropriate suppliers is one of the most relevant strategic decisions that a firm has to consider. The influence that suppliers have on the focal company has been recognized especially with regards to total quality management and just in time concepts, the effects on products quality, customer satisfaction and the process of inventory management.

In recent years, the increasing number of regulations have forced companies to start considering sustainability when choosing the appropriate supplier and, in the case of failure to do so, the consequences may not be accepted by stakeholders, which will be attentive to the environmental and reputational damages; so a careful supplier selection process is a valuable mean to help prevent negative repercussions on a company's reputation.

To emphasize the relevance of supplier's behavior a more indirect way to obtain sustainability along the value chain is exploiting the role of the focal company in modifying the practices of suppliers. In this setting, even if a supplier was already selected the buyer can keep supporting it and encourage improvements in their sustainability performance (Rashidi et al., 2020).

Several companies have now started relying on sustainable purchasing practices as a key step in the supply chain process and it can be beneficial to individuate suppliers that have a real intention in going green in order to have the chance to develop successful collaborative relationships.

1.3 Drivers of sustainability

Drafting a complete list of drivers when it comes to sustainability is not a simple task since every individual, company or organization may have different reasons to engage in a "greener" behavior. However, some most commonly adopted drivers are the following First of all, one relevant driver is the involvement of the top management when identifying the role that a company has within a social and environmental setting; often this process is influenced by a set of corporate values that can be either path dependent and formed with time or recently developed thanks to the innovation and greening pressures of the external world. A second driver, perhaps the one that is able to influence the actions of companies the most, is the legislation one, the increase in penalties, fines and lawsuits have highlighted the importance of complying with the current provisions. Even though the legislation requires different standards in different states, several studies found that government legislation is one of the drivers with the biggest impact on companies. (Giunipero et al., 2012).

The third driver that can encourage an organization in engaging in sustainability practices is the competitive advantage that they can obtain, often the revision of operations under a sustainability point of view can induce an increased competitiveness, either in terms of reduction of costs or in terms of increased value to be offered to customers and so, in terms of differentiation. Furthermore, customer demand can be considered as an important driver for sustainability: with time the relevance of the opinions and the need of customers has become

much more important for companies. This type of stakeholders is playing a key role in increasing consumer responsiveness when it comes to sustainability, customers, communities, and organizations encourage companies to incorporate the sustainability dimension into their decision-making process.

The fourth driver is simply being part of a bigger ecosystem (such as a sustainable Global Value Chain) where adhering to sustainability practices is mandatory to belong to the system; here it is necessary to comply to standards set by third parties just because you are part of a wider project. This driver will be deepened later on.

The fifth last driver that is worth mentioning is the financial benefits that companies that engage in responsible behavior show. This opens up a wider argument on whether companies that undertake socially and environmentally friendly practices show better financial returns comparted to the ones who do not

The main tool that every company can exploit when doing an investment of any kind in order to understand if this latter was successful is analyzing the financial returns to observe if the invested assets were exploited in the best possible way. Thus, in order to understand if reputation and efforts in sustaining a greener value chain actually have a positive impact on companies, a link between reputation and financial performance must be established. Several evidences, in the past, highlighted different hypothesis on the theme; in particular the four main ones are the following (Preston and O'bannon, 1997).

The social impact hypothesis shows that having a good reputation and getting involved in the creation of a more sustainable value chain leads to a better financial performance due to the fact that it makes the company more appealing when it comes to investments given today's attention of investors in social, environmental and economic issues. These companies are able to attract better resources leading to the retention of more conscious customers and generating a competitive advantage over other companies; an additional advantage is having committed employees and top management that, along with sustainable practices, will increase a company's reputation and, in turn, financial performance (Gaio and Henriques, 2020).

A second theory is called tradeoff hypothesis: this implies that a negative impact on financial performance can be observed when sustainability practices are implemented, the underlying idea is that the main goal of the company to maximize profits for shareholders is not compatible with the increase in costs for socially responsible activities; in addition the use of resources for sustainable activities may take away some of the potential value/profit creating capabilities within the company. So, following this point of view sustainability efforts have a negative impact on financial performance and, in turn, on shareholder benefits.

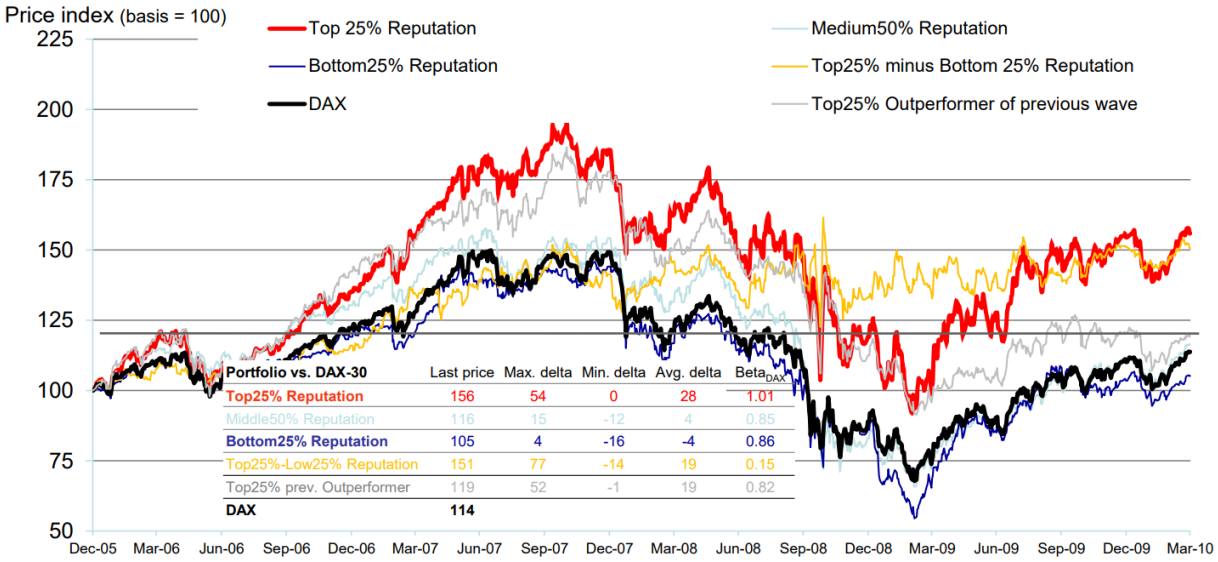
The third current of thought is the available funds hypothesis, which says that it is the financial performance that has a positive effect on reputation; in this case thanks to increased financial performance of a company, it has at its disposal more funds to invest in sustainability practices.

The fourth and last theory is the managerial opportunism one, it says that the more the financial performance increases, the worst the efforts for reputation creating activities become. The explanation behind that is that the success achieved by a company will, in some ways, bias the cognition of the top management team leading them to think that they are basically exempted from the need of reaching certain sustainability standards.

Environmental and social sustainability became really relevant, and it has become almost mandatory to include these topics in the formulation of companies' strategies; as a consequence innovative business models have been developed and new key performance indicators have emerged since it is now evident how sustainable business models have the potential to boost economic growth and lead to a better stock market performance. It has been proved that companies which include some sustainability plans into their business are more likely to perform better than the ones which do not, in terms of economic growth and financial leverage. However, in order to quantify this kind of improvements, investors and financial organizations started requiring companies clear reports in terms of non-financial disclosure containing comprehensible KPIs in order to be as transparent as possible.

The chart below is an example of a monitoring period carried out in Germany, to show the difference among the stock prices of companies with different levels of reputation and sustainability efforts between December 2005 and march 2010; it can be noticed that the red line (representing the 25% of the companies with the highest reputation) offers better returns than, for example, the black line (which represents the segment of the Frankfurt stock exchange that contains the 30 stocks with the highest capitalization). In September 2007, for instance, stocks belonging to the DAX were worth approximatively 130 while the ones of the companies with the top 25% reputation were worth almost 190. This is a clear example of the "social impact hypothesis" cited above, where the higher the reputation is, the better the financial performance is likely to be.

Figure 3 - Stock prices fluctuations considering reputation



Source: Datastream and Corporate Reputation Monitor

Besides the advantages in the financial performance, a situation in which sustainability in incorporated in a company's strategy positively affects its reputation, has the potential to benefit the company is several ways: the recent Covid-19 pandemic has shown that a strong reputation can enhance resilience. Indeed, in this period, some empirical studies showed that companies which could exploit a sustainable value chain registered a decline that was not as steep as the other companies experienced (Capgemini, 2020). Three other benefits that a sustainable value chain brings are:

- Sustainability is a driver for innovation, in the sense that when the actual state of things is no longer a feasible strategy, it is necessary to explore creative solutions to improves efficiency.
- Sustainability encourages to take into consideration a long-term view: it enhances the importance of not stopping the strategy-shaping process in the short term but, on the contrary, it takes into account future trends that must be accounted for.
- Sustainability emphasizes cooperation: it facilitates collaborations so that companies are no longer seen as isolated single entities but they are considered parts of networks with shared values and goals.

1.4 Benefits of a sustainable business model

Over the past decade, sustainability has become more than just a trend, indeed sustainability can have real benefits for businesses when intelligently integrated into the operations of the value chain. Some of the advantages that companies can obtain are mentioned below (GPA consulting, 2017): first of all, even considering the costs that implementing a sustainable business model have, the development of a greener strategy typically leads to more efficient processes, which reduces costs and increases employee productivity. One more interest benefit is that, when a company is up to date and proficient in dealing with sustainability issues, it is likely that it will be able to comply in a timely manner with new regulations and guidelines that are published by governments or other organizations, giving it an advantage over its competition. The third very relevant point that is worth mentioning is the fact that companies that invest in a greener and more socially sustainable development are able to attract and subsequently retain employees and investors; the first ones, especially when talking about the younger generations, have been raised with a mindset that makes them prone to being associated with companies that are being proactive in the sustainability field; the latter, on the other hand look for the best way to place an investment and, as we will see more in detail later on, the investments in greener organizations have shown positive outcomes. Another benefit that sustainability brings to companies is improving their relationship with stakeholders, indeed, it is nowadays relevant, given their great importance, to have a good cooperation relationship with several stakeholders, for example with NGOs and similar non-profit organizations and government. This point will again be explained more in detail later on in this paragraph. The last, and most relevant point that I believe is important to describe in the fact that investing in sustainability, being this economic, environmental, social o a mix of the three is likely to lead to improved brand image, reputation and competitive advantage.

To give a definition of reputation, it can be described as a general evaluation that stakeholders give about a company and that comprehends both emotional and cognitive components; the evaluation that an individual makes is typically formed by a part given by the actual experience a person has had when interfacing with that company, and by a part that is made of the perceptions a person has and how he/she interprets the messages a company communicates to the outside public. The reputation of a company, indeed, is highly influenced by corporate communication, making it a key activity within a company's strategy. Reputation is also influenced by the strong power of the media that can easily alter the perceptions of individuals (Kim and Ferguson, 2019).

Having a positive reputation tends to have a positive impact on several groups of stakeholders:

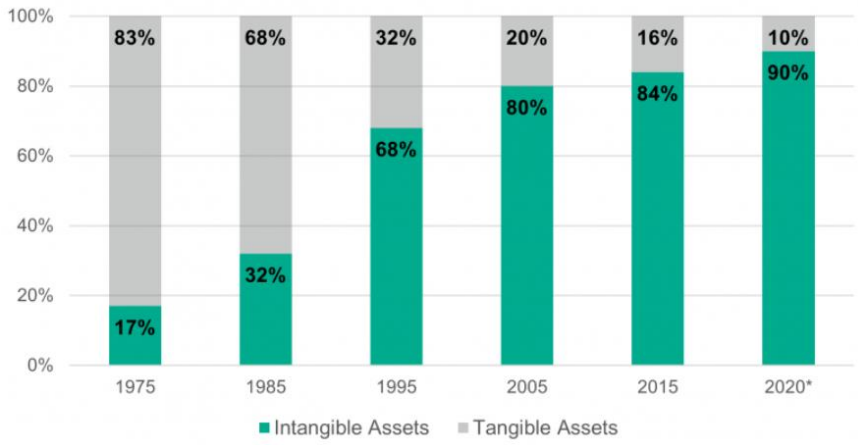
- Consumers: it leads to increased trust and brand loyalty, a higher retention level and possibility for the company to sell goods at a premium price
- Employees: it leads to the ability of attracting talented employees, a better retention rate and a higher level or productivity
- Investors: it leads to a better access to capital markets and a better rating by the credit agencies, leading to a lower cost of capital, it also leads to an increased willingness to purchase and hold shares of investors
- Politics: it leads to advantages and support in negotiations and a decrease in the risk of litigation
- Suppliers: it leads to higher commitment from the supplier side and lower procurement costs.

The relevance of reputation management is particularly important also because reputation is a fundamental intangible asset of a company; this latter can be defined as an intangible asset if they respond to four criteria: they lack physical existence, they provide tangible economic benefits, they are protected legally and, in the end, they are obtained from past efforts and activities.

Despite the importance of intangibles, in the past, traditional accounting practices emphasized tangible assets much more and this was due to the fact that they are way easier to measure, and it is easier to assign a precise value to them. However, with the years, the market saw a steep increase in investments in intangible assets, attracting the attention of regulators, who recognized the need to find ways to evaluate them and to give importance to them within every company's framework (Yallwe and Buscemi, 2014).

In the table below it is represented how the composition of the market value of the 500 companies belonging to the S&P index has changed with time; in 1975, for instance, tangible assets accounted for the 83% of the market value meaning that the value of a company was made up mainly by the value of its future cash flows and the tangible assets it owned (for example: machinery, equipment, materials and plants). The value brought by intangible assets increased substantially over the years reaching, nowadays approximately 90% of the whole market value.

Figure 4 - Components of S&P 500 market value



Source: Research gate

Managing reputation correctly starts with the recognition that it is purely a matter of perception, that the general reputation of a company is made by all the evaluations that numerous stakeholders give and that, typically, a strong positive reputation among several stakeholder groups (investors, customers, politicians, nongovernmental organizations, suppliers, employees) will lead to an overall positive perception of the company. Another important concept to understand is that reputation and the actual behavior of a company are two different concepts; if, for example, reputation is better than the actual character of a company, this gap creates a potential risk: eventually a downfall or a mistake will affect the reputation and this latter will decline. The other way around is true as well, if the reputation is lower than the real behavior of the company, the efforts are not fully recognized, and it is likely that better communication policies can be implemented.

The evolving expectations on the stakeholders' end are one more determinant of the need for companies to take this activity very seriously; when expectations are changing and the company does nothing to keep up with those, the gap between reputation and real behavior increases and so does the risk. In addition, when regulations evolve, stakeholders' expectation change quite quickly, which can lead to a damage in reputation for those companies who do not adapt quicky enough to the new norms (Eccles et al., 2007).

In order to properly manage reputation and so mitigating the risks that come with the mismanagement of it, four steps are necessary:

- Assess the company's actual reputation: perceptions about a company must be measured, and even though this is not a simple task to carry out, some tools can be used

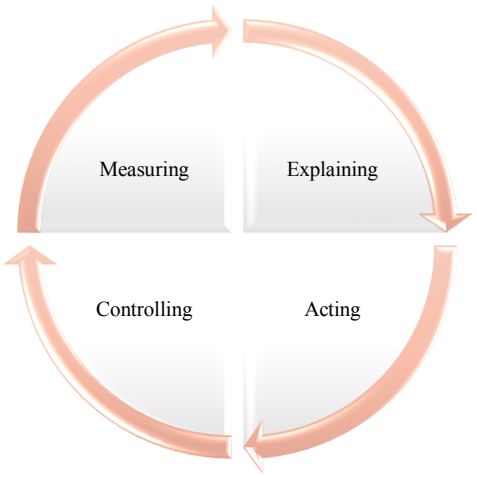
such as media analysis, focus groups and surveys to stakeholders. The most relevant aspect to keep under control is the opinions of the media, as they have the power to influence the beliefs of several thousands of individuals. With the expansion of the internet, in addition, social media, have become an extremely powerful means of communication where the rule is that even one single negative opinion can cancel tens of positive ones, so the need to develop and exploit the online presence is really relevant.

- Evaluate the company's real efforts: here companies need to assess their real ability to meet the expectations of stakeholders and analyze the actions they are actually implementing to move towards their goals; this is not an easy task as well, as usually there is a tendency to overestimate capabilities. A wise idea could be to evaluate the performance by benchmarking it against the performance of competitors or comparable companies, creating a sort of matrix that helps understand the positioning of a company in the marketplace.
- Reduce reputation-reality gaps: When a company's reputation is too good compared to its actions the alternatives are either increase the efforts in its actions or diminish the opinions of stakeholders. This latter is not chosen by many companies for obvious reasons even if it can be done when the gap between reputation and behavior is particularly high and cannot be compensated in a reasonable amount of time. If, on the other hand, behavior exceeds reputation, the gap can be reduced with a corporate communication project and through an intelligent use of media.
- Monitoring the changes in expectations: a consistent analysis of changing trend is costly and not easy to implement; a very used tool are regular surveys to employees, customers and other stakeholders as, if well done, shows the shifts in priorities of people. A second target for the surveys are the experts in different fields, such as environmental sustainability experts, that can bring useful insights for companies to exploit. Eventually, another category of stakeholders should be involved: nongovernmental organizations which are concerned with, for instance, environmental sustainability, working conditions, globalization issues and consumer and animals rights; their point of view should be an important starting point for companies.

Since reputation management is such a powerful tool, it is fundamental for companies to understand their level of current reputation and, if necessary, adopt some changes to become more efficient. One possible framework to follow is the reputation management cycle: here the first step is to measure the current state of the outside perceptions about the company, it may be useful, for example, to make a comparison with other comparable entities in the market. The

second move is the explaining part, when there is the need to analyze the drivers of the company's reputation (for instance social and environmental sustainability efforts, fair treatment of employees, sustainable value chain), and to rank them, giving more importance to those which have a stronger impact on its activities. Once a detailed analysis is completed, the third step can be implemented, here, in the acting part the drivers of reputation must be fed; strategies and plans must be executed keeping in mind the importance of an effective corporate communication plan, the point where the perceptions of stakeholders can be influenced. The fourth and last part of the cycle is the controlling section, in this period the projects that have been carried out in the acting phase are evaluated and there is the possibility to discover if they had a tangible impact on reputation management.

Figure 5 - Steps to reshape reputation



Source: Author's elaboration

As it can be understood from the previous paragraphs, the concept of being "green" is very popular among companies; to the point in which many of them pretend to be attentive towards social and environmental sustainability to gain credibility. When we talk about greenwashing, we refer to a misleading practice used as a marketing strategy by some companies to show a fake attachment to sustainability issues in order to gain the consensus of customers that are sustainability driven in their purchasing behavior. Hence, the main objective of this practice is to enhance the reputation of the company and to obtain benefits in terms of increased customer base and revenues.

Again, theoretically speaking, a definition of the term greenwashing can be a communication strategy built to create an image of an organization that is deceptively positive under the

sustainability point of view in order to ameliorate one's reputation or to remove the attention of the public opinion from a critical negative aspect of a company. When talking in more concrete terms it may take several forms: for instance, a company could advertise on its website to adopt recycled materials or sustainable production processes when that's not, or just partially, true.

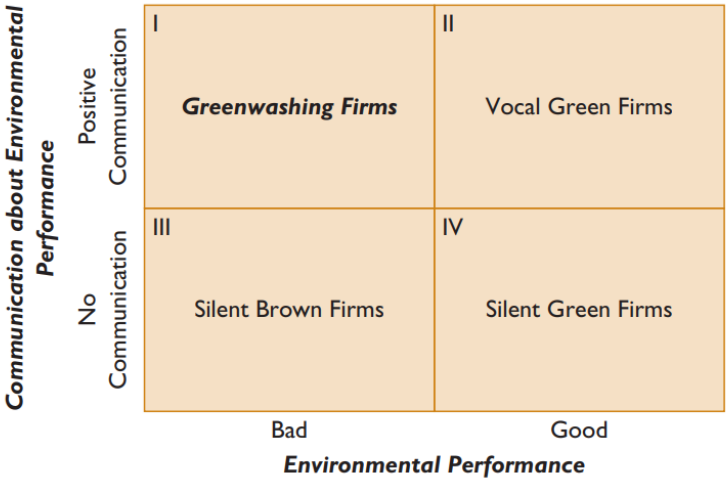
One real life example that gave life to the whole greenwashing controversy was the case of big chemical and oil companies of the United States that advertised their behavior as eco-friendly just to mislead the public's opinion, when, indeed, the practices adopted by them were extremely polluting.

Among the many ways of performing greenwashing, two common indicators are either the use of a vague and approximate language that is left very open to interpretation or, on the contrary, the use of a complex and incomprehensible jargon that may be too hard for individuals to process; in the same way companies can exploit the power of suggestive images, video, or music that, through the emotions they induce, can mislead customers.

A greenwashing firm usually is responsible for lacking sustainability efforts and an unexplained positive communication about its performance (Delmas and Burbano, 2011).

Interesting research carried out by Delmas and Burbano developed a matrix on this topic; first, they divided companies into two main categories: "brown firms" that comprehend those firms which are characterized by a poor sustainability performance and "green firms", that comprehend good environmental and social performers. The second variable is the communication strategy, and it places firms along a range that starts from little or no communication at all to the ones which have a high number of effective communication strategies. By mixing those two variables four types of firms can be obtained: when a company that places strong efforts on sustainability communicates about its positive performance is called "vocal green firm"; a company that does not effectively communicate about its positive efforts is called "silent green firm" even if nowadays, given the relevance of communication, very few companies place low importance on it. A third reasonable category is the "silent brown firms", which, for obvious reasons, prefer not to get exposed (this category is also not a wise place in which to be positioned, giving the always increasing number of regulations about non-financial disclosure); in the end the category of "greenwashing firms" can be found, namely the one where a positive communication over a poor performance gets done.

Figure 6 - Communication-performance matrix



Source: Delmas and Burbano, 2011

One more aspect that is interesting to investigate is what leads a company to get involved in greenwashing activities, namely, understanding the drivers of this practice.

Two broad categories can be identified: on one hand the external factors and on the other hand the internal (or organizational) factors. Among the external drivers the first one is related to the laws and the regulatory environment; nowadays, being this a popular topic, regulation keeps getting updated, creating high uncertainty; furthermore, companies that work with a global value chain need to be aware and respect the different guidelines provided by each one of the countries it deals with. The second external driver is the pressure that media and NGOs pose on companies: their role became much stronger in recent years and companies are more and more pressured on acting against unfair practices and polluting activities. In the end, actors who have the power to influence companies' reputation building process are customers and investors; it has been proved that, ceteris paribus, the greater the pressure from these two stakeholders for sustainability, the more likely a company is to greenwash. The competitive environment is a strong driver as well, as the positive perceptions by the public can generate a non-negligible competitive advantage for companies.

When talking about organizational, internal drivers, on the other hand, we refer to the characteristics of an organization that mediates the reactions it has when dealing with external drivers. The first one is indeed firm characteristics such as size, industry, and the level of the life cycle it belongs to; the potential benefits that each company can obtain from effectively communicating environmental performance changes based on the company's characteristics: consumer products firms and big well-known brands, for example, are more likely to be

scrutinized by activists and media because they are much more in the public eye. Likewise, companies belonging to renewed polluting industries such as oil are always under scrutiny by environmental organizations and governments.

The second internal factor is organizational inertia that has been defined as the persistence of existing procedures that preclude an effective change in corporate culture. This phenomenon is predominant in larger companies, rather than in smaller ones and could explain the gaps between intentions to follow a greener path and the implementation of this projects.

The third and last driver of greenwash activities is the effectiveness of intra-firm communication: effective internal knowledge communication lines are often hard to achieve; whenever the flow of information is not optimal the result could be that not so proficient companies fall into greenwashing techniques, in particular when the communication is not effective among the marketing and communication department and the production, R&D and packaging department. In this situation when information asymmetry is high the department in charge of corporate communication is likely to provide overestimated measures. So, as a general rule, it can be extrapolated that when frequent interactions between divisions of a company are lacking, a potential driver for greenwashing is created (European Commission, 2020).

In the last two years the European Commission together with consumers representative authorities initiated an investigation after having received 350 claims of suspected greenwashing practices; the results from this showed that more than 50% of the analyzed companies were not disclosing transparent information to the public, the 39% included misleading and unclear statements in their reports and almost the 60% of the statements were not backed up by enough evidence to prove their reliability. In addition, the European Commission is planning a legislative proposal to ensure customers more reliable information on products and processes sustainability and protection against greenwashing practices; this initiative aims mainly to ensure customers reliable information, prevent the overestimation of environmental information from companies, avoid the sale of products with early programmed obsolescence and set some base requirements on the information that need to be printed on product labels

1.5 Shareholder vs. stakeholder view

Even if globalization is playing an important role, when it comes to homogenizing different nations, as it can be easily imagined, the regulations and the attention to social and

environmental matters is not equally distributed throughout countries and continents. Some of them may find the topic relevant and pose great attention when determining the right practices to follow and others, either for convenience of because they are rather new in the development may underestimate the relevance of it; this of course result in difference and inequalities among states.
Within this environment, depending on where corporations operate and where they are incorporated, they may have different standards to respect, and they need to work in a way that is compatible with the local beliefs.

One main distinction that has taken place among states is the difference between the classic shareholder view and the more recent stakeholder view, which is a topic that gained interest especially when understanding the optimal corporate governance method and the pros and cons of both. Over the last decade, the debate over which one of the two approaches is capable of bringing highest value has been intense and the dispute is still ongoing. At the actual time, shareholder view has dominated for years becoming a model used worldwide as the framework for success and higher competitiveness; not only in Anglo-Saxon countries, where it was created, but worldwide as it has been considered a driver for success. In addition, the widespread diffusion of the share ownership principle in many economies has certainly contributed to the predominance of this model. However, big scandals involving American corporations and the 2009 financial crisis had people questioning whether the shareholder-centric view was the best strategy. This latter, has as its main aim the maximization of profits for shareholders and it found its roots in agency theory, in order to minimize as much as possible self-interest of the top management team.

On the other hand, stakeholder view has been established as an alternative to the previous approach; it is a theory that, in the decision-making process, takes into account multiple entities that impact, or that are impacted by a company, it addresses values and ethics related to corporate social responsibility and resource-based view. Having constructive relationships with critical stakeholders is an important asset that companies can exploit: it ensures access to a pool of resources and opinions that are insightful for companies.

The most common approach when analyzing the opposition of the two theories mentioned above is to divide countries as shareholder and stakeholder-oriented; this may be considered, however, an overly simplification of the matter, in fact there are companies which adopt a stakeholder centric approach in shareholder-oriented countries and there are companies which adopt a shareholder centric view in stakeholder-oriented countries. Notwithstanding the variability of approaches within the single countries, typically, the economic and social history

of a nation have the power to influence the way in which corporate governance deals with the relations with different outside actors; these differences enhance or diminish the degree of influence that stakeholders can have on a company's decisions and how the interactions with them should be carried out (Bottenberg et al., 2017).

Shareholder-oriented countries, such as the United States and other Anglo-Saxon countries are characterized by a strong legal protection of shareholders' rights, active markets for corporate control and very dynamic capital markets.

On the other hand, in stakeholder-oriented countries such as western European countries and Japan stakeholder rights are taken into consideration during the decision-making process also thanks to legal regulations and norms that encourage this behavior.

Since neither shareholders nor stakeholders can be totally disregarded and since the main assumption of this division of approaches is that when attentions are given to one of the two groups this happens at the expenses of the other, the optimal strategy would be to acknowledge that each group is relevant for the companies' success and therefore, must be taken into consideration. It has been proved that when taking into account different interests and points of view, firms are able to increase their value and obtain better results in the long run, especially in terms of more efficient transactions.

From a stakeholder approach point of view, where attention is posed on several entities that hold a relationship with a company, the connection with suppliers gets inspected and, when necessary, improved. For this reason, and the lack of uniformity in world regulations in this field, corporations have thought about new ways of controlling their supply chains while implementing new solutions to make the entire process more efficient. One of the solutions that are in use is compliance auditing: this practice involves for companies to verify independently their suppliers' performance and enforce sustainability standards when required. In recent years "ethical auditing" has become a popular tool improve and upgrade value chain practices on a global basis.

Especially considering the fact that sustainability is a very uneven theme among nations, companies, especially big ones, have enough power to implement their own standards and initiative along their value chains and the ethical audits are used to monitor the compliance to the standards posed by the company by every supplier, often in collaboration with Non-Governmental Organizations. The extensive use of these private audits has expanded, becoming a governance instrument recognized by both the EU and US legislation, turning into an authorized mechanism to enforce labor and environmental norms.

Nevertheless, the private audit regime has not failed to attract some criticism, on the top of the list a bias has been individuated, which is the financial and strategic relationships between the focal company and the suppliers, this situation, in fact, has the potential to create conflict of interest; another shortfall of this practice is the fact that for the preexisting relationships between actors, the audits may be carried out in a more indulgent way with the use of less stringent standards. Furthermore, even if big corporations have the possibility to influence its suppliers' strategies and decisions, they often hold less power compared to state-based auditors; in the end one more issue is that the lack of formal state-base formalities and rigor can lead to low accountability and fallacies in terms of comparability of the results among firms. In addition, often, state-based sustainability reports get published and are available to the public, while the private ones can remain confidential, and transparency issues can arise. Often, in fact, companies are still using audit mechanisms to protect their own private interests, rather than as an instrument to detect and address environmental and social sustainability (LeBaron et al., 2017).

A substantial group of NGOs, organizations, and customer representatives have criticized the raising power of corporations and required more control over their practices; as a response many companies, with the support of international organizations, have undertaken initiatives to become active players in fighting the inequalities of globalized production processes. Indeed, the number of NGOs involved in private audits to evaluate companies and their value chains in terms of sustainability and fairness has grown a lot, furthermore, often, companies hire NGO experts to develop projects and implement initiatives to sustain greener value chains.

1.5.1 Stakeholders' pressures on companies

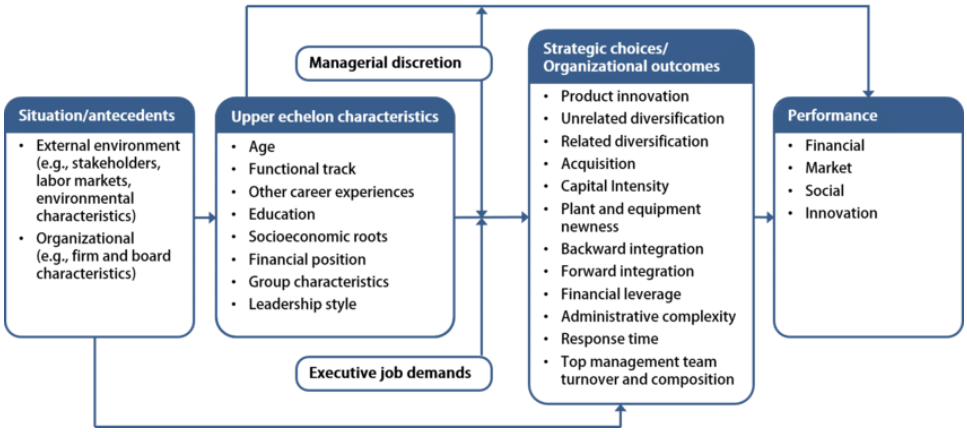
The raising importance of stakeholders have increased proportionally with respect to the influence they have on companies.

- Internal pressure: first of all internal stakeholders, such as the top management team have a significant impact on how the company handles its sustainability challenges, mainly because they are the ones who shape the long term strategies of the organization and usually the environmental attention could come from the beliefs on the theme of the individuals that work within; this concept arises from the upper echelons theory that describes how the strategic choices of an organization and, in turn, their performance is influenced by both psychological and observable characteristics of the actors that work within (for instance their age, gender, education, previous functional track and previous

career experience). Indeed, typically, when the top management team places a higher importance to environmental issues, more resources will be allocated on coping with them.

Furthermore, shareholders are positively influenced by the implementation of efficient environmental sustainability strategies and since the number of socially responsible investors keeps increasing, having solid sustainability plans can strengthen the competitive advantage. Lastly, the relevance of employees must not be underestimated, indeed, they are one of the main stakeholders' groups within the company, they are much more involved than external stakeholders and therefore, have a higher degree of influence on decisions (Wang et al., 2020).

Figure 7 - Upper echelons framework



Source: Hambrick and Mason, 1984

- Market pressure: this second source of pressure arises from the market stakeholders of the firm; first, when talking about competitors, as more of them adopt increasingly efficient environmental technologies to improve their processes and their products the higher standards in many different industries will penalize the companies which do not comply to those standards and are left out. Another source of pressure for companies are industry associations: indeed, they have the capabilities to set industry norms and trends; the benchmark effect within an industry can also push companies into imitating other competitors within an industry and by doing so, complying with the new norms.

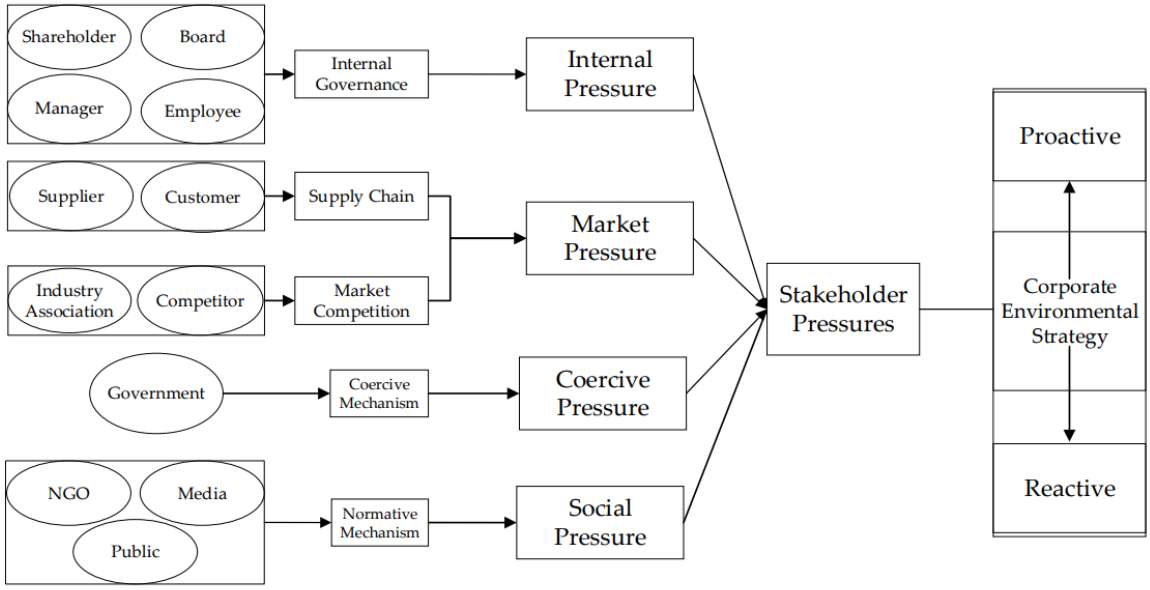
  In the end, suppliers and buyers are fundamental stakeholders for enterprises; supply chains, potentially being one of the most polluting components of the whole company system plays a relevant role when talking about sustainability, and with the right

management practices a line of trust among actors can be created. On the other hand, when talking about buyers, pressure through collective boycotts or lawsuits to companies can be exerted.

- Coercive pressure: this third pressure center comes from the government, regulations and politics and it is the most harmful type of pressure if it is not handled effectively. It is often exerted in terms of taxation and punishment, if not complying to the directives. This pressure is used to encourage the harmonization of companies about the respect of environmental regulations and the need for them to adjust their strategies. One example of this is the strong body of laws regarding the pollution control and the reduction of the emissions of pollutant substances by companies.

  Being this type of regulations mainly nation-base it is not easy to have a harmonized set of regulation that are valid everywhere and these difficulties are particularly compromising for firms that operate among different countries and that, therefore, may encounter difficulties when looking for the applicable regulations.
- Social pressures: this last source of pressure arises from the recognized social norms and beliefs; here the general public and the NGOs are the actors that have the power to influence companies' strategies. The environmental consciousness of individuals, whose opinion is often expressed by the media, is crucial especially in terms of acceptance of a company inside the values of a community; that, in turn, will translate into improved reputation, with all the benefits that come along with it. Moreover, NGOs can impose their thoughts above all with public protests, litigation and the arising of criticism toward practices and situation that they find unfair.

Figure 8 - Sources of environmental pressures



Source: Wang et al., 2020

Even if these different types of pressures have been discussed separately it is not imaginable that one company only gets impacted by one of them alone; typically, what happens is that the actions of every company are influenced by all of them, possibly with different force. Different industries often have a similar mix of pressures coming towards them; for example, B2C are likely to get hit by the general public influence while, for instance, big energy or oil companies that have the potential to generate enormous environmental crisis are often kept under control by stringent government regulations. The important task that every entity must fulfill is to individuate where the most powerful pressures are coming from and try to address them first, without of course ignoring the other stakeholders (Rudyanto and Veronica Siregar, 2018).

When talking about the influence of stakeholders on companies we can refer to a second kind of pressure as well: the one referred to the goodness of the companies' reporting system. Indeed, when stakeholders such as nonprofit organizations and customers are more pressing and require more transparency on the companies' operations and practices, typically the reports, and in particular the non-financial documents that are required are much more reliable and well thought. For instance, several empirical studies concluded indeed that companies that have consumers as most influential stakeholders are likely to sustain a more transparent reporting system. In conclusion, since differences in quality of the sustainability disclosure arise also from different degrees of pressures by stakeholders, to enhance this quality regulators could

require some standards or could set a minim amount of disclosure, which companies must comply to.

1.5.2 Insights on NGOs

Since the very beginning of civil societies as we know them, individuals always benefitted from associating with one another based on shared opinions ad beliefs thanks to the broader opportunities that arise when coalescing with like-minded people. Association in civil societies is, for the majority of times, a voluntary action and is composed of individuals that are willing to take collective action, working towards a common goal or pushed by common ideas and needs in order to obtain something that, if taken alone, would not be possible. Although societies are usually referred to at a national level, in the last decades collective actions are increasingly occurring across borders on an international level, in these cases the interests that some individuals share are a far more binding concept than common politics or geographic borders, even if, as groups start to grow more and more it is particularly challenging to keep one united focus on the main objective of the collective action. In the case in which a collective action is prolonged over time reflecting the need or the potential for a social change it is often referred to as social movement and when the interests of a social movement get stronger and more powerful, it evolves into a recognized presence with the national and international environment, resulting in the birth of a stand-alone entity that we can refer to as an NGO. NGOs that arise from social movements, such as the ones related to the respect of humans rights and environmental sustainability, are typically composed of two major players which are the individuals that contribute to the organization time and resources (like individuals, donors, private foundations and institutions), and members who actively manage and direct the organization's operations; in addition these types of organization are accountable towards the purpose they serve and their ultimate success is calculated on the positive changing impact that the communities within which they operate experience (Teegen et al., 2004).

The term NGO was primarily coined in by the United Nations 1950 but in 2003 the definition was refined into "any non-profit, voluntary citizens' group which is organized on a local, national or international level. Task-oriented and driven by people with a common interest, NGOs perform a variety of services and humanitarian functions, bring citizens' concerns to Governments, monitor policies and encourage political participation at the community level. They provide analysis and expertise, serve as early warning mechanisms and help monitor and implement international agreements. Some are organized around specific issues, such as human rights, the environment or health" or, again, as "NGOs are private, not-for-profit organizations

that aim to serve particular societal interests by focusing advocacy and/ or operational efforts on social, political and economic goals, including equity, education, health, environmental protection and human rights".

Having a clear overview of the number and sectors of interest of the world's NGOs in considered an unfeasible task, due to the very different definitions that are taken into consideration; what is clear, however, is that in recent years the number of NGOs has expanded widely. Although many of these latter are small, local organizations, others have grown to be international cross-sector entities that manage substantial amounts of investments and employ hundreds of individuals around the globe. The increased presence of powerful NGOs was and is, of course, encouraged by favorable political and historical conditions that allowed these organizations to thrive; in the beginning of the 20th century, for instance, many pressing social and environmental issues became more evident and NGOs had to jump in and fill the gaps left by governments that were usually unable to overview every aspect of society or that simply failed to address these issues. The raise of globalization, with the growth in trade volumes, capital and population flows, the weakening of the relationship among companies and states, the communication and technology advances and the shaping of a new world's geography has had several effects on society, many positive ones but also some negative ones. The problems that in the past would have been considered confined to one single nation are now frequently spread across several states and sometimes even worldwide; for this reason, many states are joining forces creating intergovernmental and international organizations to seek common solutions to common problems. On the other hand, a wave of criticism has been raised saying that when NGOs become so big and powerful they can become a source of globalization themselves in the sense that they can exploit the tools and means of globalization to develop their international strategies.

1.5.3 Multi-stakeholder initiatives

One recent trend that developed in the business environment is the so-called multi-stakeholder initiatives (MSIs); these latter can be defined as collaborations among companies, governments, societies, non-governmental institutions and many more in order to seek a resolution, or an improvement of existing practices for what concerns a mutual issue or concern, including social issues and environmental issues. In order to achieve the best possible improvements regarding a certain common concern, these initiatives work together to facilitate the communication flow and the dialogue among every stakeholder group that is involved, foster cross-sector efforts and develop and enforce standards, codes of conduct and/or best practices to respect. The expansion

of MSIs is impressive and, over the last two decades, they have been established within almost every major industry across the globe; for instance, they are now involved in the certification and standard-making process of the garment and food industry, they are responsible for monitoring the extraction of oil and gas and they even reached the new sectors, influencing, for instance, internet and telecommunication companies when it comes to privacy, data collection and freedom of expression. In addition, it is clear that when joining an MSI, every actor involved, this either being a company or the government itself, publicly commit to the initiative's standards and they commit to work towards a common goal pursued by the initiative itself (Evans, 2019).

The globalization level that the global environment reached in recent years, created major social and environmental accountability gaps for corporations; indeed, whilst business have the freedom to carry out their activities internationally, they are mainly only subject to respect the enforcement of laws at a national level. This mismatch between global and national standards creates governance gaps that can give life to unfair violations; a corporation, for instance, may be directly or indirectly responsible for human rights violations or for creating environmental damages and not be considered accountable for those issues due to inadequate laws or governmental commitment to enforce those laws. Furthermore, as it was explained previously, as the majority of social and environmental violations caused by corporations gained a lot more public attention, the need to find a feasible solution became with time a more pressing matter. For this reason, combined with the fact that, until now, both international and domestic law have failed to find a solution to address the full range of negative impacts caused by companies, many actors started working directly with companies to mitigate the damages of their impacts through voluntary compliance actions, such as MSIs. MSIs are also frequently perceived to be as more legitimate tools than any other industry initiative thanks to the fact that they include the opinions and resources of society stakeholders within the initiative's planning, implementation and decision of the path to follow in order to reach the common goal they pursue. In 2017, MSI integrity published a study that documented the existence of 45 different multi-stakeholder initiatives addressing a more responsible business conduct where half of them explicitly operates in the human rights field; these 45 initiatives carry out their work in more than 170 countries across all continents and they engage more than 50 governments, over 9000 companies among which 65 belong to the Fortune Global 500 list. The mapping of these initiatives only focused on international MSIs, however, the number of smaller ones that operate locally is not precise, but estimates suggest that we can find hundreds of them (Utting, 2002).

In today's social and economic context, the governance of sustainability, especially the one related to the production processes of companies, takes place through a very intricate network of national and international regulations which are, furthermore, overlapping with the new private forms of sustainability efforts; and while the past national governments had the highest degree of power and influence when debating over sustainability practices, nowadays private entities are emerging and taking over the responsibility to preserve the social and environmental landscape companies work within. In this context, multi-stakeholder initiatives have grown and have become part of the ample regulating body. Different stakeholders groups are, indeed, increasingly asking firms to be more accountable for their actions, being these either positive or negative, especially in industries such as agriculture, livestock farming, fishing and forestry where the dominant business model is constituted by global value chains (Bakker et al., 2019). As said before, MSIs are built of entities that voluntarily co-create and commit to elevated sustainability standards in order to compensate for governance and law gaps and to go even beyond national regulations, creating a sort of soft law body to codify and comply to expectations that several different stakeholders have towards companies.

1.6 Sustainability in a multinational context

When talking about sustainability goals for a company, the number of variables to take into consideration are numerous. In addition, since often many companies try to address more than one sustainability action at the same time, that may comprehend either a social, an economic or an environmental matter, it is not easy for them to integrate many facets of sustainability at the same time. The different nature that different goals may have makes it challenging for companies to have a clear focus and a precise objective to pursue, creating the risk of becoming disorganized and having contrasts of interest to harm the reach of the goals. Indeed, for example, when a company tries to address a social issue, such as the respect of the rights of workers rather that an environmental one, such as the reduction of their emissions, the variables and the actions to consider are extremely different from each other; however, often these kind of objective mentioned above are pursued at the same time, making it very challenging for companies to have a clear picture of the interests to address.

Having said that, it is relevant to notice that, on top of the mentioned challenges, the complexity of having a structured sustainability strategy grows proportionally with the internationalization level of an organization. The complex contrasts that characterize multinationals, namely trying to integrate global characteristics with local ones, and the international nature of their operations are an additional challenge even when talking about sustainability efforts. One of the main

complexities that multinational companies must address can be summarized in one word: heterogeneity; a multinational organization must integrate actors that are very different from one another but mainly it must combine the regulations, the norms and the culture of different nations, given its international nature. What is particularly difficult for multinationals when it comes to making sustainability investments in order to pursue a greener value chain is the fact that, since they often operate in many countries simultaneously, different regulations must be applied. Every nation has a different legislation and when it comes to sustainability, in particular, the differences are very evident; what is acceptable in one state may be completely unthinkable in others. These differences, that are particularly evident between the northern part of the world and the southern part, are a relevant source of uncertainty for multinationals. The context within which a multinational company operates is typically very fragmented, different geographic areas may have very different requirements, for example in a more developed country one of the main issues may be the need for transparency towards the customer while in a developing country the concern may be the reduction of child labor or the reduction of water pollution; these different ways of conceiving sustainability is very hard for companies to address, the results of an investment can be hard to measure when operating is such a contradicting context. In addition, another challenge is posed in having to deal with different requirements, as I mentioned even if there are some organizations that operate above the nations and that are entitled to publish some guidelines that every county must comply to, every government has its own set of rules and regulations to be applied and nowadays we can observe the simultaneous presence of nations with a very structured and precise set of laws for companies and individuals to be respected and some others that still lack a solid base of sustainability guidelines. This of course creates the perfect environment for many actors to take advantage of these differences in bad faith and to exploit the lack of norms to their own advantage, acquiring more value along their entire value chains. I will now continue with more insights on the internationalization aspect of multinationals, with a focus on their supply chain, and later on, I will describe deeply how multinational companies can improve their supply chains in an international context.

1.7 Internationalization of production processes

In the last few decades, the supply chain topic has been studied and applied thoroughly, both qualitatively and quantitatively. In order to give an initial general overview of this term, we can define it as the interconnection among one or more companies and their suppliers to produce and commercialize products or services for the final customer, this being either an individual or a company. This seems to be a rather linear and straightforward concept, however, often, this

topic is much more complex than this; first of all, the number of actors included in the production and distribution process are numerous and extremely diverse among each other, secondly the supply chain flow does not only involve materials, but it creates an intricate network of people, organizations, resources and information that need to be organized and handled in the most efficient way.

A related, and equally important concept, is the one of supply chain management that can be defined as the systemic, strategic coordination of the traditional business functions within a particular company and across businesses within the supply chain, for the purposes of improving the long-term performance of the individual companies and their supply chain as a whole (Mentzer et al., 2001). Supply chain management is a relevant topic, above all for those entities who understood the importance of creating strong relationships with suppliers and customers, it is a key activity to be undertaken by companies and, when done effectively, could play a fundamental role in competitive advantage creation; in fact it could bring several benefits such as higher efficiency of operations along the whole value chain, reduction of costs, improved quality control and the establishment of better relationships with suppliers.

The term supply chain management was first coined around 1982, in a context that was much different than today's world; once globalization started to take place and have a tangible impact on the everyday environment, many of the concepts and the beliefs that were established in the society had to be updated and reviewed in light of the changes that were happening. When national boundaries started to fall apart, the world's economies, cultures and populations started to become more and more interdependent; cross-border trade of goods and services thrived, and so did the flows of foreign investments, people and information.

Cross-border production development was facilitated by the liberalization of international trade, the decrease in transportation costs, the innovations in the logistic field and the improvement in the information and communication technologies. Even though this may not be a totally new concept, it has spread in several industries in recent years; this happened also thanks to the practice of numerous companies in developed economies of keep relocating their operations abroad where they find it more convenient and in line with their current needs and strategies.

In these circumstances experts recognized that the bare idea of supply chain was no longer enough to describe the approach that companies were utilizing in this field and that more and more businesses were undergoing a rapid process of internationalization both in terms of sales and customers and in terms of locations of the different value chain activities.

For this reason, the notion of supply chain has been expanded to what we can now call global value chains (GVCs). In 2019, UNIDO (United Nations Industrial Development Organization) defined global value chains as a phenomenon where the production process is divided into distinct activities that are carried out in different countries and where operations are spread across national borders. Here, all the activities of the value chain (from design to final customer service) are carried out by multiple companies or single integrated companies and workers that are located in different geographic areas, leveraging the comparative advantage that these latter provide. Another declination of the concept of global value chain, possibly one of the most diffused, is the one of outsourcing of the procurement of inputs, these being either physical goods, labor or information, necessary for the production and distribution process. Aside from the interpretations that "global value chain" can assume, it is a phenomenon that has expanded a lot in recent years, transforming most economies' landscape and setting a new level of global interconnectedness, not only among developed countries, but among all levels of development (World Bank (Washington, District of Columbia) et al., 2019).

In the majority of the cases these complex value chains are managed by networks of multinational companies that became, with time, essential elements of the international business environment. In the international economics field, one of the most prominent concepts to describe the dispersion and pattern of the value chain of companies is the OLI paradigm that is composed by three parts: ownership advantages, that give insights on why firms decide to undertake an internationalization process, location advantages, that are related to where a firm decides to move its operations and, in the end, internalization advantages, that focus on how an entity chooses to reorganize its structure and processes (McWilliam et al., 2020).

The shift from "supply chain" to "global value chain" is an important example of how economic theory needs to be updated following the trends and the events taking place in the current environment. Nowadays one of the most active and respected trends that have a real power to influence our everyday life is the theme of sustainability. Many individuals, governments, organizations and companies seem to have joined forces and became part of the movement towards a more sustainable future.

Together with the concepts of lean management and implementation of the principles of industry 4.0 within the value chain of a company, the most discussed and fascinating turn that enterprises' logistics took in the last years is, as mentioned above, sustainability. In general terms, sustainable development was defined by the United Nations World Commission on Environment and Development as: "development that meets the needs of the present without

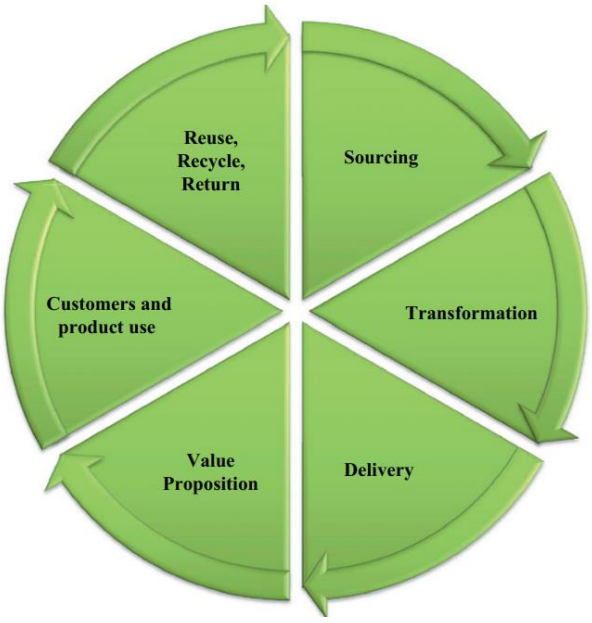
compromising the ability of future generations to meet their own needs." Sustainable evolution is based on the support of environmental, economic and human vitality, this is particularly relevant when considering that the resources in the planet are not infinite and should be used wisely to sustain shot term needs without ignoring the long-term impacts that this may lead to. Lately, also thanks to the regulations and guidelines that governments are providing, we can observe a steep positive trend, in the business world, towards more sustainable choices, including an increased awareness in the whole value chain process. In these circumstances the focus has shifted to the sustainability of the global value chains. More and more people started valuing products and services they need through their perceptions and values, they might prefer, for example, a product among the others just because it is produced in a more ethical way, changing the preferences of the consumers and, in turn, their purchase behavior and demand. Furthermore, often consumers hold the final company accountable for any controversy that gravitates around them and their products, even when a mistake is made by a company that is somehow just connected to it and so, since today's value chains are dispersed around the world, it is no longer enough for companies to spend their energies in managing only what they are able to control directly. In order to meet their customers' expectations, in terms of ethic and sustainability, companies have to engage in responsible business practices not only in the final steps of the value creating process but along the whole value chain, making sure that every actor affiliated with them adhere to the highest possible environmental, social and economic standards (Accenture, 2020).

The rise of transparency as a method to provide individuals and governments with guarantees and clarity about their activities is not a trend that is likely to fade away with time, on the contrary, disclosure will remain a key topic and will, with all probability, become more pressing for companies. Being open about the work a company does is typically related to a positive perception from the general public, however a positive assessment for one or more years is not necessarily a signal to stop putting effort in it, as future will carry new challenges to be faced. The origins of this disclosure movement lie back to the 1960s and 1970s in the most developed countries with the so called "right to know" movement; over the last twenty years this concept has been expanded both in depth, including environmental and sustainability issues, and also on its range of action, reaching formerly less cautious nations and areas such as China, Southeast Asia and South America, giving life to the need of reporting and disclosure of actions and operations of entire global value chains dispersed across the globe, without exceptions. These latter are increasingly challenged by the mandatory and voluntary requests for disclosure. Starting from in 1990s, in fact, transparency requests on environmental matters was expanded

to non-OECD countries (Organization for Economic Co-operation and Development); in addition the nature of disclosure changed: while previously environmental transparency was strictly connected to the nation where companies were established, nowadays new sustainability reports are attached to transnational value chains rather than tied within national borders, focusing more on the improvements a company is actually obtaining. This is of course a direct effect of globalization, where everything becomes detached from boundaries. (Mol, 2015) As stated before, as globalization spread the production in different geographical locations, social and environmental issues related to consumption of goods and services have been displaced to several locations around the globe; with 80% of global trade being generated around big multinationals' networks and with more than 90% of environmental and social impact arising from their value chains, these latter play a fundamental role in the majority of the sustainability challenges and have become an integrated part of companies' strategies to contribute to sustainable development (Thorlakson et al., 2018).

To understand how to better implement sustainability policies and how to analyze optimally the whole value chain, it can be useful to divide it into subparts and inspect them separately to find out more precise insights; speaking in general terms the value chain can be split up in six sub-activities: sourcing, transformation, delivery, value proposition, customers and products use and reuse, recycle, return (Hassini et al., 2012).

Figure 9 - Steps to address value chain sustainability



Source: Hassini et al., 2012

For each one of these steps an analysis in terms of sustainability can be made:

- Sourcing: one of the main aspects at the beginning of the transformation process is the sourcing of resources that needs to be done in compliance with green procurement practices; one particularly interesting idea is the one of cascading, in the sense that the focal company can force (or encourage) its upstream suppliers to adhere to certain sustainability standards, resulting in more environment friendly sourced materials and ethical labor practices. Several companies that purchase raw materials from less developed regions engage now in the so called "fair trade practices"; the idea behind this is to pay more some products like coffee and cocoa to finance the adoption, by the suppliers, of more sustainable practices. A study conducted by the Harvard Business Review in 2019 and 2020, however, analyzed three value chains belonging to different industries, taking into consideration the performance of the suppliers, 9 first-tier ones and 22 lower-tiers ones that were based in several countries of the world such as China, Taiwan, Mexico, and the United States; (Villena and Gioia, 2020) what they discovered was that many of them were actually violating the requirements posed by the leading multinational of that value chain and that the cascading effect was actually occurring only seldom. In their analysis the researchers individuated several issues, some low-tier suppliers in Mexico were lacking environmental management systems and showed hazardous labor conditions with an environment that was so unstable in terms of turnover that made it challenging to implement health and safety. In China and Taiwan, in addition, the visits to more than 10 suppliers showed poor environmental sustainability conditions, dangerous working environment and an excessive use of overtime of labor. However, what is more alarming is that every one of these suppliers was somehow connected to focal firms that were actively encouraging sustainability; the main issue is that as a matter of fact these problems are caused by the multinational lead firm itself, indeed they often place orders in a way that does not meet the constrained capacity of suppliers or that poses unrealistic deadlines that forces them to work at an unsustainable pace, of course due to the limited bargaining power of suppliers against the one of big multinationals and the ability to be replaced rather easily, it is not possible for them to avoid meeting the customer's requests. Also, first-tier suppliers are often struggling with their sustainability issues to concern about their own suppliers' sustainability, and this already slows down the cascading effect that is supposed to be happening.

- Transformation: the main argument during the production process is generally adopting fair labor practices and make the process more sustainable by investing in renewable resources and reducing waste at the minimum.
- Delivery: the delivery process and the transportation systems may absorb high percentages of total costs, indeed the means of transport and the location of the operations have a significant impact on the emissions; it is also key for every business the need to keep having in mind the needs of customers, the products have to be delivered when and where they are needed, in the most efficient way.
- Value proposition and products use: since environmentally friendly products typically are more expensive for companies to produce, and most of the times this increase in costs is passed down to the final customer in the form of higher prices, many businesses that commercialize sustainable products must be able to quantify and explain the value proposition to customers in order to be successful; in addition it is relevant to have a clear strategy to educate the customer about the factors that differentiate them from the competition.
- Reuse, recycle, return: the 3Rs topic is linked with the idea of closed-loop supply chains and reverse logistics, that focuses on recovering the residual value of products returns in a circular economy context.

1.8 Global Value Chains

As we understood from the previous paragraphs, the focus has now shifted towards the concept of Global Value Chains (GVCs), rather than considering companies just as individual entities. The global economy changed deeply in the past decades, one trend that is worth being noted is the segmentation and the division of several production processes, so that different steps of the production are carried out in different countries and, even more important, by different firms; this leads to the birth of new and complex relationships among actors in the market that needs to be managed efficiently. These extended networks of interrelated firms, that already account for more than half of the entire global trade, are called Global Value Chains. The nature of global trade itself undertook a path of change in the last years, in the past countries used to trade finished goods where the entire production process was carried out within national borders; on the other hand, nowadays, for the majority of the cases, in order to be able to export some finished goods, a country must import the intermediate components from other countries where a specific production is concentrated, it is evident how the global production saw a positive

trend in terms of concentration, especially in few emerging countries such as China, India and several other south east Asian countries. The new objective for a state's economy, at this point, is understanding how to internalize and obtain a portion of the value added that is created along the value chain and the focus shifted from the so-called trade in goods to trade in value added; the idea here is that the export is not concentrated only on finished goods, but on intermediate goods and specific tasks and activities of the value chain. Another relevant trend in global economy is the shift from producer driven to buyer driven value chains; while during the 1990s the major focal firms leading the value chains were mostly producers relying on a developed network of supplies for intermediate components working for their production, nowadays the attention turned to buyer-lead firms such as Walmart, the largest retailer in the world, in this case for instance none of the products sold by Walmart is actually produced directly by them, but by a network of more than 60000 suppliers directly controlled by Walmart itself located where it more convenient to operate in terms of costs and regulations (Gereffi and Korzeniewicz, 1994).

The sum of the effects of the trends mentioned above made it clear that the focus should no longer be posed on a single company or states but in the interconnection among actors that form a value chain. The importance of global value chains in the global economy is increasing and it is a vital condition for the development of the majority of nations; indeed, especially for low-income and developing countries becoming part, through their own companies and activities, of one or several global value chains could be an exceptional opportunity for development that, in the case of trade in goods would not be feasible. This can put underdeveloped countries in the position to start competing successfully and to generate new jobs, reducing unemployment and poverty. Furthermore, the GVC framework is useful when trying to understand how global industries are organized, what their dynamics are and what actors are part of it, and allows to individuate and manage the patterns of global production and demand.

Since the nature of the interconnectedness of GVCs makes them complicated to analyze, it is useful to break down the analysis of a value chain into six steps, the first three of them: input-output structure, geographic scope and governance structure are identified as "global dimensions" or top down in the sense that they refer to international characteristics, shaped by the dynamics of an industry globally. The following three; upgrading, local institutional context and industry stakeholders are referred to as "local dimensions" or bottom up and they refer to the way in which individual countries can influence the value chain. They will now be analyzed individually (Gereffi and Fernandez-Stark, 2016):

- Input-Output structure of a global value chain: the first step is to identify the main activities that are carried out; the world "chain" here stands for the entire production process that starts from the research and development phase and procurement of inputs, goes on with the production, the distribution part, marketing and sales and ends up with the recycling of the products after the usage. Naturally, different nature of goods and services that are produced worldwide requires for these steps mentioned above to be customized for every value chain that needs mapping. Furthermore, it is relevant to gain a deep knowledge of the sector that needs to be investigated in order to understand the forces and the trends that have shaped it and that are likely to modify it in the future.
- Geographic scope: globalization and the steps forward in terms of transportation and telecommunication allowed supply chains to become globally dispersed, countries participate in industries with the assets that make them competitive; some of them are stronger in providing raw materials and lower labor costs while other are more developed in R&D and product/process design. Geographic analysis' first step is then to map the activities and individuate where they actually take place and analyze carefully global supply and demand of the industry under investigation.
- Governance structure: this analysis allows the understanding of the control system of a chain, it shows which actors have more power and how the value chain is coordinated. The easiest way to individuate the focal point requires identifying of the leading and most prominent firms in the industry, understanding the relationships with their suppliers and related firms and in the end, individuating the source of their power and the ability to sustain it overtime.
- Upgrading: It is particularly important to investigate and understand which countries or companies have the potential and the adequate characteristics to undertake an upgrading path, making a step forward within the value chain and becoming more integrated and valuable. They will get discussed in depth later on.
- Local institutional context: since GVCs are embedded into the economy, the social and institutional setting of every country it "touches", the institutional framework is relevant to understand the relations with the policies and laws imposed by every state. It concerns, for instance, the labor rights, the tax obligations, the access to capital markets, subsidies, the education and innovation landscape; all of these being factors that deeply influence the way an organization is able to carry out its business activities.
- Stakeholders' analysis: in order to have a complete picture of the environment surrounding a value chain a thorough analysis of the stakeholders involved is necessary: the main ones that are at some level common for every industry are companies, workers,

workers associations, universities, industry associations, NGOs, customers and governments. It is important to highlight how the needs of each of these stakeholders' groups are addressed at a national level and thus the identification of the most critical players in the value chain ecosystem.

Figure 10 - GVCs analysis steps

Source: Gereffi and Fernandez-Stark, 2016

1.8.1 GVCs upgrading

Given the raising importance of global value chains in the business environment, where a significant proportion of world trade is in some way related to the activity of value chains coordinated by multinational lead firms, the continuous improvement of the actors within the ecosystem is fundamental. The rise and the development of global value chains often gives life to inequalities among countries, companies and individuals, due to the different levels of power that entities have, the different degree of authority one entity can exert on another and their different ability to internalize value added activities and profits, that are not homogeneous along the value chain. Furthermore, the increase of international outsourcing practices requires to move the attention to the quality of life of workers in many dispersed regions of the world; focal companies can no longer only be interested in their first-tier employees and suppliers but, on the contrary, it is necessary to care for every worker belonging to the chain. Nowadays global value chains' networks comprehend labor from a very high number of workers, including, for instance, Asia, Africa and Latin America. Their activity can space from huge manufacturing

factories to smaller realities such as farms, agricultural workers or homeworkers, that are typically part of the value chain through subcontracting deals, and this makes it a particularly complex task to address.

This need for improvement has been synthetized in three related concepts: economic upgrading, social upgrading and environmental upgrading (Gereffi and Lee, 2016).

When talking about economic upgrading we refer to the process by which economic actors move from low value activities to high value activities within global production networks (Gereffi et al., 2005). In this context, four types of economic upgrading have been individuated:

- Process upgrading: it refers to the changes in the production process in order to increase efficiency either pursuing a cost or a differentiation strategy.
- Product upgrading: it refers to the development and the introduction of new/modified products or services that are likely to be more advanced.
- Functional upgrading: it changes the layout of the value chain itself; it happens when the mix of activities performed changes. Alternatively, it can be referred to as the entry of a company into a higher value-added function within the value chain.
- Chain upgrading: it involves shifting into a new or different market or industry, this often means the need to acquire or develop innovations and capabilities that may be necessary to undertake a new project. This of course may be both in terms of capital, with the acquisition of a more advanced technology and equipment, and in terms of labor with the development of useful skills.

The second dimension of global value chain upgrading is the social one: it is referred to as the process of improving the rights and the working conditions of workers and other entities to ensure a more than decent quality of employment; these provisions include the respect of freedom, equity, safety and human dignity standards. This is a complex task since, as mentioned before, the workers belonging to a global value chain are numerous and extremely diverse among each other, both in terms of relationship with the value chain and in terms of geographic location. Measuring the well-being of workers is not a straightforward activity since a relevant part of it is subjective and hardly quantifiable; nevertheless the social upgrading criteria have been divided into two categories: the first one are the measurable standards and it contains those aspects that are easily quantifiable and comparable such as the type of employment, wage level, working hours, unionization level and percentage of female workers with respect to men; the second one on the other hand is the enabling rights of workers; they are harder to quantify and

very hard to compare among states; it contains variables such as the freedom of workers, bargaining power, discrimination issues and empowerment. The lack of enabling rights is a serious problem and can harm the well-being of the labor force (Barrientos et al., 2011).

The third and last type of global value chain upgrading is the environmental one. Different definitions on the topic have been developed, it can be described as the "process by which economic actors move towards a production system that avoids or reduces environmental damage from their products, processes or managerial systems" (Marchi et al., 2013).

It is clear, at this point, that firms are challenged to take responsibility for their social and environmental impact, not just at the focal lead firm level, but along their entire supply chain and in every aspect related to what and how they produce. The reason why companies should engage in more responsible and green behaviors is now clear and well known but the challenge is now for companies to understand how to do so; how is it possible to raise awareness and take concrete action towards a more sustainable future? When defining global value chains as long networks of interrelated firms, the underlying concept is that they are formed by several nodes where some of them are way more powerful than others and so much more able to enforce standards of sustainability; furthermore there are two opposing forces that are in place when trying to spread sustainability values along the value chain, on one hand the interrelated nature of global value chain makes it fundamental for every node of the chain to comply to more sustainable practices since the activities of each part of the network is going to contribute to the overall environmental footprint. On the other hand, every node and country where the operations are carried out stays for the most part independent from the others and this makes it harder for the lead company to control the behavior of upstream and downstream actors; furthermore the segmentation and the global dispersion of the operations means that the activity of the value chain are carried out in several different countries that are different both in terms of industry standards and the strictness of regulations. It is particularly important to care about the entire supply chain and not only the focal firms because very often, supply chains account for the highest percentage of a company's environmental footprint, up to 90% it. To make an example, IKEA, the Swedish furniture multinational only accounts for around 2% of its emissions, while the vast majority, around 98%, is accounted for only when considering the entire range of suppliers and affiliated manufacturers.

Two main points of view have been individuated when discussing environmental upgrading; in one side we can find the top-down view in which the powerful nodes of the network, namely the big lead multinationals have indeed the power to impose their decisions on how to produce,

where to produce and how to allocate the activities among the other actors. On the other side we can find the opposite perspective, the bottom-up perspective where the focus is on countries, regions or single firms and their ability to acquire higher value adding activities, increasing their profitability levels and ensuring growth and the well-being of workers. Once the concept of environmental upgrading is clear, it starts the most important part of the "going green" process, which is concretely taking action to improve sustainability; we can describe three types of actions that can be implemented which of course can be combined or pursued all at once:

- Process improvements: it focuses on reducing the impact along the production process, for instance reorganizing the production process or acquiring a more advanced technology in order to make it more efficient in terms of energy consumption or waste creation.
- Product improvements: focusing on developing and producing environment-friendly products, decreasing the waste or the misuse of raw materials and components; it can be related to the sustainability of the product's packaging as well or to the extension of the life of the product, reducing like this the need for constant substitution.
- Organizational improvements: it is related to the way in which a network is actually organized and managed and it often has as the objective the receiving of standards and sustainability certifications.

It is not certain, however, that suppliers, especially the ones that are less dependent from the lead multinational and that have some degree of bargaining power are willing to blindly obey to the focal firm. Fortunately, there are some techniques that a lead multinational can adopt when undertaking an upgrading path: the first one is to adopt a range of standards and certifications that suppliers must comply to in order to work within the value chain, there may be the necessity to develop some codes of conduct and/or an audit regime. Secondly, since often the product design function is carried out by the focal firm, this can be a tool used to design the products in such a way to reduce the waste of water and energy and the use of polluting chemicals; in this case suppliers must comply with the directives of the focal firms through the respect of its requirements. The third and last approach is the downstream transfer by the multinational company of knowledge and support, ensuring that the best performing practices are shared and understood among every actor of the network (De Marchi et al., 2019).

In recent years some technological tools have been developed, that could be used as an additional help when pursuing an upgrading approach. Together with globalization, during the last decades, numerous waves of technological development took place, starting with the wide

expansion of the computer as an everyday support tool up to the interconnection of people, objects and processes through the internet. Aside from the benefits in terms of increased efficiency, often they can be used also in order to boost sustainability practices within the operations of global value chains. New technologies are emerging in the field of industry 4.0 such as internet of things, artificial intelligence, blockchain and robotics; the contribution of these tools can change the current way of doing business (Esmaeilian et al., 2020).

One of the most prominent technologies nowadays is the blockchain; it has become popular thanks to the Bitcoin cryptocurrency network, and it can be defined as a distributed data structure (or ledger) in which data is shared on a network on a peer-to-peer basis; the members of the network (nodes) can communicate with each other, validating the data following a preestablished protocol that ensures credibility. Blockchains, considered as immutable, trustworthy and shared databases can have an impact on the sustainability of value chains; for example, by tracking environmental and social conditions that may potentially have negative impacts. It can influence, for instance, data collection and analysis, supporting decision making activities; and this can lead to more transparent and reliable information to every stakeholder within the value chain.

An interesting example is the application of the Radio Frequency Identification (RFID) in the food and beverage industry, where the pressures for a transparent supply chain are very strong; the "blockchain" concept here is to implement a real-time food tracing system, it can record data on every event that happens along the value chain where only authorized actors can elaborate those information, making sure to detect potential unethical actors or actors that are not complying with the standards imposed by the lead multinational firm. Companies realized that increasing value chain transparency in favorable in terms of customers' trust and can lead to a competitive advantage; blockchain technology has the potential to create a positive impact in terms of sustainability, by making information immutable. Since the latter cannot be modified without the authorization to do so, this technology can prevent individuals with malicious intents from cause damaging actions to the value chain process. Blockchain traceability can help can make it easier for companies to ensure the respect of human rights and environmental standards; for instance, a trustworthy record of the history of products can help customers understand whether a certain product has been produced through ethical resources and can help companies in tracking products from the beginning of the production process to the delivery to the final customer, decreasing the waste in transportation costs and emissions (Saberi et al., 2019).

1.9 Research question

The present work, in the previous chapter, highlighted the relevance that the sustainability topic has in recent times, indeed as we saw before, organizations of the caliber of the United Nations took action and publish a set of guidelines for companies and governments to respect. After that we saw that sustainability has not just one meaning, on the contrary it has three main subcategories, namely the economic, environmental and social one, that are engaged in respecting different interests of different stakeholders. However, if a complete sustainability strategy wants to be pursued, it's necessary to put some effort in every one of these three facets. Another point that was explained before is the relevance of the pressures that stakeholders put on companies, one of the most relevant driver of sustainability actions is indeed the external pressures that come from stakeholders that want to protect theirs or others interests with their actions; the power that these organizations gained over the years has increased with the increased importance of the so called stakeholder view that companies implemented, rather than the previous shareholder view, that was mainly concerned with the increase of the shareholders' returns. With the implementation of the stakeholder view, companies have to address many more different interests than before since they have to take into account many opinions coming from different points of view. Following that I focused on how companies are actually affected by the requests of sustainability coming from outside of their boundaries and, especially, I analyzed how it affects them and their operations, focusing on their supply chain processes. As we saw, however, the definition of supply chain is slightly reductive nowadays since companies have expanded their operations all around the world; with the fact that companies expanded their operations to different actors that are located in different parts of the world, it is now more complete to define them Global Value chains. In addition, when trying to combine sustainability with global value chains, I talked about GVCs upgrading; this is a very wide topic since the improvements that can be made within a value chain are plenty. In particular, it is possible to make improvements at different levels of the value chain, namely product, process, functional and chain, and every one of them brings new challenges.

The research question that I analyzed in this thesis is related to multinational lead companies and their ability to influence their global value chains with their positive sustainability actions. Indeed, in the following chapters I will focus on understanding if thanks to the high level of bargaining power they have, multinational companies are able to spread downstream a sustainability mindset to their first and lower tier suppliers, in particular in the food and beverage industry. I decided to do so by elaborating the data created by the IPE database, that will be explained in detail later on and in particular to make use of the CITI index, that is the

Corporate Information Transparency Index. I believe that discovering to what degree companies are actually able to influence their suppliers with their pressure towards sustainability is a topic that has not been discussed in depth so far, and that is worth working on since, as I mentioned before, the great majority of the polluting activity and the emissions related to a company do not come from the company itself, but rather from their value chain.

CHAPTER 2

In order to begin this chapter that will focus describing the characteristic and the peculiarities of the food industry, an explanation is needed on why I decide to analyze this particular sector. First of all, with the years this sector became extremely internationalized; in the past every meal that people consumed was sourced locally and it would have been unimaginable to consume something that came all the way from another country. Over the years, however, as the population and the purchase power increased, the need to exploit the comparative advantage of different nations increased and food companies started to source their products from different parts of the world, giving life to complex food Global Value Chains. The second reason why I chose to focus on this topic is the fact that the food and beverage one is a sector in constant transformation, seasonality changes and most of all, people preferences and habits change; this industry needs to react very quickly when carrying out their business and need to have a well organized value chain in order to follow the perishability nature of the majority of these products. The third and last reason why I decided to analyze this industry is that it is a relevant one in the sustainability discussions scene. Needless to say, the food and beverage industry is one of the biggest and most active ones and, as we could understand also thanks to the Covid-19 pandemic, it is fundamental since it provides basic, essential necessities for people. Besides being one of the sectors that accounts for the most in many global economies, it has been proven, as we will see in the following chapter, that it is among the most polluting industries especially in terms of greenhouse gas emissions. For this reason, together with the fact that many peoples are, nowadays, always more careful with what they ingest and with the sources of what they consume, food and beverage companies have been part of an extensive sustainability investigation, with a high number of external NGOs and health organizations that put pressures on them in order to be more transparent and to become more sustainable. Furthermore, I believe that it is of common interest to understand if the sustainability actions that big food multinationals advertise, are indeed being applied also by the actors that source their products and that are very close to their operations.

2.1 Recent transformations in the food industry

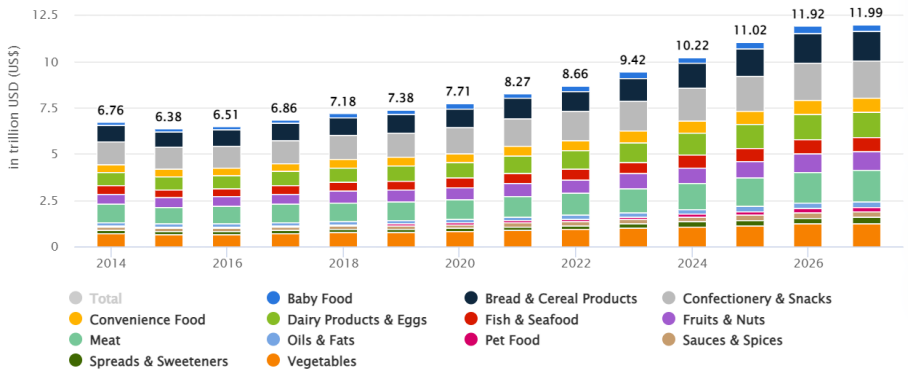
Even though “food industry” seems a straightforward concept, due to its remarkable extension, it is not easy to define. It can be considered as the entire global network of businesses that provides the world’s population with the majority of food and beverages they consume. This term does not only refer to the industrial production side, but it comprehends a high number of

activities such as agriculture, livestock rising and fishing for the production of raw materials, manufacturing and food processing, where the raw materials gets transformed and prepared for being sold; and distribution, retail and marketing, where goods are packaged, advertised and distributed to retailers. In addition the food industry comprehends also those activities not strictly related with the food and beverages production but that are associated to this sector, such as regulation, meaning the local, national and international rules and regulations for food production (it includes a big portion of food quality and food security regulations), then we can find education on this topic and research and development: the first one is concerned with the spread of fair and correct knowledge and rules and the second one is related to the development of new technologies and innovative practices to improve every aspect of this industry. In the actual landscape, the food industry is highly diversified and segmented, and it is composed of very diverse actors, and in the manufacturing activity, it spaces from big capital-intensive automated industrial processes to small labor-intensive family-run activities.

The global food and beverage market size has been established, in 2022, at 6383 billion dollars with respect to 2021 when it accounted for 5817 billion, showing a compound annual growth rate (CAGR) of 9.7%; furthermore the food and beverage industry is expected to grow up to 8905 billion dollars is 2026, with a CAGR of 8.7% (The business research company, 2022).

The following chart highlights the expected growth of revenues in the food and beverage industry, divided by segment; as we can see the global revenues associated to this industry show a positive trend, it is expected to grow from 8.66 trillion dollars in 2022 to almost 12 trillion dollars in 2027.

Figure 11 - Food industry revenues growth



Source: Statista

A report created by Pwc (PricewaterhouseCoopers, 2018), has highlighted the ten trends that, in these years, are driving the major changes that are taking place in the global food industry, they will be now analyzed:

- Globalization of food supply chains: the cross-border trade of food is nowadays higher than ever before, businesses tend to look for growth wherever possible, considering also the expansion in foreign markets as an important opportunity. The majority of them, considering the low margins obtainable in this industry, keep looking for low-cost suppliers all around the world. With the advent of globalization, furthermore, food quality and safety requirements are more and more stringent, making control and traceability over food and beverages global value chains a much harder challenge.
- Integration of supply chains: due to the fact that, in recent years, food trade became subject to more stringent regulations, food companies are now investing efforts and resources in integrating their supply chains to improve traceability of the process and safety of products. Furthermore, this trend is strengthened by the enforcement from governments and policy-makers of regulations to encourage the transparency of the supply chain and the production process.
- Scandals and increasing scrutiny: with the universality of social media and the increasing interest of customers about healthy living and physical well-being, one episode of poor quality of products can become an international scandal extremely quickly, leading to dangerous consequences for companies and their reputation. Food safety scandals happening all around the world are triggering public health worries, having a negative impact on trust that consumers have towards food companies and governments. One example of this happened in 2013 in Ireland, when after some tests run by the Food Safety Authority (FSAI) on frozen beef burgers and products containing meat in several supermarkets, horse DNA was identified in over one third of the products. This has had a strong impact and due to the strong integration of Irish supermarkets supply chains with the British ones, FSAI had to inform the UK Food Standards Agency of its findings; ultimately these events ended up in a large product recall from the main supermarkets and the decrease of trust of customers.
- Rising regulatory standards: governments are adopting higher standards and stricter regulations when it comes to food safety, in particular, in the majority of cases supervision activity and sanctions in the case of forbidden practices are more and more frequent. This leads to the need for companies to adapt their disclosure to the requirements and it increases the compliance efforts. The rising in standards,

furthermore, is particularly challenging for those companies that operate with a disperse value chain, in this case indeed complying with the different regulations imposed by every country they operate within and harmonizing the processes is not an easy task.

- Shift in global economy power: the growth of several economies, such as the Chinese and the Indian one is creating new dynamic consumers markets; their population is among the fastest growing ones in the world, leading to a sustained need for more resources. The new trends are likely to increase the power of those and other growing states, reshaping the power dynamics of the actors of several global value chains.
- Technological and scientific breakthroughs: new technologies and scientific advances are increasingly ameliorating the ability of regulators to enforce their policies, detect hazards and risks; some examples of these new technologies are GPS mapping of products and resources or, for instance, DNA labelling. The application of new technologies, together with the relevance of data analysis in this field can strengthen the ability to perform tighter controls, improve quality and improve efficiency along the entire global value chain; for instance, thanks to the fast traceability of products throughout the production process companies are more efficient when it comes to recalling some products in case of problems. In addition, the use and the sharing activity on social media by consumers created a network of knowledge where transparency is higher than ever before.
- Changing food demand: the economic development that characterized the last decades, together with the growth of global population, increased the overall food and beverages consumption; the growing middle class started demanding a wider and more qualitative variety of products and the growing purchasing power led to an increase in more complex and resource-intensive foods such as meat and processed foods.
- Empowered customers: with the advent of the internet consumers have access to an unprecedented amount of information about food safety and health and social media enables basically every customer of the planet to share its opinion and experiences, that can travel extremely fast from one side of the globe to the other. For these reasons, in order to try and appease the consequences of a potential scandal, companies are investing more in communication plans, risk management and crisis management.
- From compliance to competitive advantage: in order to strengthen their competitive position, big food multinationals are setting high internal standards, often even higher than those required by the law; indeed, instead of merely complying with current requirements, companies are aiming at obtaining a more than ordinary quality that can distinguish them from the competition, strengthening customers' loyalty and trust.

- Population growth and resources scarcity: by 2050, with growing population, it has been calculated that agricultural production will have to increase by approximatively 70%, however this is a problem considering that our actual food production is already unsustainable at the current level. Governments are already taking action through the use of new technologies, acquisitions and diplomatic relations in order to secure access to water and raw materials to ensure an adequate food supply for every citizen.

The food industry, as explained above, is undergoing several transformations, making it a challenging task for companies to keep up with the pace of innovation required to be able to compete at best in this dynamic environment. The food industry, in addition, has always been under thorough scrutiny due to the safety standards required by customers, but this trend has become even more stringent in the latest years. The occurrence of international food safety crisis and the general increase in the demand for high quality food have enhanced the attention of customers towards the provenance of what they purchase and consume; furthermore, the coverage that the health topic had in social media lately, led consumers and stakeholders of the food value chain to respond to this changing their behavior and their beliefs.

There are two main sources of information that customers can rely on when trying to gather knowledge on the agriculture and the food industry: mass media and labelling and traceability (Verbeke, 2005). The first one is the most relevant one nowadays, when advertising is the tool that gets used the most by companies to communicate with customers; furthermore, two main types of advertising are individuated: brand advertising, which objective is to expand a particular company's market share and generic advertising, that is primarily concerned with increasing the demand or reducing a decreasing trend in demand for an entire product class. By definition, generic advertising is not only generic when we talk about the class of products it refers to but also when we talk about the public it tries to address, indeed it targets the general public rather than specific customer segments. On a more negative note, however, it has been noted that often general advertising is used to counter negative opinions from food quality and safety issues, indeed empirical studies confirmed that generic advertising expenditures are recorded to be particularly high in periods dominated by an increase of negative media coverage. The second source of information that customers can exploit is labelling and traceability: labelling tends to be considered among the least costly methods when publicizing food safety and healthiness information, however it can become very costly in the case in which independent certifications and a detailed traceability process are required to guarantee the truthfulness of the information that is published. In addition, a further distinction needs to be specified, namely the differentiation between mandatory and voluntary labelling disclosure;

while the first one aims at correcting customers wrong beliefs, minimizing information asymmetry and reducing market inefficiencies, the second one's objective is to differentiate the products from the competition and leading consumers attention to positive and desirable product attributes.

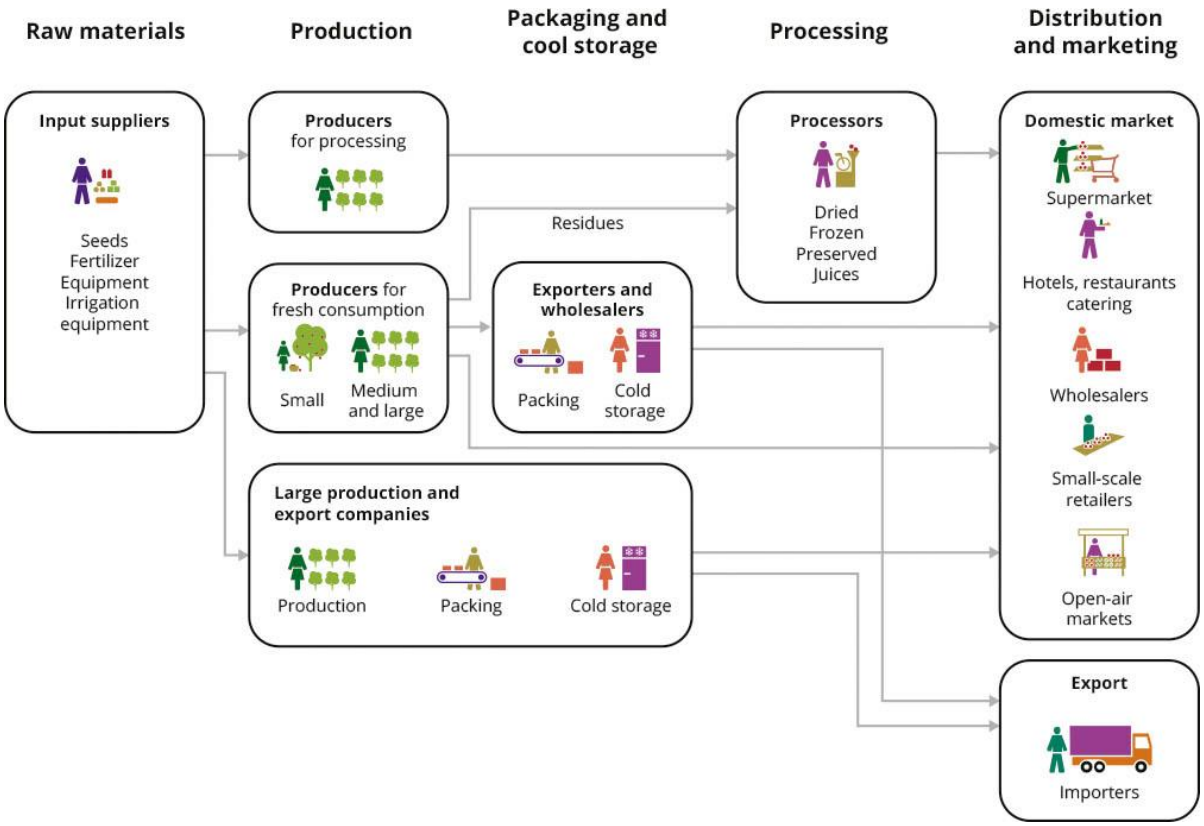
In the light of this, an additional challenge that agri-food companies, food safety organizations and governments have to face when it comes to traceability of products and processes is the fact that globalization waves hit this industry as well; even this sector undertook and internationalization process and a globalization of the value chain, giving life to integrated food global value chains. This, together with the proliferation of food quality standards started new challenges rising from the need to upgrade the entire value chain, and not only the lead company, into respecting some given standards; in addition, this task is particularly hard since often big food multinationals rely not only on big manufacturers but also on a really extensive network of small-scale producers, whose operations, being extremely different among each other, are difficult to environmentally and socially upgrade in a homogeneous way. In particular, the main question is whether being part of a global value chain can lead a small producer to become more efficient and sustainable. The globalization of agri-food value chains together with the fact that quality is playing an increasingly important role in shaping the industry's competition, have transformed how the entire agri-food industry operates and the relationship of lead firms with their small suppliers. First of all, nowadays food supply chains have reached a global expansion thanks to the liberalization of international trade, the increased amount of foreign investments and the development of more advanced technologies that made it feasible for both processed and fresh foods to be transported globally in a reasonable time span; furthermore, in order to increase their flexibility, lead firms make use of integrated small suppliers often located in developing countries that allows them to have high volume and low price products available on a year-round-basis. Another trend that is really relevant nowadays is the shift in power within the global value chains: in this globalized environment power has shifted towards big retailers rather than the producers; modern retailers, especially in developed economies, grew exponentially and gained more and more power recently, becoming the lead firms of many value chains. This power that they gained lead to an unprecedented bargaining power that allows them to demand cost-cutting measures and to require even higher standards to their suppliers, which may be a costly challenge especially for smaller suppliers. An opposite trend, in the end, shows that now that competition is thoroughly focused on quality, big retailers undertook a strict vertical coordination along the value chain. Competition changed in the sense that while in the past it was mainly price based for undifferentiated goods, now it lies in

differentiating oneself from competitors, creating products that will satisfy the need of premium-paying customers. In order to do this, a high coordination among actors is required and it is more convenient for lead firms to establish relationships with fewer and bigger suppliers that facilitate traceability and ensure the quality and standards that are required.

2.2 Food Global Value Chains

The trends mentioned above led to a sort of dualism between large, industrialized suppliers and small labor-intensive suppliers that gave life to several different governance structures of agricultural and food value chains that will need to be managed according to the individual needs; in reality however the two types of production systems coexist, and the majority of food value chains make use of both types of suppliers. The table below is a representation of the main actors that operate in a standard food global value chain; starting from the left, hence the beginning of the value chain we can find raw materials producers: they could be either small labor-intensive farming activities or very big, industrialized organizations. Both these latter supply to production facilities the goods that they need to process; typically, it can follow three main channels: producing for processing for the goods that need to receive some sort of treatment or transformation before consumption, producers for fresh consumption that are characterized by stringent time constraints and, lastly, production directed to international export companies. One more relevant actor that plays a fundamental role in managing food value chain are wholesalers, that collect raw materials or semi-processed products to importers and retailers. Here, in different volumes and timing, every product is transformed and prepared for the consumption by the final customer. The last part of the value chain is represented by the distribution and marketing phase, here the products are transferred to retailers such as supermarkets, hotels, restaurants, smaller wholesalers, markets or exported to foreign countries. Every step of the global value chain mentioned above is often carried out in a different part of the world and between production and consumption several thousands of kilometers can be found.

Figure 12 - Food value chain's actors



Source: Food and Agriculture Organization of the United Nations (https://www.fao.org)

The increasing length of global value chains enhances the risk for food products to be contaminated and it makes it much more challenging for companies to verify and assure quality standards in every step of the production process, in turn this setting has generated trust issues and anxiety in customers which finds it more difficult to monitor the sourcing and the processing techniques of the products they consume; for this reason, public regulations became stricter. On the other hand, as it was mentioned before, private quality and sustainability standards, that are different from the previous ones since they can be voluntarily adopted by a firm, have become a form of competitive advantage that firms use to differentiate themselves from the competition. In the majority of developed countries, public and private standards coexist and complete each other, keeping in mind that every global value chain has its own characteristics and that they cannot be fully harmonized. In this complex context of governance structures, private and public regulations and power shifts, suppliers have basically two choices, either they upgrade and keep improving to keep up with the requirements of the lead firm (keeping in mind that this process requires financial and informational efforts), or they can exit; they can exit the domestic market which may have stricter regulations or exit the global value

chain and being incorporated in another value chain with more relaxed standards even if this gains may only be a short-term solution.

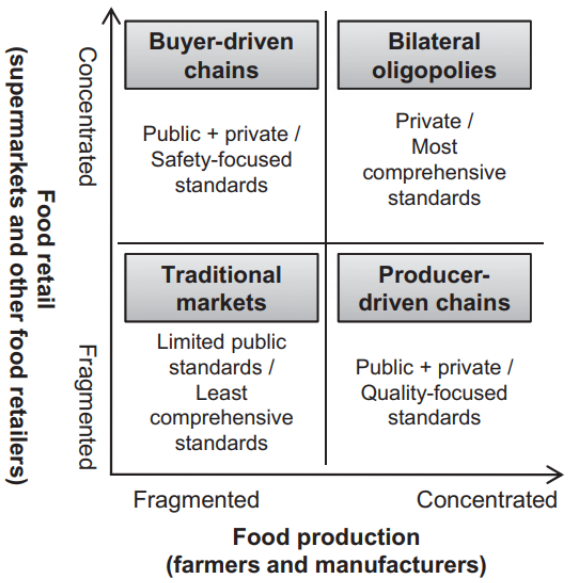
To better understand the choices that suppliers have when coming face to face with different governance structures and increasing sustainability and quality requirements a framework has been developed by Lee, Gereffi and Beauvais that links the structure of the global value chain with the agri-food standards depending on the level of concentration in food production (suppliers and manufacturers) and in food retail (supermarkets and other retailers). Four governance structures have been individuated (Lee et al., 2012):

- Buyer-driven chains: here we can find a highly concentrated food retail side and a low concentrated food production side; this type of framework has expanded rapidly in many food sectors as retailers became more and more concentrated in developed countries and when retailers hold that kind of power, private standards and requirements tend to prevail. When in the presence of many small suppliers, in addition, exporters and wholesalers play a fundamental role in managing the supply chain, and these latter have a greater incentive to support small-scale producers thanks to the greater efficiency of small suppliers in labor and land use.
- Producer-driven chains: in this case we observe a fragmented food retail side and a highly concentrated food production side; here food manufacturers play a fundamental role in organizing and managing value chains, the main source of their power is their activity of supplying and processing commodities that are widely used by food companies, such as coffee and cocoa beans. In this circumstance, thanks to the noteworthy power they hold, big manufacturers are able to affect small producers due to the fact that they control a vast portion of the entire international trade of commonly used food commodities. Furthermore, since big manufacturers are often in charge of the assurance of quality in this type of value chain configuration, small farmers have little to no choice on how they conduct their farming process and, compared to their situation in buyer-driven chains, here small producers are likely to obtain lower gains since due to the presence of large manufacturers that cannibalize most of the business. Some cases of small-scale producers' success have been registered whenever they were involved in high-quality niches such as particular or organic products (like refined or particularly valuable cocoa or coffee).
- Bilateral oligopolies: this value chain configuration in characterized by a high concentration both in the food retail and food production side, usually together with a very strong coordination among the two sides of the market. This value chain

governance model typically presents all the characteristics for the setting of very high private standards on top of the already set public requirements since big lead retailers are powerful and have the resources to enforce private standards, and concentrated manufacturers have the financial and knowledge resources to be able to comply to the higher quality and sustainability requirements. This type of organization in particularly used when processing products that with a potential health hazard and risks such as meat and other animal derivatives. Some other common examples of this type of industry layout are plantation-based fruit products such as pineapples and bananas; for instance, the global value chain of bananas in highly vertically integrated and very concentrated in both sides of the chain, five bananas' producers are actually controlling the 80% of the entire world export and the retailing companies are typically represented by major retailers. Often small producers struggle to keep up with the slim margins that they can enjoy and with the strict sustainability requirements, leaving them short for value-creating and business opportunities.

- Traditional markets: this configuration is characterized by both a fragmented food retail side and a fragmented food production side; typically, the competition is fairly high and it is based mainly on prices, with no or little band loyalty of customers. Government set public safety and sustainability requirements that are not particularly strict and no company has the means or the incentives to enforce a set of private standards. Traditional markets have the characteristic of posing the lowest entry barriers among the four types of value chain governance systems and for this reason it often attracts small suppliers that are looking for a value chain with lower quality standards to switch to because they are likely to not be able to comply with some imposed standards; however this is not a successful strategy for smallholders since developing countries started to adopt stricter standards as well, leaving small-scale producers no choice but to adapt to these requirements.

Figure 13 - Retailers and producers' concentration matrix



Source: Lee et al., 2012

2.3 Sustainability in the food industry

The food and beverage industry has always played a fundamental role both in local and international economies; indeed, it is the largest manufacturing sector in the European Union economy. It employs almost 4.5 million workers just in Europe and it is a strong presence in every member state; in 2019, this sector generated more than 7% of the entire EU GDP and is likely to grow even more in the future, when the expansion of the manufacturing sector may lead the production of a strong 20% of the European GDP ("Food and Drinks Sector," 2014).

The increasing demand for food and beverage products is driven mainly by the growth of population wealth, and this not only leads to higher prices for consumers and higher market volatility, but also to an increased pressure on scarce natural resources such as soil, water and energy. This steady increase in demand represents a real threat to sustainable growth and development of the industry and puts a particular urge to create and implement new business models and to try and find the right balance of interests, taking into account economic, social and environmental issues (Zhu et al., 2018). Given the new horizon on global value chains it is relevant that every lead firm sets up interconnected collaboration relationships with its partners, starting from farmers all the way to food manufacturing and processing activities, distributors

and retailers; nowadays the food industry serves two major types of products that can be categorized into "fresh" agricultural products and meats and the so-called processed foods such as snacks and canned food. Both of these categories and the value chains that lie behind those products are very different from any other industrial supply chain because of food's and beverages' unique features such as perishability, stricter institutional regulations on quality and safety, consumer's variability on tastes and preferences and, in turn, operational challenges in the storage, processing and distribution process. Furthermore, the food industry faces concerns such as its high greenhouse gas emissions and related to energy sources and consumption: for instance, about 30% of the entire world's energy is consumed by the agriculture and food sector and, in addition, it is fundamental for temperature control in order to guarantee food safety and to control the level of food deterioration over time. Secondly, food and beverages supply chains are responsible for a non-neglectable share of greenhouse gas emissions; it has been estimated by several studies based on a regional analysis that the food sector accounts for more than 30% of the total European greenhouse gas emissions. Another challenge that companies operating in this sector must face is that when it comes to products with a short shelf life, it is required a more than efficient distribution system that needs to deliver and distribute products when they are needed and where they are needed due to their high deterioration risk. Due to these reasons and to the increasing awareness and visibility of sustainability, sustainable food production has become a very popular topic and consumers are, nowadays, placing very high expectations on food sustainability, in particular regarding social responsibility, quality and safety of items, emissions and clean energy sources; this trend that is happening in the market has changed and keeps changing the way in which global value chains are organized and managed, pushing towards a more efficient and sustainable design of operations (Lang and Barling, 2012).

The more pressing request for economic, social and environmental sustainability by many different categories of stakeholders has affected the majority of industries worldwide, and the food and beverage industry is definitely not an exception, on the contrary it has been one of the industries which has had the most noteworthy impact out of this trend. Being the food industry one of the biggest and most constant global industries it has been deeply criticized and posed under investigation for several of its processes. One of the most prominent examples, that is nowadays extremely discussed is the excessive consumption of meat and its consequences; indeed, livestock farming for human consumption is responsible for the emissions of the 14.5% of the total global greenhouse gas and furthermore, agriculture (that is mainly directed to the feeding of livestock for human consumption), is responsible for 75% of global deforestation and excessive water and fertilizers consumption.

In a survey conducted by PwC in 2015 (PricewaterhouseCoopers, 2015), the results showed that only around one third of the general population was aware of the seventeen sustainable development goals adopted by the United Nations mentioned in the previous chapter while the 92% of companies were in awe of this new body of norms; but despite the lack of information on the customer side on this fields the demand trends have registered an increasing interest in ethically sourced and sustainable food products, and companies have started taking action to respond to these relatively new customer needs.

The food industry, as mentioned in the previous paragraph, is not excluded from the integration into coordinated global value chains; several studies on the field of agricultural chains have documented the process in which the global agricultural and food industry were subject to a transformation into buyer-driven global value chains where big corporations retain the vast majority of the power. Some other fundamental actors who play important roles in the managing of food value chains are international traders that are relevant in the sense that they hold the power to influence the operations of small-scale suppliers that would otherwise lack the means to take part into large, integrated value chains, the government which has the power to set public standards that every company must comply to, private certification networks which can influence the degree of competitive advantage that a company, or an entire value chain can enjoy compared to its competitors, and in the end NGOs whose pressures and investigations can have a significant impact on how a company carries out its business in the respect of social and environmental fairness.

These findings help us understand that food value chains are extremely different among each other, each one of them has its own regulations, its own governance structure and its own best practices to be respected so we will not find a universal sustainability rule that can be applicable to every possible scenario, on the contrary it is fundamental to understand what drives the need for better sustainability plans in every contingency and act in that direction; the highlight, furthermore, is that in every global value chain configuration different actors retain different levels of powers and influence and that is why it is important to understand their objective and what they can do to influence the entire network within which they operate (Tran et al., 2013).

We understood so far that stakeholders are demanding transparency for every process along the food value chains and requiring elevated economic, social and environmental sustainability standards; one standard framework for every company to respect is not possible to set due the high heterogeneity of this industry.

The impact that globalization had on the agri-food sector, in an even more evident way than in any other industrial sector, can be seen in the strong downstream concentration of power that is now held often by multinational processing and distribution companies which, in turn, can

influence widely the governance of the entire value chain. This concentration of power that is revolutionizing the shape of value chains is actually in contrast with a theory of sustainable value chain governance developed by Porter and Kramer in 2011 that explained how the best way to assure sustainability was for the actors to jointly define the guidelines to improve sustainability strategies for three reasons: the first one is to better integrate their actions, and especially their interactions, to ensure smoother processes, the second reason the authors proposed is that cooperation can facilitate the data collection process to better monitor sustainability and the third and last one is to find some unique standards and indicators everyone can agree on when monitoring the sustainability performance (Petit et al., 2018).

In latest years, in response to the waves of criticism that have been raised by several stakeholders about the negative impact of the global agri-food industry (one of the biggest and more thriving of the world), organizations and customers and several other stakeholders, especially the ones located in importing countries, have started posing pressures international suppliers to comply to higher social and environmental standards; this new pressures led, in turn, multinational companies to rethink their entire supply chains and to take action to make their operations greener.

While it is rather straightforward for some industries to comprehend how their "greening" process can consist of, it is not completely clear the limits and conditions that can make an agri-food company be considered sustainable, especially in terms of the diversity of suppliers this industry has; indeed, more than one criticality can be found when talking about the food sector rather than any other such as energy, automotive etc. The first one is that the nature of the agri-food sector is typically seasonal, so multinational processing firms and retailers have to source products from a wide range of often small producers located in many different climates and regions of the world in order to be able to ensure customers the presence of a wide variety of products all year long and, in addition, it is very challenging to monitor labor requirements, the environmental behavior and to evaluate the overall global impact of every productive region across the world; the second difference to consider is, as mentioned before, high levels of concentration that dominate this industry especially at the retail level that creates a perfect opportunity for NGOs to raise criticism and pressure companies into undertaking greener action and, lastly, the fact that this sector is characterized by a wide extent to which the production process has the potential to influence the quality and the safety of products and of the people who consumes them, that among several risks, gives life to new possibilities for companies to exploit their strengths to differentiate from the competition and use it as a marketing tool to create a competitive advantage.

There are different types of sustainability instruments that can be exploited by companies of the agri-food industry that differentiate one another from the degree of strictness they have; in particular, we can list three of them:

- Lower stringency instruments: these are direct investments and internal codes of conduct; these instruments are not compulsory, are usually designed and operated within a specific company and, most importantly, they are not monitored from external auditors. They are created to improve the competitive position with respect to the other companies and are usually used as a sign to communicate to stakeholders efforts towards a continuous improvement of an organization.
- Medium stringency instruments: in this category we can find multi-stakeholder roundtables, retailer-imposed standards and third-party certifications. The first instrument is often a result of an agreement among many different stakeholders such as actors involved in the industry and NGOs and their discussion considers several points of view, taking into account the interests of many different participants. The second one, the standards imposed by retailers, are mainly driven by food safety and quality requirements companies must comply to and they tend to comprehend environmental policies as well. The third and last point, namely third-parties' certifications are the most stringent among the three; and are typically established independently by an organization; in the end, since they are audited by third parties and those companies who do not comply to them are subject to sanctions, their ability to actually induce to action is much higher.
- High stringency instruments: the two more stringent instruments in this hierarchy are appellations of origin and bans; the first ones indicate the need to include in food labels the details about the origins of that specific product and are required by governments, while the second consists of the prohibition of the use of some resources. Of course, the deviation from both of those norms will lead to sanctions; they are generally audited by third parties and for these reasons they are the strictest ones.

Furthermore, there is a relevant list of characteristics of food value chains that companies need to take into consideration before engaging in any practice directed to improving the sustainability profile of a company (Rueda et al., 2017), which are:

- Environmental risks are high and known by civil society groups who have started pressuring companies to address them: the dangerous combination of damages caused by the misuse of resource by food companies with the unprecedented media coverage and attention to social and environmental issues is a perfect mix for a loss of reputation

in the case of a crisis; it is then fundamental for companies to manage potential risks upstream in order to protect themselves from loss of loyalty and brand credibility losses.

- Technologies should be available at a reasonable cost: there is an important trade off between sustainability and the costs of implementing it; if a new and more sustainable technology increases notably production costs and if no larger market share or premium price can be obtained from the commercialization of more sustainable products, a firm will not be incentivized to implement it.
- Environmental governance at origin is strong and supportive: it has been proven that the stronger the governance framework within the country a firm operates in is, the more the company will be willing to enforce voluntary sustainability instruments, even above the ones set by the government itself. For instance, most countries in Latin America, that can enjoy a middle-high income level provide much more institutional support than most sub-Saharan countries; in these circumstances, companies sourcing cocoa from Ghana, for instance, will have less incentive to adopt environmental standards rather than a company sourcing, for instance, bananas from Ecuador.
- The company exercises effective control over its suppliers: since in food value chains one or few actors have the power to influence the behavior of every other participant thanks to vertical integration, the transaction costs of implementing sustainability instruments with suppliers is decreased and their standards can be more uniform and credible.
- The brand recognition is high, and the raw material is highly visible in the final product: besides leading to high value for both companies and customers, high brand recognition is linked to a high reputational risk in the case something goes wrong; in this case, the visibility of the final product by the customer is high and companies are better off developing some strong standards to ensure certain levels of sustainability. For instance, in the coffee industry, where the product is minimally processed, it may be reasonable for companies to create a code of conduct enhancing the production process steps while strengthen the brand.
- The raw material is only made in a specific place and its quality attributes cannot be replicated: there are some instances in which the unique feature of a product is given by the location where it is produced, in this case it may be wise for a company to protect the place of origin via appellations of origin. On the other hand, if the company handles a generic product, a third-party certification is more suitable since it ensures sustainability and quality but offering the freedom to source from different locations.

2.4 How to pursue sustainability

When we talk about food industry sustainability, it is not straightforward to individuate a complete range of concrete actions that a company can implement within itself and along its value chain to improve its sustainability agenda, since every company is so different from each other and produces goods that are often not even comparable; in addition there are still many gaps in institutional regulations and we cannot find an homogeneous body of law that every company must comply to no matter where it operates worldwide, on the contrary the regulatory environment is deeply scattered every nation enforces its norms with the degree of strictness they find fair; this of course may lead to opportunistic behavior of companies who try to exploit looser regulations for their own interests and, again, it leads to a low level of comparability among nations in the world.

Besides those limitations, however, it is still useful to develop a general list of the main actions that an organization can accomplish in order to limit its negative impact on society and on the environment and, on the contrary trying, through its more responsible choices to do something positive for the environment it operates within.

The first class of impacts that a company has, whose right management is fundamental for a sustainable behavior, is related to the exploitation of the basic inputs and resources of the earth, namely water, soil, air and energy:

- Water waste: the food and beverage industry has, as a matter of course, a strong impact on the environment since, in order to work, it needs a substantial amount of natural resources such as water and land and, as a consequence, it will produce several types of waste and wastewater. Overall, for instance, this sector is responsible for the consumption of around 2% of Europe's total water usage. It is used as a key input for the food sector, both as an ingredient, as a fundamental element of the production process or as a cooling element along the industrial transformation of products. Given its multiplicity of uses, wastewater can be identified as the number one type of waste in this sector; it is often characterized by contamination and is typically filtered and treated before being released back into the environment, and this represents a crucial point for the environmental respect and the reduction of the footprint of companies. One loud movement that expanded a lot recently is the one concerned with the sustainability of the diet of developed countries, that says that the excessive consumption of dairy and meat products are one the main causes of drinkable water scarcity since, during its life

span, an animal consumes a massive quantity of fresh water, and this is often referred to as "water footprint" of beef production (Valta et al., 2015).

- Soil: two of the main issues when it comes to land exploitation are deforestation with a consequent loss of biodiversity, and the usage of toxic pesticides and fertilizers to grow more consumer pleasing products. The growing attention towards excessive deforestation caused by the productive activity of companies and the loss of biodiversity that it causes, has encouraged the establishment of new initiatives by public and private actors to reduce soil exploitation. The main objectives of these efforts are primarily made of corporate codes of conduct and sustainability standards that may also be implemented through certifications and sanctions. The convergence of public-sector goals to reduce forest degradation and the pressure from society have created a whole new set of opportunities to increase companies' commitments; indeed, the number of undertakings in this field, namely zero-deforestation commitments along the value chain, increased notably in recent years; as of March 2017, for instance more than 450 among producers, traders, manufacturers and retailers were involved with almost 800 initiatives. However, the commitment of companies will lead to an actual measurable reduction of deforestation only if corporate motivation is strong and determined; if their efforts are driven by imagine and reputation building, companies are likely to communicate vague goals with little real impact. If, on the other hand companies are really motivated to improve their sustainability agenda, they usually are much more concrete and true to their goals (Lambin et al., 2018). The second issue when it comes to impacts on land refers to the use of fertilizers and pesticides; the massive usage of chemicals for the growth of more and more aesthetically pleasing products is a central theme in sustainability and it causes impacts both to the natural ecosystem and to human health. For what concerns the environment, over the years the use of chemical substances contaminated mainly the soil, underground water and the atmosphere itself; on the other hand, when talking about human health it may be compromised by the exposure and the consumption, through produce, of these harmful substances (Torretta et al., 2018).
- Air: food value chains are responsible for a particularly high share of total greenhouse gas emissions; indeed, it has been estimated that this sector accounts for more than 18% of global emissions when considering animal products alone. Food production as a concept is very heterogeneous, the range of goods and services produced is huge and the production processes are very different among each other; however, some common traits can be identified. Animal products, such as meat and dairy have considerably

higher emissions per kilogram than vegetable products, even if there are several exceptions, in addition transportation plays a relevant role in the sense that inefficient transportation modes are often used, and a disorganized distribution process can worsen the value chain's performance. Around on third of the amount of greenhouse gas released into the atmosphere due to the processing of animal products is due to deforestation, especially when it comes to developing countries; indeed, a large share of it is caused by the need for arable land especially in the southern countries of the world. In the end, the perishable nature of the products handled by the food industry and the high number of independent actors taking part in the production process increases the challenges of maintaining food value chains environmentally efficient and sustainable and the waste can be substantial; this often means that the emissions created to produce and transport this product happened in vain (Sonesson et al., 2010).

- Renewable energy sources: this type of impact is actually common for basically every sector, indeed energy production and consumption are two of the main causes of climate change and accounts for almost 60% of global greenhouse gas emissions; nowadays, renewable energy such as the one derived by wind, water and sun, accounts only for the 15% of the production of world's energy and the utilization of sustainable resources is becoming more and more challenging due to the fast pace of technological development and urbanization. In addition, there are several initiatives and regulations in place to monitor the transition towards renewable energy sources, according to the Energy Roadmap 2050 that was approved in 2011, every European country should increase the percentage of the utilized renewable energy up to 25% by 2050. When it comes to clean energy sourcing, every industry and company is involved since the use of energy is a common trait of every one of them and the efforts should be concentrated towards a common sustainability goal (Liczmańska-Kopcewicz et al., 2020).

The second class of issues related to the food industry that are a great starting point for improvement is the one connected to the productive process itself, from raw materials all the way to the transformation of inputs and the distribution to retailers:

- Farming practices: farmers find themselves to deal with increasingly stringent environmental regulations, improved quality standards, volatile markets, very precise animal welfare demands as well as increasing uncertainty for what concerns future policies and requirements; the pressures on the farming world are becoming more stringent and, less predictable than in the past. This uncertainty environment, amongst

other things, is coming from the more and more frequent extreme climate events, the need to reduce emissions and energy consumption and the entire branch of public health and quality regulations that comes from intensive animal production and the potential health hazards that comes with it. However, the common trait that seems to connect all the new sources of uncertainty that food products suppliers have to face is globalization; this uncertainty sources are becoming more diverse and appearing with a faster pace. This of course has an impact on the ability of suppliers to plan ahead of time their operations and volumes and to manage their activities efficiently, so, in this new scenario the key feature that needs to be pursued is flexibility; on the contrary however, most developments in this field are focused on increasing productivity, optimizing production processes, minimizing cost, maximize profits and only in the end, reducing the environmental impact. The animal produce sector is, since many years, one of the most criticized in terms of product safety and animal welfare and more and more politics and civil society members express their opinion against intensive farming and the excessive meat and dairy consumption, saying that, often, low prices happen at the expenses of animal welfare and quality (Darnhofer et al., 2010).

- Food processing: the demand for high quality and safer products is likely to continue and increase in the future as world's population increases and this will put a heavy burden on the food processing industry, this latter seem to be responding by making some progress in reducing its emissions, carbon footprint and the amount of waste produced. In spite of that, environmental sustainability cannot be considered alone, but on the contrary, should be considered together with the economic and social one. In order to make sure that the food processing process is sustainable it is fundamental to study the bigger picture, namely using an integrated approach to the entire value chain including the sourcing and post operations process. For this reason, the study of the life cycle of the product (Life Cycle Assessment) is a common tool that facilitates the monitoring and traceability of products, allowing to offer customers more transparency. In this part of the production process the use of new 4.0 technologies has been proven to be of great help for companies to make their operations more efficient and sustainable (Sellahewa and Martindale, 2010).

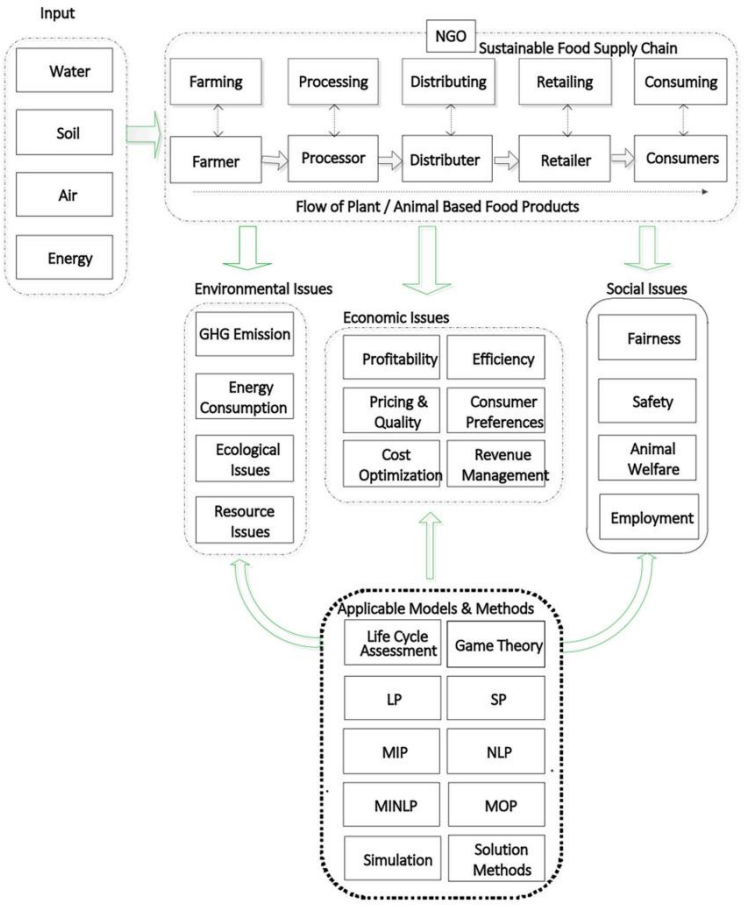
The third and last class of improvements that a company can implement both within itself and along its value chain is related to the social point of view, here the debate regards the way in which communities and employees are treated and the entire topic of food safety and quality that affects the final customer:

- Fairness: among the many trends towards ethical consumption, Fair Trade is one of the fastest growing ones, its main object is to achieve better prices, decent work conditions and local sustainability for what concerns small suppliers across the world, but especially in developing countries and in recent years the number of fair-trade sales has increased exponentially and are present in more than 60 countries worldwide. Even if the growth of fair-trade practices is undeniable, due to NGOs and media pressures they have become recently exploited and turned mainstream, and even though it has become a driving factor for companies to adopt this kind of standards, fairly traded products are not always best sellers in the market; this is because they have to face fierce competition with generic products. Indeed, while a high percentage of customers express their preference towards fairly sourced and sustainable products, their attitudes do not always translate into an actual purchase behavior; the majority of customers in fact, when making a purchase decision, often pay more attention to price and quality rather than reputation. For this reason, understand consumer behavior is important for companies operating in the food industry (Karjalainen and Moxham, 2013).
- Food safety: public food safety standards have been increasingly enforced in Europe and elsewhere, furthermore private standards thrived within many firms. Focusing for a moment on the public environment, the introduction of higher standards led to deep changes in the way companies operate; they influence in fact the characteristics of the final product, the production practices, transparency and the legal liability along the value chain. On the other hand, at an international level, the topic has been focused mainly on the challenging task of the harmonization of standards. As it was mentioned before, in addition, the thriving public regulation has been accompanied by a set of standards set by companies that saw the potential of it of becoming a source of competitive advantage, they may include rules about sourcing, equipment, production modes and quality management. The setting of standards does not affect only the final products, but also the nature of competition itself, their strategy-setting mechanism and the welfare of every stakeholder that is involved. This implies that policy-makers need to carefully consider the quality control and safety scenario in every facet in order to succeed in assuring a considerable level of quality to consumers (Hammoudi et al., 2009).
- Communities respect and employment: focal firms, typically buyers are often considered accountable for the action of their suppliers and therefore, are required to take responsibility for them because stakeholders hold focal firms responsible for everything happening along their value chain. Indeed, any part of the supply chain not

complying with standards has the potential to harm the entire network; in addition, sub-supplier management literature highlights the importance of applying managerial practices of the focal firm to suppliers in order to harmonize their behavior. Typically, sub-supplier management can follow two paths: assessment that comprehends audits and control, and collaboration in the form of trainings, corrective actions and codes of conduct, it is however more challenging than it seems since the lack of contractual relationships between those actors, incomplete information and the distance between the production site and the consumption site may make it hard for focal companies to effectively enforce real changes (Grimm et al., 2014).

Of equal importance is the fair and correct treatment of communities where the majority of the sourcing is carried out, the main objective should be to increase communities' welfare rather than just exploiting territories.

Figure 14 - Food industry sustainability value chain



Source: Grimm et al., 2014

CHAPTER 3

In the first chapter it has been highlighted the development of the concept of sustainability in every facet it has, from the social side of it, all the way to the economic and the environmental aspects, that are year after year becoming so stringent that companies and organizations cannot ignore them anymore but, on the other hand, they should implement a proactive attitude towards them. Later in the chapter it has been explained in detail the birth and the development of global value chains, from the beginning of their expansion thanks to globalization, to the major gain of power we saw in recent years and the huge impact that they have on the sustainable behavior of big lead multinationals that are in charge, remembering that often, up to the 98% of the emissions related to a company, take place along its supply chain. Secondly, in the second chapter concepts related to the peculiarities of the food global value chains were delineated, considering the often more stringent requirements that are in place in this sector rather than any other. In the end, the last part of the second chapter gave some insights on the world of NGOs and their role in the so-called multi-stakeholder initiatives where different actors work together towards a common goal.

After having described all these concepts, I applied them in the following chapter, where I will analyze the research question proposed at the beginning. Namely, if companies operating in the food and beverage sector are actually able, thanks to their actions and policies, to create a cascading effect towards their suppliers; this means questioning whether lead multinationals have the ability to spread their sustainability aura beyond the boundaries of the company, involving first-tier and lower-tier suppliers as well. This section will be enriched with an empirical analysis that will examine companies based on their Green Supply Chain Corporate Information Transparency Index (CITI) and their Corporate Climate Action Transparency Index (CATI) to understand the performance of those companies' suppliers' sustainability behavior, with a focus on China. At the end of the chapter, I will complete the analysis with a brief real-case example in which, even if thanks to the pressures exerted by NGOs a company undertook positive actions, it failed in spreading these positive changes towards its suppliers.

3.1 Methods, variables and database description

For the empirical analysis that will take place in the following section of the chapter the focus will be on the analysis of data regarding the food industry. I decided to deepen on this sector because, as it was seen before, it is one of the industries with the highest impact in terms of environmental social and economic footprint. Being this among the most polluting sectors there

are, I believe it is useful to make an effort in order to understand the peculiarities of this industry and the dynamics that need to be managed to obtain better performances.
Due to the growing relevance of being socially and environmentally sustainable, in particular when talking about companies, and to the relevance that value chains have in the operations of big multinationals, I believe that it is very useful to deepen the way in which big focal firms handle the relationships with their first and lower tier suppliers. The sustainability efforts that companies claim to make are often not enough to ensure that the entire value chain becomes more sustainable, indeed there are not many studies that link the performance of lead firms with the sustainability actions of their suppliers.

The main question that I looked for an answer to is the following: can companies actually spread their sustainability practices to their suppliers, creating a cascading effect? With the analysis and the interpretation of data, I will now make a comparison of companies operating in the food and beverage industry that are seen as more high-performing than others when it comes to sustainability of themselves and of their suppliers, in particular the ones located in China. To begin, I created an overview of every sector that is evaluated in the database in terms of their sustainability performance and, after that, I focused my attention in the food industry, analyzing the performance of lead corporations and their suppliers. In order to be able to classify companies and to study their behavior and the one of their suppliers I used an index called CITI (Corporate Information Transparency index). This index has been developed by the Institute for Public and Environmental Affairs (IPE) that is based in Beijing (China), together with the National Resources Defense Council (NRDC), which is an American non-profit advocacy organization headquartered in New York City (United States). IPE is a non-profit environmental research organization, it has been established in 2006 and, since then, its main focus is to collect and analyze government and corporate environmental information in order to create a database on environmental performance. It integrates environmental data to provide insights for green procurement, green finance and green supply chains using a mix of information provided by companies, government, NGOs, research organizations. NRDC, on the other hand, is an organization that combines the power of more than 3 million members with several specialists such as scientists, lawyers and policy advocates across the world. The main objective of this database evaluation is to track sustainability activities and violations in China; the CITI researchers collect information mainly from the reports disclosed by big lead companies to ultimately link them to their main business consumers and suppliers in China and, once they are recorded with environmental violations, the organization can pressure to take action and correct these behaviors.

Up to now, a total of almost 600 companies with a number of their respective Chinese suppliers have been analyzed belonging to very different sectors; they will get described more in depth later on.

It is now fundamental to describe the two relevant indicators that I used when classifying the companies under investigation. The first important concept is the Green Supply Chain CITI index; this acronym, as mentioned before, stands for Corporate Information Transparency Index, and it assesses several companies' environmental management activities of their suppliers in China; this evaluation is created using government supervision data combined with information disclosed by the firms on their sustainability practices. The scores are updated throughout the year as companies make continuous changes to keep up with new requirements and to deal with issues that may arise. The second index has been denominated the CATI Index, it stands for Corporate Climate Action Transparency Index and it assesses the performance of firms on corporate and value chain climate action performance; the main objective of this evaluation is to induce companies to reduce the greenhouse gas emissions from their supply chains, in order to do so every year some points for corporate GHG behavior are awarded to the best performing companies in the specific point of the value chain where the improvement lies. It has been developed by the Institute of Public and Environmental Affairs (IPE) together with the support of the Chinese Research Academy of Environmental Sciences and it assesses 5 main aspects, namely governance, measurement and disclosure of carbon and greenhouse gas emissions, carbon targets setting for the lead company and its suppliers along the value chain, performance against carbon targets and climate action, namely the evaluation of all the actions that a company is developing in order to create a greener and more sustainable value chain. Its primary sources of information when retrieving the data are the companies' websites, annual reports on CSR and ESG. In the end, this index is mainly aligned with three of the Sustainable development goals published by the United Nations, namely exploiting affordable and clean energy sources, responsible consumption and production and climate action.

In the present literature we can find several studies and research that have been conducted through the use of the CITI and CATI index, to cite some of them we can find a study conducted by Li, Fang and Liu in 2019 that, though the analysis of the CITI score analyzed the performance in terms of sustainability of the Textile and Garment industry based on its sustainable development (Li et al., 2019). In addition, it has been used in a study conducted by Dong, Tan, Wang, Zheng and Hu in 2021 in order to understand if there is a significant correlation between the CITI index and multinationals' Green Supply Chain Management practices (Dong et al., 2021). One last example of the use of the CITI index can be found in

research conducted in 2022 by Chen, Zhu and Sarkis that, through the use of cumulative capabilities theory, tried to explore the implementation of green supply chain management practices and correlating the ability of building cumulative capabilities to the CITI index.

3.1.1 The variables forming the CITI score

The CITI evaluation system is composed by five main dimensions where the data are collected; each one of these elements forms a certain percentage of the total evaluation, eventually adding up to a final score from 0 to 100 points, based on the actual performance that has been registered:

- responsiveness and transparency: this element weighs 14% of the total evaluation and is concerned with the quickness and the efficiency of the responses to public inquiries about supply chain environmental violations.
- compliance and corrective actions: this second element accounts for 22% of the final score, it screens suppliers' environmental compliance performance in China and requires suppliers to take corrective actions where and when needed and to disclose public explanations whenever fairly required.
- extended green supply chain practice to upstream: this element is the one that accounts for the most when calculating the CITI index, indeed it accounts for 32%; it praises the responsible management of suppliers, especially the chemical and logistics ones, in addition it is concerned with the evaluation of the level of wastewater and solid waste. In the end, it computes the performance and pushes direct suppliers to control and manage environmental risks along their own supply chains in China in order to obtain an ideal sustainability cascading effect.
- energy conservation and emissions reduction: this indicator is taken into account in order to push suppliers to reduce their energy consumption and carbon footprint on top of disclosing their actual energy and carbon sourcing and consumption data, furthermore it requires suppliers to disclose information about the release and the transfer of pollutant materials. In total, it accounts for the 24% of the final score.
- promote public green choices: the last evaluation dimension accounts for 8% of the entire index and it is concerned with guiding the general public into influencing consumers' behavior in order to choose products that are backed by supply chains that show comparatively superior environmental performances.

Moreover, each one of the five categories mentioned above are, in turn, composed of a range of sub-criteria that makes it easier to concretely evaluate some of these aspects under investigation; they are shown in the table below. Within the first category, namely responsiveness and transparency the sub-categories we can individuate are respond to enquiries and engage with public, meaning being able to positively react whenever a request or an opinion in being created by the market and promote supply chain transparency that means adopting a more transparent way of carrying out operations and try to spread this value across the industry. Secondly, the sub-categories that compose the second category (compliance and corrective action) are establishing a screening mechanism and push suppliers to take corrective action, the first one refers to the need for companies to create a system that allows them to be in control of their operations and to monitor every step of the value chain, the latter moreover, means to enforce the power that multinationals have within the value chain to encourage their suppliers to be more responsible towards the actions of their own suppliers. The third category is made of 5 requirements, and they are all pretty straightforward concepts to understand: namely, responsible management of chemical suppliers, responsible management of wastewater, responsible management of solid waste, responsible management of logistic suppliers and supplier self-management. The last but one category, energy conservation and emissions reduction is in turn made of two criteria: push suppliers to reduce their energy use and carbon footprint, disclosing energy and climate data and push suppliers to reduce resource use and pollutant emissions, disclosing and transferring data about them. In the end, the last category of the CITI analysis is promote public green choices that basically is meant to highlight and drag the public attention towards the environmental performance of suppliers, in this case especially the ones operating in China.

The second variable that has been used is, as mentioned above, the CATI index; many multinationals have started working on reducing their emissions in order to meet the commitment of limiting global warming to 1,5 degrees. It has been first developed in 2021 to monitor the performance regarding the emissions of greenhouse gas. The CATI index assesses corporate climate actions and in order to do this, it analyzes four dimensions: corporate climate policies and mechanisms, greenhouse gas measurement and disclosure, target settings and performance tracking, and climate actions in operation and supply chain. This index, however, is still granular, due to the way it is designed, it applies sector-specific weighting factors and it still find some difficulties in distinguishing companies that are big energy consumers on their own, and the ones that rely on outside manufacturing and procurement.

Figure 15 - CITI's categories and sub-criteria

CITI EVALUATION CATEGORIES	CITI EVALUATION SUB-CRITERIA
1. Responsiveness and Transparency	1.1 Respond to Enquiries and Engage with Public 1.2 Promote Supply Chain Transparency
2. Compliance and Corrective Actions	2.1 Establish Screening Mechanism 2.2 Push Suppliers to Take Corrective Actions
3. Extend Green Supply Chain Practices	3.1 Responsible management of chemical suppliers 3.2.1 Responsible management of wastewater 3.2.2 Responsible management of solid waste (including hazardous waste) 3.3 Responsible management of logistic supplier 3.4 Supplier self-management
4. Energy Conservation and Emissions Reduction	4.1 Push suppliers to reduce their energy use and carbon footprint, and disclose energy and climate data 4.2 Push suppliers to reduce resource use and pollutant emissions, and disclose pollutant release and transfer data
5. Promote Public Green Choice	5.1 Direct the public attention to the environmental performance of Chinses suppliers

Author elaboration based on the IPE database

3.1.2 The firms part of the sample

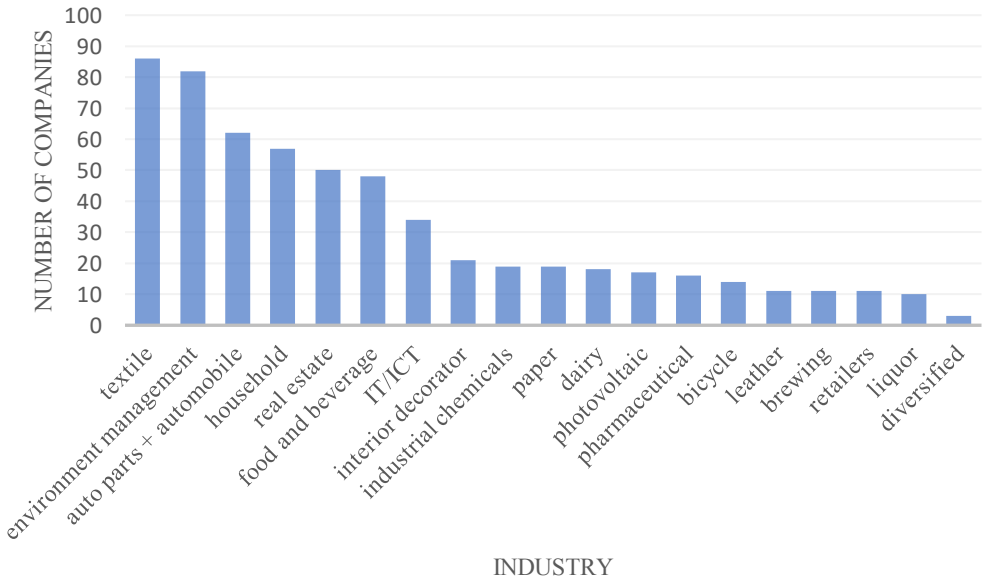
The IPE-NRDC database has acquired information, so far, of almost 600 companies, 589 to be specific, and they are in constant expansion. The companies that are under investigation are very diversified and belong to different industries; the majority of the companies belong to the following sectors: textile, leather, IT/ITC, household, retailers, paper, pharmaceuticals, dairy, food and beverage, brewing, liquor, automobile and auto parts, industrial chemicals, real estate, interior decoration and environmental and waste management. They are differentiated also if we talk about their nationality, even if the analysis of these companies comprehends the observation of the performance of their Chinese suppliers, this does not limit the analysis to Chinese companies; on the contrary instead, the database studies companies of many different nationalities. In the appendix below, a detailed table of all the companies that have been observed can be found, together with the industry they belong to and their CITI score.

3.2 Analysis of companies based on the CITI score

As it was said so far, the CITI evaluation provides the public with useful information about corporate sustainability of several industries trough the analysis of data of numerous companies and paying particular attention to the way in which each company's range of Chinese suppliers behaves in terms of environmental sustainability and for this study, a total number of 589

companies has been studied together with their main Chinese suppliers. Figure 16, digging a little bit more in depth, highlights the wide range of industries that have been taken into consideration in this analysis, the highest number of companies under investigation belonging to the same industry, namely the textile one is 86, followed by the environmental and waste management with 82 companies, automobile and auto parts industry, with 62 and so on. In addition, in 6th position, as we can observe from the graph, we find the food and beverage industry that with 48 companies under investigation plays an important role in this analysis.

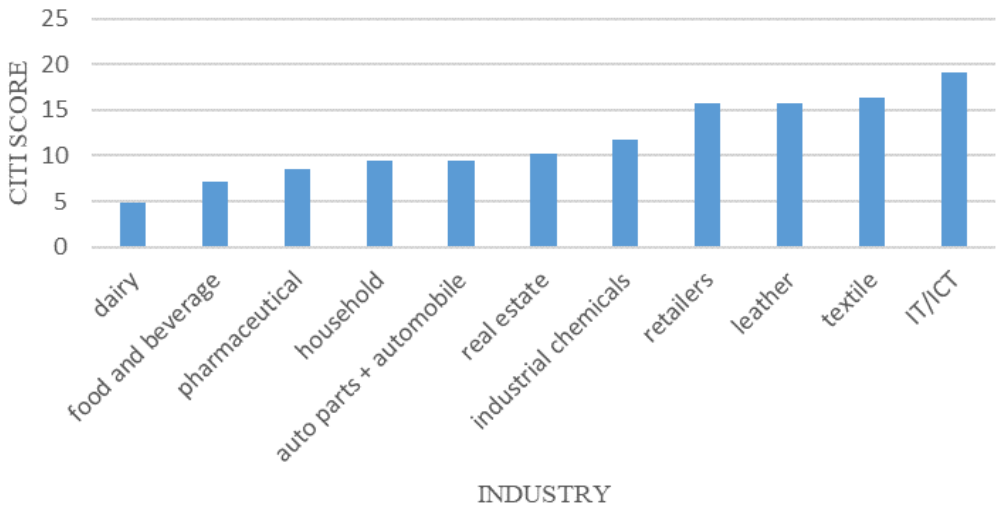
Figure 16 - Industries under investigation



Author elaboration based on the IPE database

In addition, figure 17 represents the average CITI score calculated by industry. It is easy to note that the most performing industry in terms of CITI score is the IT sector, followed by the textile and the leather one. On the other hand, among the last industries we can find the food and dairy one.

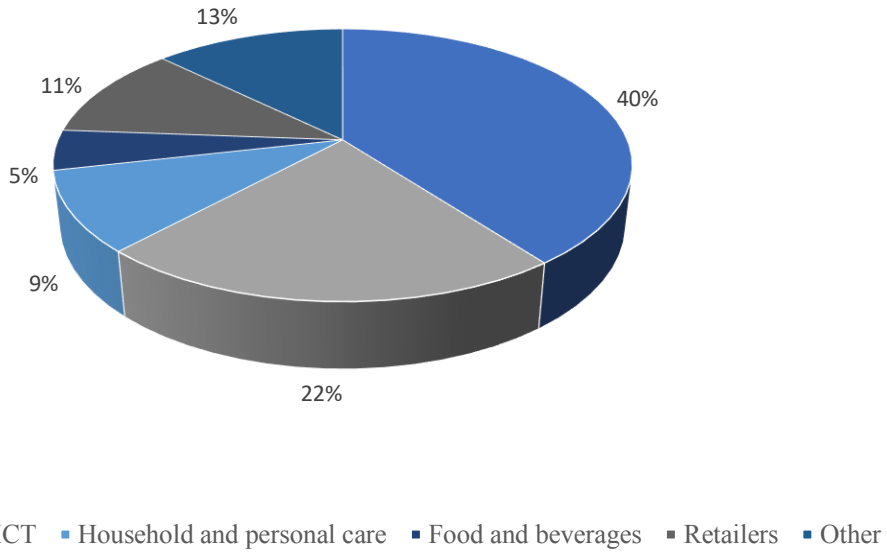
Figure 17 - Average CITI score by industry



Author elaboration based on the IPE database

In order to stress the concept mentioned above even further, that is the poor performance of food and beverage companies when talking about the sustainability actions of their own suppliers, in particular the Chinese ones; figure 18 is useful. It indicates which industries compose the most performing percentage of the CITI index analysis; in order to create this indicator, I choose a threshold that is a CITI index higher or equal to 20, in this category fell 63 companies belonging to different sectors. Within the most well-performing category (CITI > 20), the majority of companies belong to the textile sector (40%) and the Information Technology and Information and Communication technology (22%). On a more negative note, however, the evidence indicates that just the 5% of companies are associated with the food and beverage sector, hinting that this latter is nowadays not a top player when it comes to sustainability cascading effect towards suppliers. But let's now dive in deeper in the food and beverage sector.

Figure 18 - Most perfoming industries (CITI)

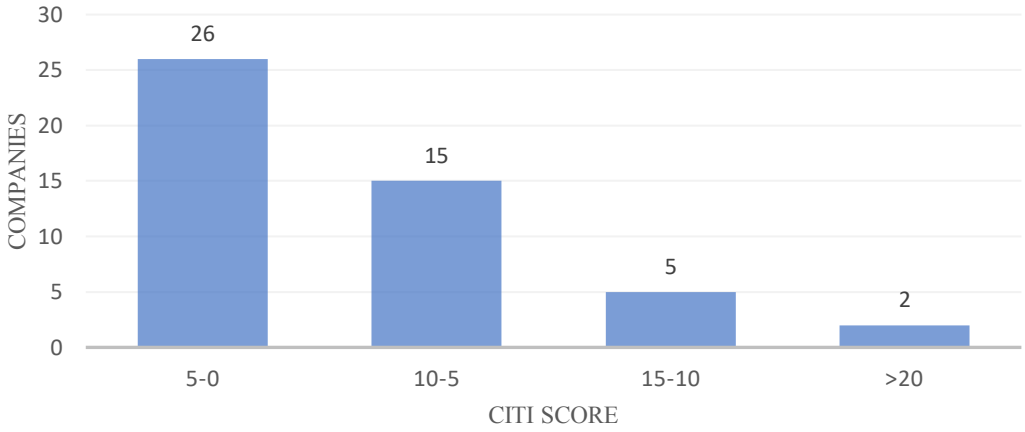


Author elaboration based on the IPE database

For what concerns the purpose of this study the focus, from now on will be posed mainly to the analysis of the companies belonging to the food and beverage industry and their suppliers' performances. On a total of 589 companies that have been evaluated by the Institute for Public and Environmental Affairs, 8% of them (49 companies with their respective suppliers) belong to the food and beverage industry.

The data about the food and beverage companies, compared with the other sectors, do not show promising results for what concerns the sustainability practices of the suppliers of these companies and, in turn, the previously mentioned cascading effect. In particular, the 96% show a CITI score below or equal to 20 and only two companies, namely Danone and Coca Cola earned a CITI score higher than 20, respectively 37.21 and 26.55. When diving fairly more in detail, the chart below shows with more precision how the 49 food and beverage companies under investigation are positioned in terms of CITI score when narrowing down the width of the score's categories; again, even here we can see that the majority of the companies, specifically the 54% of them are located in the category that registers the worst suppliers' performance, that is the one with a CITI score that falls between 0 and 5; next, we can see that the 31% of these companies register a performance that received an evaluation between 5 and 10.

Figure 18 - Food companies' CITI score

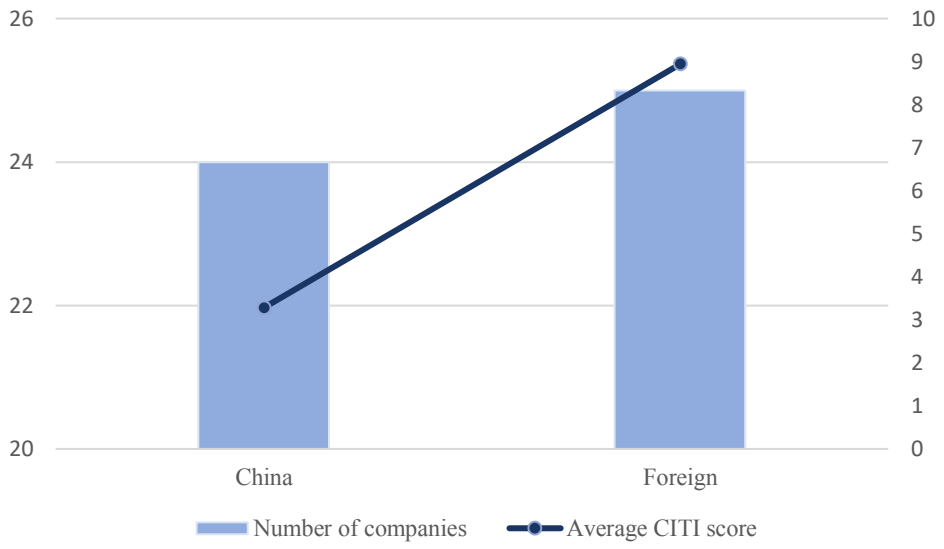


Author elaboration based on the IPE database

In order to give a more geographic perception on the data and to understand the source of the differences among the data I cross checked the data integrating two variables, namely the CITI index and the geographic origin (the country on incorporation) of the food and beverage companies that were present in the database. Figure 20 represents, first of all, the number of companies in the database that have Chinese origins and are nowadays incorporated in China and the others, grouped in a category called "foreign" that contains the other ones; 23 of the 25 foreign companies are multinationals incorporated either in the United States or in Europe with the exception of 2 companies, a Korean one and a Japanese one. The results show that, within the food and beverage database, we can find a total of 24 Chinese companies and 25 international ones. The blue line, in addition, connects two indicators, that represent the average CITI score for Chinese and international companies. As we can see from the graph, with the number of companies for the two categories being almost the same, Chinese companies show an average CITI score of 3,28, while the average CITI score for international companies stands at 8,94, almost three times higher than the previous one. The sample that has been taken into consideration does not comprehend enough companies to give an exhaustive overview, but it sure can be an indication of the general trends that we can observe in the real world. One explanation for this relevant difference in the two average CITI scores can arise from the different level of stringency that governments requires from companies; in addition one factor that may influence these results is that we are talking about Chinese suppliers, for this reason the requirements asked to Chinese multinationals towards their local suppliers may be a lot less stringent than the ones requested to foreign multinationals. Indeed, for example it can be easier

for Chinese institutions and population to trust local suppliers; on the other hand, if the multinational lead company is located in the United States on in Europe, governments and NGOs may require higher standards since the suppliers in discussion are not local and are located in a country where, especially in the past, the sustainability requirement were not as strong as they are in Western countries.

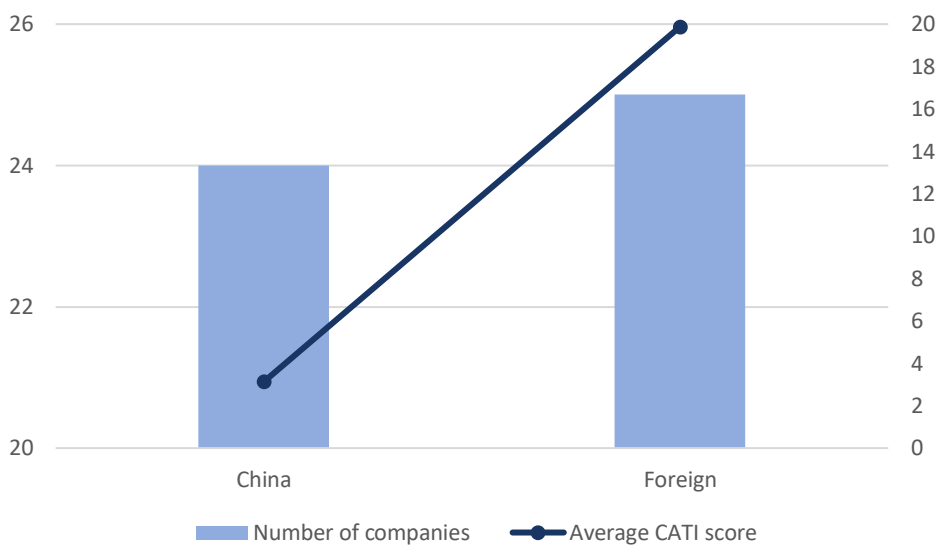
Figure 20 – Average CITI score for Chinese and international companies



Author elaboration based on the IPE database

For what concerns the CATI index, I performed a similar analysis, and the results are consistent with the previous ones; analyzing the same companies, namely the food and beverage portion of the database, the division among Chinese and global companies was almost equivalent, with 24 Chinese companies and 25 global ones. Similarly, to the results obtained for the CITI index, the CATI index shows an evident difference among the two groups of companies. The average CATI score for Chinese companies stands at 3,13, while the one for international companies goes as far as 19,88, more than 6 times higher than the local Chinese suppliers. In addition, out of the 10 most performing international companies in terms of CITI score, 8 of them are the most performing also in terms of CATI score, which represent the 16% of the food and beverage sample of the database. The same reasoning of the previous chart can be applied, since all the suppliers that have been investigated in this analysis can, theoretically, perform under the same legislation and sustainability strictness, namely the one imposed by the Chinese government, this difference may come down to just one factor, that is the requirements that international lead firms enforce towards their suppliers.

Figure 11 – Average CATI score for Chinese and international companies



Author elaboration based on the IPE database

Now that it is clear the positioning of food and beverage companies in the suppliers' sustainability rankings, it is useful to deepen more on the actual actions that companies are implementing in order to be greener. The graph below represents how many companies, among the 48 belonging to the food and beverage industry that have been analyzed, took action towards sustainability for each different sub-criteria forming the five categories that compose the CITI score. From the representation below, in order to better understand the classifications of the various sub-criteria, we can extract three main categories: the ones in which several companies took action, the ones in which roughly half of the companies took action and, in the end, the ones that are almost or completely neglected by companies. This gives us also a suggestion on which sustainability actions companies find more important to pursue and which are the ones that they find more feasible to implement. In the first category of sub-criteria, namely the one in which many companies implemented some sustainability strategies, we can find in the first place "push suppliers to reduce their energy use and carbon footprint, disclosing data about climate and energy use", this is the field in which 35 companies out of 48 exerted some effort; here, for instance, one of the most performing companies is Coca Cola, that started calculating and implementing ways to reduce the greenhouse gas emissions from its value chain and publicly disclosing its value chain's emissions targets and milestones. Secondly, the most active criteria is "promoting supply chain transparency", where 23 companies completed some successful actions; here the most performing companies both publish an updated list of its

Chinese suppliers and push these latter to accept public supervision of their environmental performance and to track their own environmental compliance performance. In the end, we can find "responsible management of waste" and "push suppliers to reduce resource use and pollutants emissions, while disclosing data about it": both of them engage 21 companies each, for the first one a company is considered efficient when it extends its ethical environmental management of disposal and transportation of waste to its suppliers and publicly requires them to comply to high standards, furthermore it is considered relevant the implementation of automated methods to monitor environmental compliance while pushing suppliers to notify violations and adopting corrective actions; the second criteria moreover implies that some companies have publicly disclosed resource use and pollutant reduction targets and have identified the critical points along the value chain and suppliers that show a performance on this field that is below average, in addition some brands have adopted policies to push their suppliers to disclose their own targets, to reduce their resources consumption and to calculate pollutant release and transfer data (PRTR).

The following three criteria can be defined a middle ground, where approximately the 27% of the evaluated companies were engaged in improving their performance in each of these categories. In particular, they are:

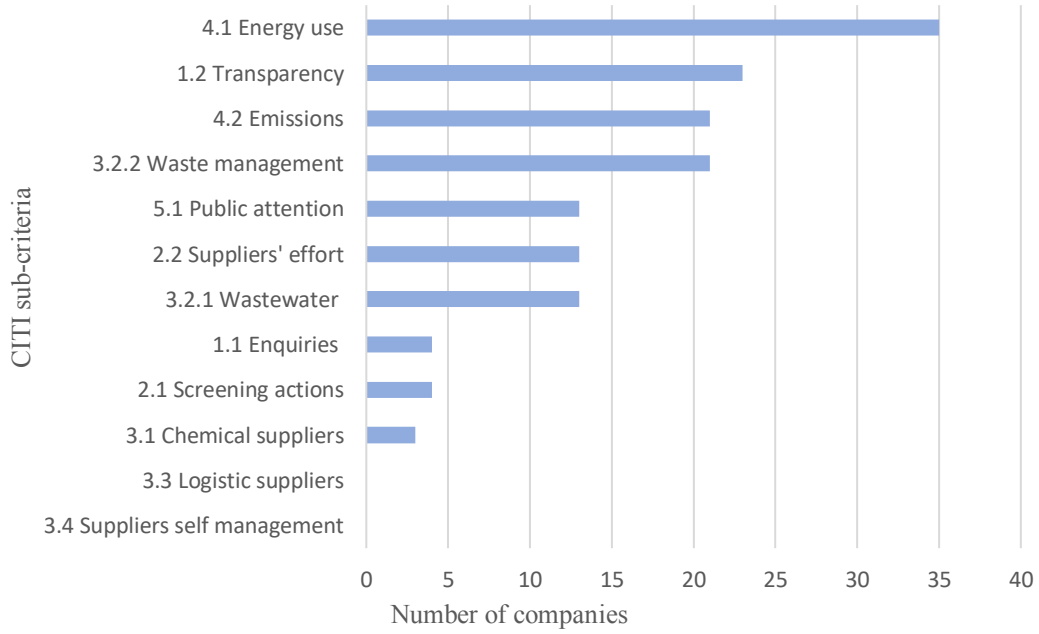
- Push suppliers to take corrective actions: the most proactive companies in this field are described as publicly requiring suppliers to comply to environmental standards and pushing suppliers to commit to stakeholders to improve their environmental agenda, in addition they push suppliers to adopt corrective actions and publish explanations about their possible environmental violations.
- Responsible management of wastewater: even here 13 companies on the list were proactive in this field, employing sustainable value EcoChains or other automated methods to be able to track the environmental performance of suppliers' wastewater treatment facilities and procedures.
- Directing the public attention to the environmental performance: in this case the effort it considered noticeable when the company discloses information of their actions in their annual reports, websites, social media platforms and in in every other public channel, promoting the improvement of their Chinese suppliers' performance in terms of sustainability.

In the end, we can find those categories that are almost neglected by the companies under investigation, among them we can find two that are completely neglected which, they are: supplier self-manage and responsible management of logistic suppliers; the first one means that

companies have not taken action to push their suppliers to conduct compliance screenings, while the second one refers to the fact that companies have not extended their environmental management practices to logistic suppliers. The remaining three are the following:

- Responsible management of chemical suppliers: a total of 3 companies out of 48 took action in this field, the most efficient companies in this criterion extend their environmental management requirements to the chemical suppliers they deal with, requiring the compliance with high standards in the process; furthermore, problematic of high-risk suppliers are frequently pushed to take corrective actions and disclose their progresses.
- Establish screening mechanisms: this criterion, that interests just four companies, is based on the implementation of methods to track suppliers' environmental compliance.
- Responding to enquiries and engage with public: this criterion only interests four companies as well; it regards the appointment of employees specialized on the following of suppliers that registered environmental violations and ensure a frequent communication with every other stakeholder (indicatively more often than quarterly), in addition companies have to push suppliers to issue public explanations when needed or implementing effective reporting systems to ensure a constant line of communication.

Figure 22 - Most diffused sustainability actions for food companies



Author elaboration based on the IPE database

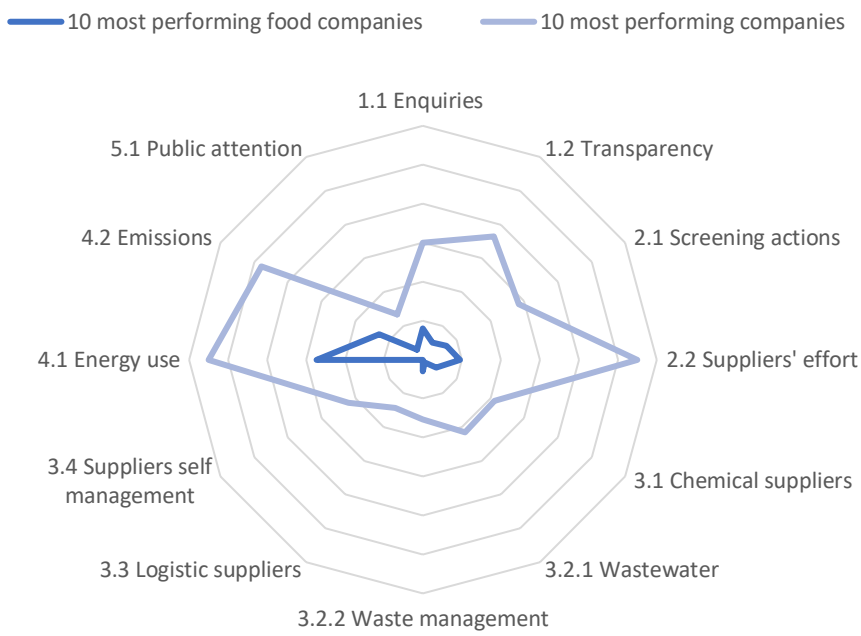
Figure 23 - Specification of sustainability actions of Figure 22

1.1 Respond to Enquiries and Engage with Public
1.2 Promote Supply Chain Transparency
2.1 Establish Screening Mechanism
2.2 Push Suppliers to Take Corrective Actions
3.1 Responsible management of chemical suppliers
3.2.1 Responsible management of wastewater
3.2.2 Responsible management of solid waste
3.3 Responsible management of logistic supplier
3.4 Supplier self-management
4.1 Push suppliers to reduce their energy use and carbon footprint, and disclose energy and climate data
4.2 Push suppliers to reduce resource use and pollutant emissions, and disclose pollutant release and transfer data
5.1 Direct the public attention to the environmental performance

Author elaboration based on the IPE database

In addition, in order to be able to better compare the general evaluation of companies with the CITI score with the focus on food and beverage companies I compared the 12 subcategories that compose the index; in figure 21 the lighter line represents the performance of the 10 most performing companies of the database; among these companies, 8 of them belong to the textile industry while the remaining 2 belong to the IT/ICT industry and have a combined average CITI score of 72,6 out of 100. We can see how the subcategory in which the 10 most performing companies show better results are pushing suppliers to reduce their energy use and carbon footprint, disclosing their energy and climate data, pushing their suppliers to reduce their pollutant emissions and disclose pollutant release and transfer data and, in the end, pushing suppliers to take corrective actions whenever a breach in regulations is discovered. On the other hand, the darker blue line represents the 10 most performing companies in the food industry, these ones have a combined average CITI score of 16,4 out of 100. We can notice that even when it comes to food companies the subcategory which they are most efficient in are the ones related to the energy use and the emissions of suppliers; in this case however we can see very different overall results, while the average energy use subcategory accounted for 11 points for the 10 most performing companies, it stopped at 5,46 when focusing on food companies.

Figure 24 – comparison of the 10 most performing companies



Author elaboration based on the IPE database

Even if the description of the 12 sub-criteria may lead one to think that food and beverage companies are efficient when it comes to provoking a sustainability cascading effect on their suppliers, it is fundamental to observe the full picture; as it was explained in depth before, indeed, the data shows how poor the performance of food and beverage companies is when compared to other industries, and even if a high number of companies definitely made important progresses and steps forward in the sustainability level, the majority of them still cannot be defined as sustainable. In addition, very often, every sustainable strategy implemented by a big multinational is very hard to be passed to the first tier and lower-tier suppliers due to the diversity and the heterogeneity of these latter, immediately interrupting the positive flow of sustainability along the value chain. As it was explained before, many multinationals have pledged to work only with those suppliers who respect a given level of social and environmental standards and the result they ideally hope to obtain is that their suppliers will ask their own suppliers to comply with the same level of strictness to sustainability standard; the aim is, therefore, to create a cascade of sustainable practices that flows along the value chain. In reality, however, this concept is not always easy to realize and many multinationals that committed to these cascading practices had to face scandals regarding their suppliers that, even when aware of some sustainability standards, choose to ignore them and what is most worrying is that these

scandals often involved first-tier suppliers, making it possible that lower-tier suppliers may be performing even worst in terms of sustainability.

It is often challenging for big multinationals to enforce sustainability requirements to low level suppliers also due to the fact that for the majority of instances their relationships are not directly regulated by any contract, and most low-level suppliers are not well known to the general public and therefore they do not attract a lot of attention from the media, NGOs or every stakeholder in general. In addition, typically low-level are companies that are the least equipped and capable of handling sustainability standards, their lack of expertise, resources and financial means makes them weak under this point of view; on top of that they are usually located in countries where sustainability regulations in rather weak, not to say non-existent or not enforced at all, and these are some of the reasons the sustainability cascade often fails.

In order to make some steps forward in terms of supplier inclusion regarding sustainability, there are some practices that companies can implement: establishing long-term sustainability goals, require for first-tier suppliers to be concerned with the sustainability of their own suppliers, include lower-tier suppliers into their sustainability agendas and hire some staff with the specific role of homogenizing sustainability practices. These can be categorized into four groups:

- Direct approach: several first-tier suppliers involved in the study noted that multinational companies started to periodically check if some imposed sustainability targets were being met and, most importantly, if new opportunities to help suppliers were being created. Another one of the studied multinationals created a survey to be filled by its suppliers to gather information about their safety, labor and environmental practices and their policy about lower-level suppliers; the result was encouraging, it led to an open discussion about cascading sustainability and how to make it work. In the end, several companies used their connections to bigger suppliers to map the network and the interconnections with less relevant suppliers. However, as we have seen from the data above this approach, especially when talking about the food and beverage industry is still not well developed, indeed as the results of the analysis of the CITI index show, multinational companies are not fully able to monitor and influence the behavior of their suppliers in terms of sustainability practices.
- Indirect approach: in this instance, the multinational company typically delegates to first-tier suppliers some of the responsibilities when it comes to sustainability, it consists of offering training and incentives for implementing sustainability practices and, it may

be adequate to implement long-term contracts and creative incentives to encourage first-tier suppliers to cascade the best practices to their own supply network.

- Collective approach: this approach consists of collaborating with competitors and powerful suppliers to spread a general climate of sustainability in the industry they operate within since one company alone cannot fight every social and environmental issue there is. Indeed, many firms found or join industry associations that work to develop standards and offer training to the members; among the many benefits they have, they can increase the efficiency of suppliers making sustainability initiatives more feasible and increase the number of suppliers since they will have many more customers with the same sustainability requirements and therefore, willing to take part in the initiative. On top of that, whenever a supplier becomes a member of an industry association, it is typically required to comply to some audit levels, there are some associations, for instance, that require to conduct approved audits every year for 25% of their facilities and 25% of their high-risk suppliers' facilities so that the control and the progress can be checked more easily. This approach may be a good starting point to improve the performance of an entire industry, such as, in this case, the food one; since companies belonging to the same industry often face similar challenges, it could be wise to start cooperating, maybe also with some sustainability-focused organizations, and using KPIs or indexes such as the CITI and CATI score as a staring point to individuate strengths that can be exploited and weaknesses that have to be improved.
- Global approach: this last approach consists of collaborating with international organizations and NGOs with shared goals and trying to individuate common ground to operate within, with a higher sharing of resources and the potential to actually have an impact (Villena and Gioia, 2020).

3.3 Case study: Tesco's meat problem

In order to better understand the evidence that was exposed previously, I believe that it is worth completing with a real-life case. Even if Tesco is not yet evaluated in terms of CITI in the IPE database, it can be an adequate example to put the concepts mentioned above into a more practical perspective. This case allows us to understand if this particular multinational company has been able to spread downstream their sustainability behavior towards their suppliers and to support them during a moment of change. The food and beverage industry is, nowadays, extremely complex mainly due to the very high number of companies that operate within and the diversity of the suppliers that can be found; indeed, they can span from very big

multinationals to small farmers that operate without a proper organization framework and are therefore not easy to manage. The landscape is often so complex that regulators and governments do not have full control on everything that happens daily, and it is difficult to implement a reporting system that is able to harmonize the communication and the disclosure requirements of every actor in the industry. One option may be to create a monitoring system that is concerned with the companies of one nation, but the issue with this mechanism is a direct consequence of globalization, since almost every value chain operates at an international level, working with companies coming from different countries, having a national reporting system may result confusing and a limitation to the full development of these chains. (Bayona-Saez et al., 2017)

Pushed by the requirement of customers and their general increasing interest towards healthier food choices and sustainability, NGOs became in recent years a fundamental tool in the monitoring activity of companies and the reporting of risky behaviors and violations; indeed, towards their pressure and critiques they have been able to obtain some noteworthy results regarding steps forward taken by companies in a sustainable view.

One recent example that proves the poor performance of food companies when it comes to sustainability cascading effect is the case of Tesco. Tesco is a British multinational retailer that operates in the groceries and merchandise field and in 2011 it was the third biggest retailer globally in terms of revenues. It has been founded in 1919 and in 2021 counted almost 4700 stores. Britain's largest supermarket chain, among other things, sells an incredibly high amount of meat (for instance, hundreds of millions of chickens per year alone). In recent years, Tesco claimed to have produced a new set of requirements for its meat suppliers to comply to, in order to try and address the loud criticism and the massive environmental impact the production of so much meat has especially in terms of deforestation (Barrie, 2020). This new body of regulations has been produced after the strong criticism raised by powerful NGOs such as Mighty Earth and Greenpeace UK representing the thoughts of many consumers, who were calling out the company to drop and substitute their worst suppliers of the value chain in terms of deforestation levels they cause. Due to the increasing amount of meat that gets consumed every day by millions of people, meat production has outsized its environmental consequences; it pollutes the environment much more than any non-animal related product, it fouls more drinking water, occupies an insanely high percentage of food such as cereals and, in the end, requires more and more land for livestock raising purposes, causing the bulldozing and burning of millions of kilometers of rainforest, sentencing to death every other present ecosystem (a study reports that there has been as much deforestation in Brazil for soy plantations as the entire

surface of Israel in few years). The Brazilian government, to try and decrease this fast deforestation process proposed legislation in order to protect the Amazon from complete disruption; this, summed with NGOs and customers criticism, led Tesco to set new requirements regarding South American suppliers to follow a no-deforestation, no-conversion and no-human rights abuse policy, while improving transparency in the process. From the information that Tesco published on its website we can see that this company' is to support its suppliers to improve their sustainability targets. In addition, in partnership with the WWF it is trying to apply new technologies in order to reduce the emissions coming from the production process since, as it has been stated, the 90% of Tesco's emissions are generated along its value chain. One more point that they stated in its website is that in order to decrease the deforestation process the palm oil, wood and paper products and the soy that is used as animal feed comes from sustainability certified sources.

However, a real deadline for these improvements has not been set and the details of the project tend to still be blurred; for quite some time indeed, it is likely that Tesco's customers will continue to consume meat related to thorough rainforest disruption. However, these are not the only shortfalls that this project has, on the contrary Tesco will continue to allow agribusinesses that produce food for animals to go on with their deforestation activity, in detail (Mighty Earth, 2021):

- Tesco did not specify how or when it will stop sourcing its animal products from suppliers that purchase soy or cereal based animal feed from agribusinesses that drive deforestation of the Amazon rainforest, furthermore they did not indicate the will to terminate or modify their relationships with suppliers complicit in deforestation. One of Tesco's main South American meat suppliers, for instance, stated that it will keep accepting agribusinesses' deforestation in its value chain at least until 2030, giving them 8 more years to keep bulldozing as much land as possible.
- The system thought by Tesco allows suppliers to purchase credits or certificates in the cases in which they are not able to prove that their product is produced either in a deforestation-free area or from a "gold standard" certified source. However, this could indirectly support deforestation by allowing Tesco's suppliers to buy soy or other animal feed from recently deforested areas and purchase credits from land that was made agriculture proof years ago. This system raised criticism also due to its lack of transparency and for the difficulties in assuring traceability.
- In the end, even though Tesco's policy formally respects the Accountability Framework Initiative (AFI), an entity that sets standards for companies to respect in terms of sustainability, it fails to respect the principle of "group level accountability"; AFI is

currently promoting a norm that makes traders accountable for the deforestation that happens on any farms owned by the farmers that supplies them, rather than giving the responsibility just to farmers and their supply chain. At the moment, however, Tesco's policy allows big traders to sell Tesco's suppliers certified no-deforestation animal feed, while, on the other hand, continuing to buy from farmers who are deforesting in other steps of the value chain.

One successful example of massive environmental success was the decrease of deforestation for palm oil, which is now down more than 90%; in recent years the majority of food companies decided to stop or limit the use of palm oil in their products and this huge success happened because multinational companies required suppliers to stop these practices without excuses, credits and greenwashing involved. This to say that until major companies and retailers will adopt similar policies, cutting relationships with supplies that violate those requirements, the meat industry is still likely to lead to environmental disruption on a wide scale. And while changes in this direction are fundamental, some other deeper trends should be encouraged: first of all, consumers should be supported in switching partly to plant-based diets and even it is much easier said than done, big retailers like Tesco hold the power to influence consumer behavior towards that direction. In addition, it may be wise for lead companies to support strong forest protection campaigns in the counties where they source the most products. In the end, Tesco and other retailers should ensure full transparency and take further action to ensure that the sustainability actions they implement actually turn into more sustainable behavior also in the lower parts of their value chain (Martin, 2021). This short example is the perfect representation of the evidence that was presented in the previous paragraphs; indeed, we can see how Tesco, the lead multinational company of this Global Value Chain is advertising its sustainability efforts but, despite the strong bargaining power it has by being one of the biggest retailers in the world, it is not able or it is not pressured enough to spread this positive mindset to its suppliers; furthermore since the suppliers are not as in the spotlight as the lead firm of the value chain, often they are able to get away with breaches of regulations.

This is just one of the many examples of failure of environmental sustainability cascading effect, indeed, despite the positive intents and actions that Tesco claims to be undertaking, sustainability issues start to appear again already in the activities of its first-tier suppliers, only to get even worst and less monitored to third and lower-level suppliers. This is an example of the evidence that have been developed previously in this chapter, namely that even if some steps forward have been made, food multinational companies nowadays still struggle to monitor and influence the sustainability performance of their suppliers; real life evidence such as the case of Tesco puts into perspective what has been said so far, most lead companies in fact are

not able, or able just in part to transfer the pressure that they receive from non-governmental organizations toward the creation of a more sustainable supply chain and that a functioning cascading effect has not been fully developed yet. We can notice in this way that the pressures that NGOs and governments exert on multinationals, mainly because they are the most exposed to customers and their actions are in the spotlight, do not always reflect to an improvement of what lies at the base of the lead company, namely its value chain and the actors that belong to it.

CONCLUSIONS

The research question, whose answer was the primary objective of this thesis, is related to multinational lead companies and their ability to influence the suppliers belonging to their global value chains with their positive sustainability actions. Indeed, in the previous chapters I tried to understand if, thanks to the high level of bargaining power they have, multinational companies are able to spread downstream a sustainability mindset to their first and lower tier suppliers, in particular in the food and beverage industry. I did so by elaborating the data raised by the IPE database, in particular making use of the CITI index, that stands for Corporate Information Transparency Index. As it was explained before, this index assesses several companies' environmental management activities of their suppliers in China; this evaluation is created using government supervision data combined with information disclosed by the firms on their sustainability practices. The scores are updated throughout the year as companies make continuous changes to keep up with new requirements and to deal with issues that may arise. I believe that discovering to what degree companies are actually able to influence their suppliers with their pressure towards sustainability is a topic that has not been discussed in depth so far, and that is worth working on, since the great majority of the polluting activity and the emissions related to a multinational company do not come from the company itself, but rather from their entire value chain. This thesis, furthermore, focuses on one particular industry, namely the food and beverage one; the main objective was to deepen the discussion on a sector that has a relevant impact in terms of polluting activity. The global food and beverage market size has been established, in 2022, at 6383 billion dollars with respect to 2021 when it accounted for 5817 billion, showing a compound annual growth rate (CAGR) of 9.7%; furthermore the food and beverage industry is expected to grow up to 8905 billion dollars is 2026, with a CAGR of 8.7%. The food and beverage industry has always played a fundamental role both in local and international economies; indeed, it is the largest manufacturing sector in the European Union

economy. In addition, the increasing demand for food products is driven mainly by the growth of population wealth, and this not only leads to higher prices for consumers and higher market volatility, but also to an increased pressure on scarce natural resources such as soil, water and energy. This steady increase in demand represents a real threat to sustainable growth and development of the industry and puts a particular urge to create and implement new business models and to try and find the right balance of interests, taking into account economic, social and environmental issues. Given the importance of this industry, the present literature is fairly developed, and several scholars have dealt with the topic of the social, environmental and economic sustainability in the field of agriculture and food production, processing and distribution. This topic is, nowadays, particularly important since sustainability is one of the most discussed and controversial themes of our era and it is useful and wise to analyze the progress that have already been made and, on the other hand, what are the points in which more effort could be made. However, the present literature is still not exhaustive for what concerns the relationship among the external pressures that companies are exposed to when it comes to sustainability, multinational lead companies themselves and the ability to influence or change the behavior of their suppliers. More in general, what is still not clear, and what this thesis is about, is if companies that are exposed to external pressures, exerted by governments, NGOs and other non-governmental organizations are able to include suppliers into this green movement. The main objective of this thesis, and what the empirical analysis of this thesis was focused on, was to understand what are the actions that food companies can implement in order to be more sustainable under an environmental, social and economic point of view and to understand if companies belonging to the food and beverage industry are actually able, thanks to their actions and policies, to create a cascading effect towards their suppliers; this means questioning whether lead multinationals have the ability to spread their sustainability aura beyond the boundaries of the company, involving first-tier and lower-tier suppliers. I analyzed the CITI scores of the companies present on the database, with a general overview at the beginning and going deeper into the food and beverage industry after that.

This empirical analysis had several results. First of all, the database studied the performance of the Chinese suppliers of a total of almost 600 companies; when digging a little more in depth we could see how the companies object of the study belong to a wide range of industries. The highest number of companies belonging to the same industry is the textile one, that comprehended 86 companies, followed by the automobile industry with 62 companies. After that, I calculated the average CITI score divided by industry, in this context the industry with the highest CITI score is the IT/ICT one, followed by the textile one. On the other hand, in the

last spots of our chart we can find the dairy industry and the food and beverage one. The fact that the food and beverage industry occupies one of the worst positions, makes it wise to deepen more this analysis. In order to stress this concept even more, furthermore, I individuated a threshold of a CITI higher or equal to 20, in order to evaluate the most performing companies and to understand which industry they belong to; what I found out was that a total number of 63 out of almost 600 companies showed a CITI index that fell in this category. Within this category, 40% of the companies belonged to the textile industry and just 5% of them are associated with the food and beverage sector. In the light of the results that have been developed so far, I proceeded with an analysis specifically focused of the food and beverage industry. Out of the total number of companies of the database, 49 belong to the food sector; within this category, 96% of the companies showed a CITI score that is below or equal to 20 and, when diving fairly more in detail, the majority of companies, namely 54% register the worst CITI score, between 0 and 5; in addition, 31% of companies show a CITI score between 5 and 10. Given the results above I decided to direct my attention to trying to understand if, given what seems to be a poor performance in terms of sustainability cascading effect, has some differences among the nationalities of companies. First of all, what can be easily noticed from the data is that, among food companies, 24 of them are incorporated in China, while the remaining 25 are incorporated across Europe, United Stated, Korea and Japan. The results of the analysis showed that the difference among Chinese and international companies is striking; the average CITI score for Chinese companies stands at 3,28 while the one of foreign companies goes as far as 8,94. This is a good indicator of how international companies are likely to be stricter when it comes to monitoring the performance of their foreign suppliers. Indeed, it may be the case that, in addition, western companies have to comply to stricter government regulation when it comes to sustainability. Very similar results were obtained when performing the same analysis on the CATI index, the results show that for the Chinese companies the CATI index stands at 3,13, while it goes up to 19,88 when talking about foreign companies. Since the Chinese suppliers of every one of these 49 companies can operate under the same legislation, the differences have to come down to the requirements that multinational companies have with regards to their foreign suppliers.

I then proceeded with my analysis, segmenting the CITI index into the subcategories that compose it. From the analysis it can be noticed that the subcategory of the CITI index in which companies exert more effort and are able to influence the actions of their suppliers is pushing suppliers to reduce their energy use and their carbon footprint, while disclosing the data about energy and climate data. At the second place, with approximatively the same results we can

find three subcategories, namely the ones concerned with promoting supply chain transparency, pushing suppliers to reduce their emissions and pushing for a more responsible management of waste. In third position, three more subcategories show similar results, in detail directing public attention to environmental performance, pushing suppliers to take corrective actions when needed and pushing towards a more responsible management of wastewater. In the end the following three subcategories, that are responding to public enquiries, managing chemical suppliers and establishing a screening mechanism for suppliers are the ones that engage the least amount of companies.

In the end, to highlight again the ample difference among the performance of food companies and the general database I created a radar graph that shows the different level of effort that these companies put into the different CITI categories. It can clearly be seen that the categories in which both Chinese and foreign companies are more committed is energy consumption, attention to the emissions and pushing supplier to take corrective actions, but with different levels of effort or results.

What can be obtained from the data is that, even if some steps forward have been made in terms of sustainability and the development of greener supply chains is a topic that has been introduced into the agendas of basically every company there is, there still is a lot of room from improvement. Indeed, the food industry seems not to be a leading example of great performance of sustainability. Among the analyzed companies, in fact, the food and beverage sector showed ad average performance that is lower than many others, for example of the IT/ICT and the textile one. In addition, furthermore, another conclusion can be derived: namely about the geography of companies; among the analyzed food and beverage companies a clear distinction can be seen in terms of both CATI and CITI between Chinese companies and foreign, international ones. This clear distinction derives from the different strictness that different nations apply as their regulations and from the fact that companies are pressured into having much higher requirements when it comes to managing suppliers coming from foreign countries.

The present research, however, is not completely free from limitations. First of all, the sample size could be enlarged more in order to increase the reliability of the conclusions; in addition, since the suppliers that are taken into consideration are just Chinese, the validity of the results could be hindered. One more limitation that one may rise when discussing this topic is that the country of origin of the analyzed companies may not be as ample as it would be desirable; I believe that if the database would be slightly broader, both in terms of companies and in terms of their origin the data could be completer and more insightful. Among the limitations that I believe could be decreasing the credibility of these results above is the fact that most data are

collected from the information that are disclosed by the companies themselves, and there is the risk that these latter could be not totally truthful and could overestimate their results, exploiting information asymmetries in order to make their performance look better than it really is. In addition, the fact that data is updated whenever a company discloses their sustainability information may reduce the comparability of the results due to the timing mismatch among companies disclosure.

This field of study, namely Global Value Chains, applied to different industries is so ample and yet relatively little deepened that the possibilities for future research are numerous. In addition, the thriving sector of food and beverages opens up many possibilities to expand the studies. I believe that it would be interesting to understand, first of all, more about the differences arising from the companies that are incorporated in different parts of the world, in order to understand if governments compliance can actually influence the way in which multinationals deal with their suppliers. Furthermore, another interesting point could be to understand if a supplier, while supplying more than one company, located in different parts of the world, behaves differently and adopts different sustainability standards. In addition, I believe it would be useful to bring the size dimension into the discussion, in the sense of understanding if multinationals have more incentive rather than small companies in engaging greener behaviors since their value chains are located in many countries around the world. In the end, I suggest analyzing the external pressures that companies receive from outside their boundaries, for example from customer groups or NGOs in order to understand if they actually are able to have an effect on how companies perform and if they are able to bring suppliers along with them.

In conclusion, not only the level of sustainability is still not enough to ensure a safer future, but food companies are still not entirely able to spread their positive actions downstream, towards their suppliers. Several studies cited above showed that despite the strong bargaining power that leading corporations have within the value chain, they still do not have enough will or external pressures to try and make their global value chains greener. Following the trends that we can see nowadays, however, it is likely that even in the future, companies will have to work hard towards more sustainable operations, bringing every organization they work with on board with them.

APPENDIX

Figure 25 – average CITI and CATI score per industry

INDUSTRY	NUMBER OF COMPANIES	AVERAGE CITI SCORE	AVERAGE CATI SCORE
Textile	86	16,35	9,49
Environment management	82	4,6	1,56
Auto parts and automobile	62	9,4	7,5
Household appliances	57	9,37	5,04
Real estate	50	10,15	2,75
Food and beverage	49	7,1	4,77
IT/ICT	34	19,1	16,8
Interior decoration	21	2,9	2,1
Industrial chemicals	19	11,7	26,75
Paper production	19	6,27	8,25
Dairy	18	4,92	3,36
Photovoltaic	17	5,1	7,75
Pharmaceutical	16	8,6	18,2
Bicycle	14	0,76	1,27
Leather	11	15,8	10,75
Brewing	11	6,96	5,57
Retailers	11	15,71	16,6
Liquor	10	5,3	4,85
Diversified	3	7,05	15,1
TOTAL	590		

Author elaboration based on the IPE database

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