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**ORGANIZATIONAL INNOVATIVENESS  
AND ECO-INNOVATION**



**Relatore**

Prof. Paolo Landoni

**Candidata**

Paola Battaglia

**Project supervisor EMLV**

Prof. Nicholas Paparoidamis

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## **Abstract**

Innovation plays a central role in the organizational life and strategic decisions of companies. The globalization of the markets has created a changing, dynamic and turbulent environment, which has had various consequences on business realities. Companies wishing to remain competitive on the market must necessarily increase their investment in innovation, be it at the organizational and / or cultural level. Literally innovating means, altering the order of things by establishing new ones, that is, creating a positive change of the existing status, making a constant analysis of company assets, the surrounding environment, investors, politics and customers, satisfying current needs and futures that the market requires.

The company's organizational innovation is an innovation that underlies the generation of company value. What generates innovation within companies are the internal assets which can be human resources where knowledge, skills, creativity reside, or assets such as the economic factor and technology.

In the last few decades, there has been a need for companies to integrate organizational innovativeness with eco-innovation. As the need for our planet to carry out sustainable development has increased. Despite decades of academic and practitioner attention, interest in the analysis of the eco-innovation process continues to increase. In fact, growing awareness of climate change and environmental degradation makes it necessary for companies to implement eco-innovation to respond to consumers' environmental demands and regulatory requirements. (Granero, 2020)

The eco-innovation is a tool that integrates innovative technologies and processes with eco-sustainable applications, in favour of safeguarding and protecting the environment. In other words, companies that decide to become eco-sustainable aim to improve the characteristics of the products or services, making them more efficient while remaining eco-friendly.

The research aims to analyse and compare the companies that have adopted an organizational innovation and introduced eco-innovation within their corporate culture, with those that are introducing it and with those that do not consider it appropriate to change their corporate structure. The data collected showed that the factors that push companies to promote environmental innovation within their corporate culture can be mainly of two types: factors

external to the company, such as institutional tools or regulations, investors the market, or endogenous factors such as economic resources, human resources or corporate culture, which promotes environmental management systems aimed at analysing and improving the environmental performance of its activities and services.

The results of the thesis suggest that companies that do continuous research on customers, markets, industry, and new technologies and are inclined to eco-innovation, are more likely to make strategic plans of greater importance. Organization eco-innovativeness has become a very important lever for companies, as well as beyond to the competitive advantages that this model offers, there are many other reasons that can be obtained, thanks to it, to strengthen the corporate image, such as the impact that the company can give to its brand, increasing customers and favouring the economy of scale, or being proactive and anticipating the new regulations that will come into force, being ready to face them etc ...

Keywords: eco-innovation, eco-innovativeness, organizational innovativeness, eco-friendly, sustainability, innovation, innovation indicators, eco-friendly indicators

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I dedicate this thesis to my husband, for having believed in me at all times, for encouraging me when everything seemed lost and for having looked not only at the woman I am, but also in what I will be.

Paola

## **Chapter 1**

### **1.1 Importance of the study**

Companies today find themselves facing a constantly changing environment, it is therefore necessary to be proactive, intuitive, anticipate and see beyond the needs expressed by consumers. Innovation plays a fundamental role in its contribution to the survival of a business and in maintaining an innovative company. The companies that manage to be more innovative are those that adopt an organizational innovativeness and therefore in which innovation is inherent in the corporate culture. In recent years, however, there has been increasing talk of the support that must be given to the environment, as we can also see from the action undertaken by the 190 UN countries in adhering to the objectives of the 2030 agenda, so much so that population, socio-economic disparities, and the growing exploitation of natural resources have increased the need for companies to take an interest in environmental support. This interest of companies in the environment, which at first was a social interest, has now become an added value for the company to focus on, a factor that has encouraged companies to invest in eco-innovation. organizational innovativeness together with eco-innovation are key variables, in fact, there is a high percentage of companies that have included them in their corporate culture or are taking steps to do so. These two innovations are certainly not enough for organizations to be successful, but they are factors that right now constitute two essential and indispensable elements.

### **1.2 Research rationale**

Previous research was interested in studying the eco-capacity variable only from the point of view of company productivity "Eco-innovation is a method of production or enhancement of a product, production / organizational process or service, which is new for the organization (which develops or adopts it) and leads to a reduction in pollution and the use of resources throughout the entire life cycle "(R. Kemp, P. Pearson - 2008). Focusing essentially on the life cycles of the products, in fact, the limitations of the previous articles highlighted certain problems "Future scholars should address the overarching issue of sustainability as it pertains to the greater good and not solely firm performance. (Gabler., 2015). Furthermore, other research did not focus on service companies, as the previous research has mostly focused on

product industries: “It would also be interesting to assess whether these results are generalizable to service industries. Overcome the risk of partiality of responses. Future research may include in the theoretical model the impact of contingent factors such as organizational structure and strategy design (Van den Bosch et al., 1999; Wang & Ahmed, 2007), characteristic of the knowledge base (eg example, Bierly et al. , 2009) and environmental factors such as location in a cluster (eg, Camisón & Forés, 2011) and environmental turbulence "(eg, Lichtenthaler, 2009) (Fores, 2016).

For this reason, there is an increased need to analyse the organizational eco-innovativeness factor according to various aspects, which not only concern company productivity, but which analyse this variable from several points of view, studying what impact it can have on different business plans. The study also focused on analyse and study the impact that the organizational structure can have also for the border service industries present in previous research.

### **1.3 Research objectives**

The purpose of the study is to investigate how many, and which types of companies adopt eco innovation, what role does the organizational innovativeness play in the choice of innovative business investments and what are the reasons and motivations that push companies to introduce eco-innovation among their assets.

The main objectives of the research are:

1. Understanding the role played by the organizational innovativeness of a company in the decision to invest.
2. Analyse what influence organization innovativeness has on the choice to focus on eco-innovation.
3. Identify the status of the diffusion of eco-innovation in the business context.
4. Analyse the reasons and motivations that push companies to adopt organizational innovativeness and eco-innovation
5. Explore how external and internal factors influence the spread of eco-innovation.

## **1.4 Research approach and potential contributions**

The data collection process will begin after establishing a theoretical framework by reviewing the literature and preparing the building blocks of the diagnostic tool. To achieve the set objectives, the data collection method included the study of companies that have invested in eco-innovation and an interview with innovative and non-innovative companies. The goal was to understand which types of companies have or want to invest in eco-innovation and if organizational innovativeness plays an important role at a company level in undertaking ecological strategies. A further goal was to collect data, which allowed the author to validate a theoretical framework.

The results of the research extend the current literature by adding an analysis on the influence that organizational innovativeness has on the choice of eco-innovation and expanding the study of companies also to those of services, dividing the companies examined into based on their ability to do eco-innovation. This study could be useful for researchers and companies, to better understand the added value that organizational innovativeness gives to companies, the need that exists today in investing in eco-innovation and which assets are useful to be able to achieve it. Companies that have not yet invested in eco-innovation could take advantage of the research carried out to understand the advantages at the production, social and image levels that this type of innovation can guarantee.

## **1.5 Outline of the thesis**

This research report consists of seven chapters. The first chapter, is an introductory chapter, which emphasizes the importance and logic of the study associated with the research objectives and its potential values for the potential audience. In chapter two, the researcher critically examines the main results of the previous work on organizational innovativeness and eco-innovation, theories on adoption and diffusion. The chapter is a basis for formulating the initial research model and the main hypotheses. Chapter three provides a clear and detailed research design on the methodology applied for research, explaining the reasons for selecting the qualitative method. Later, in Chapter four, Chapter five presented an in-depth discussion of the research findings in combination with previous studies and their implications. In chapter six, limitations and suggestions for possible future research that may be made on the subject are

discussed. Finally, in chapter seven, the report concludes with a summary of the main results of this study.

## Chapter 2 Literature review

### 2.1. Innovation: innovative considerations

Innovation represents a change that demolishes a competitive environment to create a new and better one. It can be said that innovation occurs when a sector or companies in a sector create something different, whether they be the creation of new products, new services, the introduction of production methods, the opening of markets, the discovery of new sources of supply of raw materials, the industrial, organizational or cultural reorganization of the company.

Innovation occurs in various forms such as products, services and processes, both in terms of improvement and novelty. The difference between the concept of innovation and that of invention is often pointed out. Schumpeter emphasizes that the invention does not involve the entry of a new product on the market, but it represents the creation from scratch of a new idea. Innovation represents the next step where the invention acquires an economic value with its introduction on the market. The innovation is therefore the concrete application of the invention. The task of innovation is to bring about an improvement in terms of results and benefits. Businesses tend to introduce new products and services and new methods to produce them, however, not all products find consensus and novelties are not always appreciated by the market.

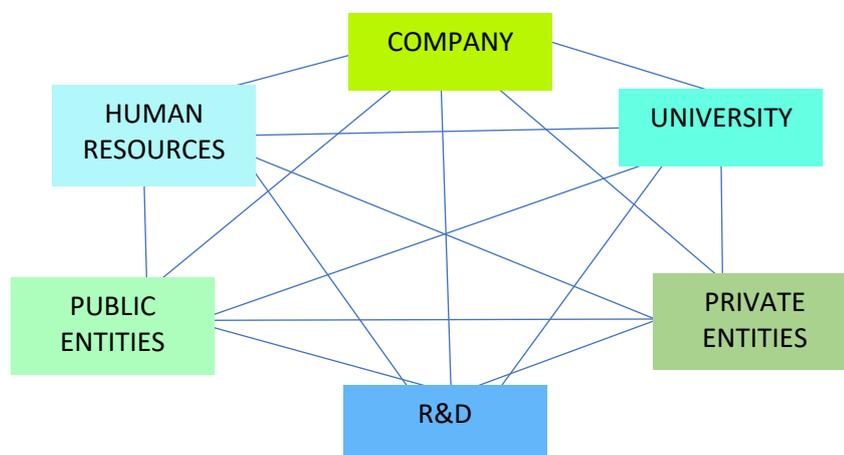


Figure 1

The Figure shows how innovation can be generated from different sources: from human resources, from public entities, from universities, from private entities, from companies. They make up a complex system in which each subject, and the relationships between the subjects, make up a network that is a source of innovation.

## **2.2 Organizational innovativeness**

Organizational innovation as "the generation and implementation of a management practice, process, structure, or technique that is new to the state of the art and is intended to further organizational goals." Damanpour and Evan (1984) talk instead about "administrative innovation" as innovation that occurs in the social system of an organization (eg, new rules, roles, procedures, and structures); while Hamel (2006, p. 3) refers to the term "management innovation" as "a marked departure from traditional management principles, processes, and practices or a departure from customary organizational forms that significantly alters the way the work of management is performed. " (Azar, 2017). Organizational innovation in any case is a fundamental way for companies to remain competitive and gain a competitive advantage over their rivals through innovative change within the company, whether it concerns work practices, technology, administrative systems, products. o services; especially in a world of increasing globalization, rapidly changing technology and growing customer demand for quality services and products. "Organizational innovation is the implementation of new organizational methods within a firm that change the firm's business practices, communication, and / or workplace organization" (Uygun, 2016).

Previous studies have identified internal (e.g. innovation capacity) and external (e.g. collaboration with channel members and absorption capacity) resources and capabilities as drivers of NPD's success (NDP=New product Development) (Tavani et al, 2018; La Rocca et al , 2016). Collaboration with different external actors such as suppliers, customers, competitors and research organizations (for example universities or government laboratories) improve both the sharing of knowledge and the acquisition of market knowledge by companies, with consequent expansion of existing corporate knowledge , which in turn advances the company's capacity for innovation (Clauss and Kesting, 2017; Freel, 2003; Luzzini et al., 2015; Zhou and Li, 2012) (Tavani, 2018).

Organizational innovativeness refers to strategic and structural changes from the administrative structure, to strategic management, to policies and reward systems. "Organizational innovativeness can be conceptualized as a behavioural construct" (Wang and Ahmed, 2004). "It represents the commitment of the organization to innovation (Avlonitis, Kouremenos, and Tzokas, 1994) and enables the formation of an innovative culture". (Kawakami, 2015)

Organizational innovation is a process that occurs from top to bottom, this type of innovation is driven by the sudden speed of adaptation that companies are forced to sustain to adapt to changes in the external environment; this involves structural changes and the applications of new strategies to be able to respond to market demand. and remain competitive. In organizations, two aspects can be identified, one managerial and one technical, each of which has its own resources and activities. The technical aspect deals with the transformation of inputs into outputs, while the management part controls the organization and its command policies, the economic situation, human resources, and competition on the market. The latter nucleus is in a dominant position with respect to the technical one. The technical changes are favoured by an organic structure that allows the contribution of news by all employees. Conversely, organizations that have to implement structural changes more frequently use a mechanical structure. The power to change the direction in the strategies and in the structure of the company is in the hands of the general management which adapts to external circumstances.

## **2.3 Factors affecting organizational eco-innovativeness**

Organizational innovativeness as the antecedent of an organizational innovative eco-capacity is more accurately conceptualized as a moderator of the relationship between orientation and capacity than simply as an antecedent. (Gabler., 2015). Organizational innovation, therefore, turns out to be what makes the company flow towards eco-innovative policies, resulting in the main driving force behind the company's economic innovation mechanism. But the input that companies have to effect ecological change in their organization is driven by several factors, for this study we have identified seven that can have very influential effects on organizational eco-innovation which are: the organizational structure, human resources, customers, culture, product, process and marketing ..

These elements, if properly studied and elaborated within the company, facilitate studies on eco-innovation and their implementation within companies.

Previous studies have shown that “only the most innovative companies, therefore, would be able to fully embrace and implement green technology. As organizational innovation conveys management's commitment to green initiatives, we positively believe it will positively affect eco-capacity. Formally (Gabler., 2015)

### **2.3.1 Organizational structure**

The organizational structure of a company is that key element that allows companies to carry out a strategy. Based on the strategies to be developed, companies must establish which organizational structure is able to achieve it, being the organizational structure the cornerstone of all business innovation. The structure strongly influences the strategies of the company, as the type of structure, the human resources, the process, the technology, interface with the new strategy based on the type of structure that the company decides to adopt and based on the 'organizational and cultural structure that the company decides to adopt.

When you want to think about implementing a strategy, in order to build an excellent organizational structure, you need to take into account the size of the company: products or services, geographical area, human resources, technologies and patents that it has in its

possession. “A company’s strategy defines the future activity fields to achieve long-term company goals, and it is the baseline for defining a company’s organizational innovation goals (Porter, 1987;cf. Souitaris, 2002a; Astebro and Michaela, 2005). At only 4%, the strategy dimension is presented the least (together with the network dimension). A category of this dimension is innovation strategy (Adamset al., 2006; Kamasak, 2015). The number of newly created innovative opportunities is a strategy indicator (Hittmar et al., 2015)” (Dziallas B. , 2019).

In fact, to be efficient in the implementation of a strategy, companies must, make a general plan of the company considering the functions available to them, based on the objectives they want to achieve. Furthermore, in order to support the chosen strategies, the organization must clearly define the roles, responsibilities, authorities at the structural level, assign adequate work groups, forming them from resources with the right specializations; coordinate the various activities and motivate people to achieve the goals assigned to them.

If the organization of a company is too structured and for this reason there are too many levels it is more difficult to achieve a result, as each activity is subject to the authority of others, who often tend to reject the risk and prefer to flatten themselves on pure execution. not favouring eco-innovative ideas and the professionalism of collaborators. It is therefore necessary to devise forms of organization appropriate to the strategy that one intends to pursue. To build an innovative organization it is therefore necessary first of all to make a choice in terms of the number of hierarchical levels and extent of control. There are two possible choices of organizational structure on this topic:

The vertical organization would include a series of steps of the information through multiple hierarchical levels, each of which filters this information according to different responsibilities and authorities, this organization is excellent when the difficulty of the strategy is highest, but on the other hand, for the approval of a project, an activity or costs, it must follow a very slow process of acceptance by all levels company, proportional to the number of levels present. This number is directly proportional to the size of the company ethe greater the number of levels, the more the flow of information from the top to the base and vice versa is likely to be distorted.

The horizontal organization, on the other hand, provides for few hierarchical levels and few managers who have to manage more resources, this organization allows greater autonomy to the work teams, allowing them to react quickly to each input that arrives, but at the same time

it is not suitable when the strategies are be very complex in that the more difficult it is to coordinate the various functions, the higher the costs of the organization.

A structure can be centralized or decentralized:

Centralized structure is when most of the decisions are made at the top of the company and the underlying managers are only responsible for executing the decisions made. This type of structure facilitates coordination is faster in capturing changes; planning is simpler and is more effectively controlled.

Decentralized when the top management retains the authority to make the big choices, but the managers are delegated many decisions of importance to the organization. This type of structure makes it possible to motivate employees more, to reduce the costs of the organization by having fewer hierarchical levels, to relieve the top management of simpler decisions by granting more authority to the different area managers.

Companies that integrate eco-innovation among the core values of the company must reorganize themselves according to this new objective and communicate it clearly at all levels within; they must also equip themselves with all the tools to monitor the progress of organization about sustainability.

The organizational structure regulates how rules, hierarchies, and responsibilities are established, controlled, and coordinated. Regarding the previously identified publications, the relation between business size and innovation is investigated comparatively often in the reviewed literature. However, different results have been published. On one hand, small companies seem to have an advantage in the management of their innovations (Rothwell, 1986; Bughin and Jacques, 1994). On the other hand, large companies are more likely to invest in innovative projects because they can allocate greater R&D resources than small firms (Becheikh et al., 2006). Furthermore, studies found that size determines the relationship between the management of innovations and the marketing of innovations (Gonzalez-Benito et al., 2015). In addition to the lack of capital, small companies partly face the challenge of information deficits, such as missing details about innovation policy instruments, technical information, and highly qualified employees (Kleinknecht, 1989). One reason for the diverging results in the analysed literature may be that these publications investigated the relationship between business size and innovation in different contexts (i.e., different countries, periods, and methods). Nevertheless, this dimension has been investigated frequently, with a factor of

10%. An indicator for this dimension is business size (Huelgo, 2006), and team satisfaction is considered a success factor (Griffin and Page, 1993) (Dziallas B. , 2019).

In conclusion, it is important to observe how the efficiency of an organizational structure and strategy depend on the human resources present within the companies, on how they interpret formal structures, on how they communicate and coordinate their activities.

- 1 FUNCTIONAL STRUCTURE: When the Units directly governed by the company's top management are grouped based on “means”, the structure is called functional. Each unit within a functional structure includes various departments, such as for example Research and Development, Production, Marketing, Sales, Purchasing and the employees who are part of these departments perform fulfilled tasks. The Line Units, in this case, group specialist roles that have specifics to perform the Function. This structure was designed according to the concept that high specialization and targeted control coming from the top can lead to greater work efficiency.
- 2 DIVISIONAL STRUCTURE: When the Units directly governed by the company's top management are grouped based on “purposes”, the structure is called divisional. In this case, the Line Units, or Divisions, organize all the structures that serve to carry out the activities necessary to achieve the final result (for example, marketing, design, production). In divisional structures, the Line Units are coordinated by the Summit through the standardization of results. We talk about standardization since each Division must pre-define the result it intends to achieve during the planning phase. Today the term Business Unit is also used to indicate autonomous organizational structures in the management of their own market.
- 3 HYBRID STRUCTURE: When the Units directly governed by the top management are grouped both based on "purposes" and "means", the structure is called hybrid. In hybrid structures, the Line Units are coordinated by the Top Management through two mechanisms: standardization of results and direct supervision. In this case, Line Units coexist that must supervise a product, a customer or a market, with Line Units that must supervise a specific company Function. The hybrid structure is recurrent in medium-large companies, which operate in very competitive markets, which require both standard and non-standard activities.

- **4 MATRIX STRUCTURE:** When different Units can exercise control over the same people at the same time, the structure is called a matrix. Individuals can therefore have two heads. In this structure, people, grouped according to functional criteria, are assigned to functional departments, such as Production, Marketing and Research and Development. However, the same people can also be assigned to temporary structures to carry out project activities. The organization chart is like a table or "matrix". The columns show the business functions, the rows show the project units that recruit specialists from the various functions to develop the project or order. Functions and Projects respond to the top management. In matrix structures, coordination is based on the standardization of objectives and skills.

There are no criteria that are absolutely best, but criteria that are more suited to the different levels of the corporate pyramid. For example, when a company is small and produces in a standard way for a mass market, it generally uses a functional structure. On the other hand, when, for example, a company is medium-large in size and has to produce for different markets with different products, a divisional structure or a hybrid structure is adopted. The companies that use the matrix structure are generally large companies that work on projects or orders and need to create temporary work groups to create, for example, a plant for a customer.

The functional structure is process oriented; in fact, it is more suitable for efficiency because it standardizes work, specializes people, and aims at the full employment of men and plants. But standardization itself can induce repetitive and bureaucratic behaviour.

The divisional structure is product-oriented: in fact, it gives greater autonomy to the Divisions which can be more flexible to market demands. But this autonomy can lead to duplication and inefficiency.

The matrix structure, on the other hand, is customer-oriented: in fact, it aims to respond to the customer with the temporary employment of specialists in project activities. But the presence of multiple command points can generate conflict situations between functions and projects.

### **2.3.2 Human resources**

The research also analysed the role that human resources play within companies with an innovative organization. Organizational innovation is imposed at the top by passing through the various sectors of the organization and the work of its members.

The most successful organizational innovation strategies are those that involve people and human capital. In fact, much of the knowledge and skills possessed by the company are incorporated into human resources and their intellectual capital, in fact the concept of knowledge, commitment, motivation, creativity, attitude and innovation, which are essential elements, resides in them. underlying the generation of new ideas that possibly flow into innovations. “Organizational innovativeness reflects a firm's tendency to act on “market intelligence” In other words, organizational innovativeness influences the use of knowledge. (Ma, 2016)

Companies that choose to undertake innovative organizations must focus their attention above all on human resources, granting them incentives, motivations, knowledge, rewards. Human resources, if properly valued, are able to develop their creativity more and more. To proceed towards adequate organizational innovation, in fact, a suitable management of human resources is necessary, based on the analysis of the needs of employees, with the aim of triggering a process of collective improvement in which work groups and others are stimulated and encouraged. promoting only a good job, but rather to stimulate all the members of the groups to do their best, even when they can make mistakes and fail to bring an idea to fruition, when this can be translated into future knowledge. innovation culture is related to managerial decision-making, but the specific mechanism of how innovation culture enables a manager's decisions in front-end innovation remains unknown (M. Mohan et al.2017). Top management should incentivize the number of new ideas, not penalize product failures, and encourage completeness of decision making. With an innovation culture, the risk of making sub-optimal decisions in the innovation front-end is limited. (M. Mhoan et al, 2017). Motivating is therefore one of the main objectives that an organizational structure must do towards human resources to push them to be eco-innovative.

Employee motivation is a key factor in employee performance which adds up to performance of the whole firm. That is why today firms are putting special emphasis to seek people who are motivated. In a firm the HRM department performs the task of managing the most important assets – the people working there. Thus, it is the duty of human resource department to address the motivational needs of employees. It is also important to understand here that motivation is not a task but an ongoing process. Organizations change all the time, as do people and to sustain a changing environment each employee needs to be motivated. Another important concern of organizations today is employee retention which can also be addressed through employee motivation.

Employee reward systems can be of different types, for example granting greater freedom of decision thus fostering employee creativity, cash prizes, promotions, recognition or through training courses. In such a way that the working groups increase their specialization, allowing resources to focus exclusively on their own objectives.

Synergies can emerge between business units or divisions of a company when the organization is structured in an adequate way and each resource implements their skills efficiently, such as in the marketing area by connecting all areas of the distribution such as advertising, promotions, warehouses, sales or in the operational area, connecting the production area, equipment, machinery, plants, economies of scale.

In conclusion, we can say that organizational innovation has a positive and significant influence on human resources. The eco-innovative organization encourages the development of new ecological ideas by human resources with internal and external motivations, as this type of organization favours the increase of their level of creativity thanks to the motivations and the provision of training courses and therefore gives employees more opportunities to innovate or eco-innovate.

### **2.3.3 Stakeholders**

Organizational eco-innovativeness is strongly influenced by customers and by the society in which we live, in fact they represent a key factor for corporate decisions. To remain competitive, companies must take into account the characteristics that the company and customers look for in a product or service, for this reason, in implementing strategies based on market demands, companies are forced to change their corporate culture and their organizational structure to support them basing its business model on a green strategy “Commercial orientation, as an organizational capacity, significantly influences the environmental corporate strategy and the environmental corporate identity” (Wang, 2018)

Customers and society are increasingly attentive to environmental sustainability. Consumers in particular are making increasingly eco-sustainable purchases; customers are choosing more and more eco-friendly companies for the choice of products and / or services from which to obtain supplies and investors are investing more and more in eco-friendly companies. So more companies choose to change the organizational structure by giving an echo to their culture, because they are influenced by external demand. Some companies are influenced by the demand to be eco-friendly for their social responsibility, while other companies do so roughly

improve your image or strengthen your brand by implementing a business strategy to which the whole organization must adapt taking one social responsibility, towards their principals stakeholders: shareholders, customers, employees, suppliers, the community with which the organization interacts.

“Customers are crucial for the success of new products. Specifically, customer expectations should be met by adding new or problem-solving functions, thereby satisfying customer needs (Chiesa et al., 2009; Duhamel and Santi, 2012; Dewangan and Godse, 2014). This argument implies that the advantage of an innovative product should be visible to a customer and the handling of the product’s functionality should be as intuitive as possible (Cooper, 1999; Astebro and Michaela, 2005).” (Dziallas B. , 2019)

#### **2.3.4 business culture and innovation**

Organizational culture refers to the values, beliefs and habits shared in the company that shapes the behaviour and conduct of the entire team that makes up the company.

Barney (1986) suggests that organizational culture can lead to a sustainable competitive advantage if it satisfies the characteristics of other resources; that is, it must provide economic value, it must be unique, and it must be imperfectly imitable so that competitors cannot copy it. Similarly, organizational climate is a “team-embodied, socially complex organizational resource” which acts as a driver of competitive advantage (Ray, Barney, & Muhanna, 2004, p. 28) and firm performance (Powell & Dent-Micallef, 1997). Environmentalism is a part of an organization's culture and climate when a firm “accept[s] the mantra and fully integrates green initiatives across all aspects of the business” (Cronin et al., 2011, p. 164), a process driven by managerial values (Fraj et al., 2013). In essence, that culture and climate become embedded in the firm to such a degree that it would be impossible to extract or copy it. When a firm is recognized as being a “green marketer,” that descriptor acts as a valuable resource, particularly relative to marketing and supply chain management functions (Chan, He, Chan, & Wang, 2012). Environmental orientation, then, may be an environmental resource that is inseparable from the firm itself (Amit & Shoemaker, 1993; Teece, 2009). Using this logic, a firm with an environmental orientation should be more suited to the creation of an eco-capability. (Gabler., 2015). Organizational culture has a direct impact on employee interview and morale, their productivity and performance, teamwork, etc. Obviously, for greater effectiveness it is very

important that companies spread the seeds of an organized and positive work culture from the beginning.

### **2.3.5 Product and process**

the company's will to innovate from a production and process point of view involves different assets, which mainly involve culture and human resources. for this reason, the companies that decide to innovate with greater success are those that introduce an innovative organization strategy that in many cases also translates into ecological strategy, as it has been explained in the previous paragraph most of the stakeholders focus today as today on companies with a future vision and above all an ecological vision.

The Eco-innovative product is related to product innovation involving environmentally friendly materials, eco-friendly packaging, product recovery and recycling, and eco-labeling (Chen et al., 2006; Chen, 2008). (Granero, 2018).

The Eco-innovative process refers to the ability of an enterprise to improve processes. and develop new ones that increase resource savings and prevent pollution (Chen et al., 2006; Chen, 2008) (Granero, 2018).

Technological innovation capabilities are referred to as firm's synthetic capability of implementing valuable ideas and knowledge that create the superior quality of product, service and/or process (Burgelman and Siegel 2007). Since the development of environment-friendly products often necessitates the use of innovative technology and manufacturing process, the firm's environmental sustainability cannot be fully achieved without increasing technological innovation capabilities. (Joo, 2018).

### **2.3.6 Marketing**

Eco-innovative marketing involves integrating environmental aspects into product positioning, communication, new product delivery methods, promotion or pricing strategies (Marcon et al., 2017). (Granero, 2018).

In fact, it is essential to develop a strategic plan also to put the product on the market and make customers aware of the eco-innovative proposals that companies offer.

## 2.4 Eco-innovation

"Eco-innovation is a complex process that involves product, process, organizational and marketing dimensions, each with its own determinants, characteristics and contributions to environmental business performance. Thus, analysing Eco Innovation activity is essential to obtaining a holistic view in order to achieve sustainable development. " (Granero, 2018)

Eco innovation is a revolutionary concept compared to innovation as we know it. Eco innovation is an innovation based on the idea of bringing benefits to the environment by preventing or reducing its impact or optimizing the use of resources, sometimes modifying production and distribution systems, business models. For many companies it is difficult to integrate with this new type of innovation, therefore the current literature has focused on which external and / or internal factors can incentivize companies to insert eco-innovation within the organizational culture.

"Some authors focus their investigations on the influence that external environment has on a firm's reason for implementing eco-innovation. Some of the external factors most commonly considered by eco-innovation literature are the regulatory and institutional frameworks, for instance setting new standards, and the demand pull drivers, ie, market conditions " (Reinnings, 2000; Horbach, 2008; Kesidou and Demirel, 2012; de Marchi, 2012; Doran and Ryan, 2016). (Granero, 2018).

"The environment affects human's every day activities through the air that we breathe, water that we drink, and mineral soils where we grow food sources. Due to the unquestionable importance of the environment to human lives, many citizens feel that environmental protection should be in the hands of the government. Reflecting this feeling, a growing number of government entities including the environmental protection agencies have begun to interfere with environment protection efforts. In particular, "governments in the developed countries such as the United States (US) and EU communities initiated and toughened environmental regulations over the years and those regulatory efforts have become more prevalent all across the world, including developing countries "(Azevedo, Carvalho, and Machado 2011; Cho et al. 2012; Paulraj 2009) (Joo, 2018)

A fundamental role for the development of eco-innovation, as explained above, is played by government bodies, government regulations can be of different types such as regulations for

reduce emissions to air, water and soil. For companies, pursuing the minimization of waste production and concentrating on their efficient management means adopting suitable measures to limit the effects that the activities generate on climate change, contributing to the protection of biodiversity and ecosystems.

"Government intervention for international environmental regulations has a positive impact on environmental innovation capabilities and technological innovation capabilities and through this, has a positive impact not only on the company's environmental performance but also on export performance" (as integral part of economic performance). (Joo, 2018)

Nidumolu et al. (2009) predicted that much of the new product marketing strategy would be in the area of green technology. Green technology includes any technological development that reduces the negative impact on the environment in companies, including processes (e.g. manufacturing, supply chain and logistics, waste disposal), policies (e.g. recycling, energy use, sustainability initiatives) and products (e.g. new design, improvements, research and development). (Gabler., 2015)

“Implementing eco-innovation allows companies and sectors to be more sustainable and, at the same time, to increase their competitiveness and productivity” (Adams et al., 2012; OECD, 2013).

Investors and customers are increasingly interested in companies with a high rate of sustainability, in fact, integrating sustainability into the corporate culture strengthens the bond with the customer from a commercial point of view and the value that the brand can have on it. Thanks to eco-innovation, the company gains greater brand loyalty and differentiation from competitors with reputational benefits.

Ecological sustainability has finally been placed at the centre of corporate strategies and more and more operators in every sector are transversally converting their production cycles and services towards a vision that has as an intermediate and final objective the protection of the planet and respect for 'environment. In this sense, in addition to the individual commitment that each person must maintain, the leading role towards change must necessarily be played by companies. Their contribution is in fact crucial to improve the environmental conditions which consequently are reflected on customers daily.

### **2.4.1 Benefits of eco-innovation**

Eco-innovation helps to reduce environmental damage and the costs caused by the latter; environmental innovations tend to perfect the relationship between nature and man not only in the immediate but also in the long term. The benefits that eco-innovation could bring can be direct and indirect. Companies can occupy some positions about environmental protection where competitors cannot copy their successful environmental strategies and gain the sustainable benefits from these successful environmental strategies. (Chang, 2011)

The direct benefits are: operational advantages such as cost savings due to optimization of the use of resources and logistics or revenues from product marketing. The indirect benefits, on the other hand, can be: better visibility of the corporate image; better relationships with suppliers, customers and authorities; better technological knowledge due to increased know-how; safety benefits or increased employee satisfaction. However, the study underlines how organizational innovativeness companies are more inclined to introduce eco innovation within their organization, embracing the demands of customers increasingly aimed at respect for the environment.

Eco-innovation is a valid tool for social growth, well-being and also for the economy. All this allows to create a balance between human development and ecosystem, with a view to sustainability. The orientation towards eco-innovation has changed the future objectives of companies, in fact these tend to be more and more proactive towards ecological and sustainable issues, which are seen as a social objective and as an opportunity for investment.

The advantages that eco innovation can bring within the company are many, for example companies that adopt the philosophy of recycling connects the eco-innovation of process, product, macro-organization but also of lifestyles and of consumption. Through the recovery of materials, the economy of recycling contributes substantially to the general eco-efficiency of the system, determines significant energy savings and the use of non-renewable resources.

### **2.4.2 Reasons for becoming eco-innovative**

Companies can be pushed towards eco-innovation by various factors, which can be summarized in six macro-areas:

1. Policy: for the need to comply with regulatory requirements, or for the ability to anticipate the regulatory framework. "The institutional pressure such as coercive legal mandates created by institutional environments can strongly influence the development of a firm's formal structures more profoundly than market pressures "(the institutional theory: (Joo, 2018)).
2. Market: consumer preference for eco-compatible products and companies, preference of investors from eco-sustainable companies and therefore for the increase in market shares. To create the best possible corporate governance mechanisms, the firm needs to achieve the closest possible alignment of interests between managers and shareholders, 1 assuming that the latter pursue wealth maximization objectives and face a variety of potential information and control problems, the severity of which will depend on their degree of control over a self-interested board of directors. (Bobillo, 2017).
3. Internal company: the internal company characteristics can act as levers that push organizations to undertake the choice of being greener and therefore to aim for eco-innovation "Some research defends the positive impact that internal characteristics have on a company's decision to be 'greener', such as firm size, solvency rate, social structure or personal circumstances "(Feder et al., 1985; Diederer et al., 2003; Gardebroek , 2006; Knickel et al., 2009) (Granero, 2018).
4. Economic: to reduce production costs, to improve management and environmental aspects, due to research efforts, pressure from customers and suppliers.
5. Ethic and Social: some companies are pushed towards eco innovation by their social responsibility that they decide to undertake, for the protection of the environment. A company devoted to develop its corporate environmental ethics can not only meet the environmental regulations, but also build up the barriers to the other competitors. Companies can enhance competitive advantage through improving their intangible assets (Chen 2008b). Environmental ethics can be regarded as companies' intangible assets (Chang, 2011).
6. Marketing: being green brings considerable visibility to the corporate brand, as it increases the credibility perceived by the customer. Green marketing has become increasingly popular, however, generating profits through green marketing not. This study sheds light on this discrepancy by introducing the concept of eco-capacity, environmental orientation and organizational innovation. Environmental orientation and organizational innovation are found be predictors of this eco-ability. Their interaction is also significant, which suggests that it is firm both environmentally oriented and innovative it is more likely to develop eco-capacity.

Eco-capacity is positively related to: market, financial results the perceived and quality of the company's offer. (Gabler., 2015)

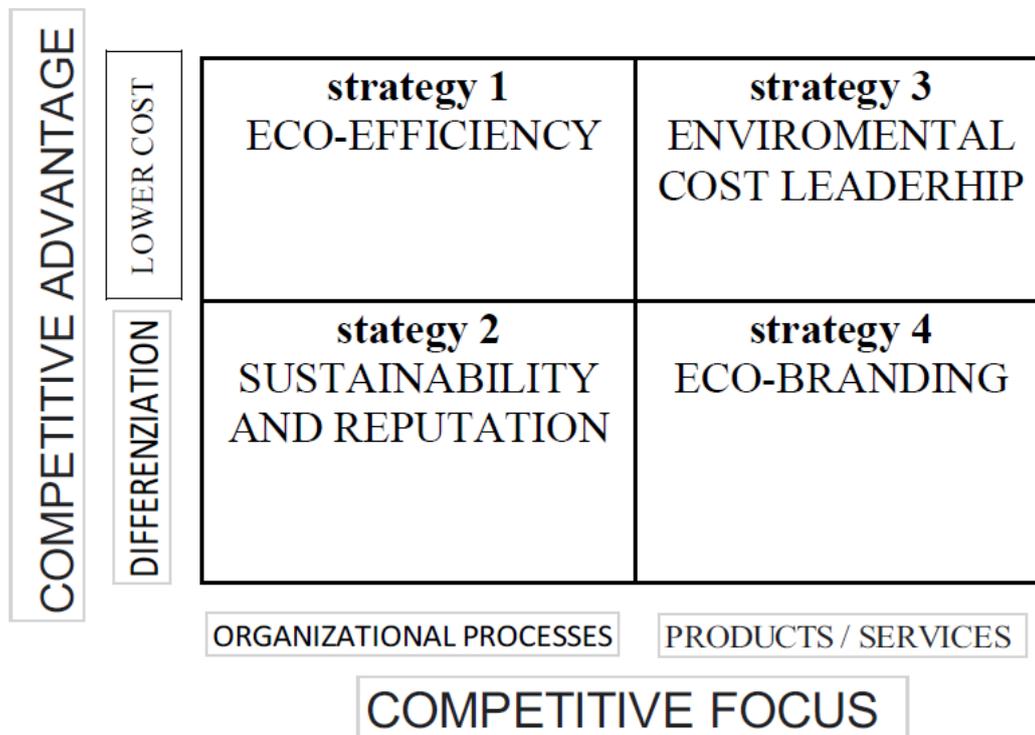
### **2.4.3 Types of eco-innovation**

We can outline four types of eco-innovation:

- Process eco-innovation consists in the reconfiguration of equipment and relationships, which relate the inputs of the business activity or generate new services, for example through a new machinery or logistic reorganization. that is a type of eco-innovation that determines a radical change in the technologies used for the production of the product through the formulation of an eco-strategy related to the life cycle of the product.
- Product eco-innovation consists in the expansion of the range of products, in a new version or in a completely new product or in enriching a product with a service.
- Cross-cutting eco-innovation is present in those companies that, in order to innovate ecologically, integrate ecological technologies belonging to different areas to their own within their cultural organization and / or their assets.
- Macro-organizational eco-innovation based on new ways of organizing the corporate structure such as human resources, assets, production and consumption behaviours at the highest systemic level and which fully involve the territory and its services in order to achieve greater efficiency in social and environmental terms. Organizational eco-innovation can be explained as a new or significant improvement in routines, business models, methods and actions that change a company's practices, relationships and decisions, with the aim of reducing negative environmental impacts (Marcon et al., 2017). (Granero, 2018)

## 2.4.4 Eco-friendly business strategy

*Businesses must respond increasingly to the expectations of its stakeholders, regarding the*



*social and environmental impacts of its activities and those of its suppliers. To face this market demand and increase the value offered, companies can adopt four different strategies: Figure 2 Source*

Eco-efficiency strategy 1: if a company competes on costs, the eco-innovative strategy on which it must focus is eco-efficiency. This strategy can ensure economic benefits and reduction of environmental impacts in terms of waste, use of resources and energy along the value chain, reducing the use of raw materials and energy used, optimizing internal processes and the use of company services, reducing gas emissions into the atmosphere, using fewer resources in a product, using logistics more efficiently. The attention of companies must focus specifically on how to be able to develop a competitive advantage also including attention to reducing environmental impacts.

Strategy 2 of sustainability and reputation: if a company wishes to differentiate itself from the market by emphasizing its interest in eco-friendly then it must aim for a strategy based on reputation. Companies exploit the impact on end markets by investing in environmental labels

by investing in marketing that allows consumers to know the environmental effort promoted by the company. This strategy focuses on product loyalty by committing to strengthen relationships with customers and suppliers who are eco-friendly. This reputation can be developed through a variety of initiatives promoted by companies independently (eg industrial codes of conduct, ISO environmental certification) or in collaboration with non-governmental government institutions, public regulation.

Strategy 3 Environmental cost leadership: the environmental cost leadership strategy is adopted by those companies whose goal is to introduce environmental innovation in order to benefit from it from a cost point of view, therefore, to modify and innovate services produced or corporate culture in view efficiency. Companies adopting this strategy by leveraging attention to environmental sustainability while reducing the costs of their services and / or processes. The companies that invest most in this type of strategy are those in which technology is at the centre of the company and those of the product in which eco-design can play a fundamental role.

Strategy 4 eco-branding: companies can implement strategies aimed at increasing the visibility of their brand by aiming at the differentiation of their offer through products and / or services compatible with environmental needs or by paying greater attention to sustainable economic processes. The consumer is willing to pay a higher price for these products or services, allowing the company to achieve a clear economic advantage linked to the production of products with less impactful materials on the environmental front or developed in an eco-compatible way. Companies through this strategy can be successful if they are able to retain customers, thus generating trust in their offer. To implement this strategy, it is necessary that the company has solid marketing skills, knowledge of the psychological characteristics of the consumer, adequate disclosure on ecological performance of the product and / or service and above all of brand management.

## 2.5 Indicators of organizational eco-innovativeness

The indicators for measuring organizational eco-innovativeness can be of three types: input indicators that refer to the relative measurements financial resources and human resources; *output indicators* they enclose the tools to measure all that derives from the eco-innovation process, which is generated or created thanks to it. The *process indicators* with which it is possible to give a value to the trend of the eco-innovation process and to outline a general framework on the evolution of the set of innovative ecological activities in progress in the company.

- The input indicators are: R&D, human resources, material resources.

Through *R&D* with this indicator we can quantify the investments made by a company in Research & Development on the theme of eco innovation, in that, R&D activities and input are related to the financial situation of a business (Beneito, 2003) and the availability of resources. Resources in this sense refer to employees, technology, tangible assets (e.g., machinery, tools, and materials), time spent with an innovation, and investments made to develop and realize innovative products. Different results are found in the relevant publications. For example, R&D personnel ratio (internal expertise) has a strong positive effect on product and process innovation, and process innovation is also influenced by R&D intensity (R&D investment) (Song and Oh, 2015). R&D intensity seems to be influenced by knowledge and technology transfer activities (Arvanitis et al., 2008). Arvanitis et al. (2008) defined the innovation performance of companies as the R&D intensity and the number of sales of new products". (Dziallas B. , 2019).

To measure this topic, we can measure or for example the number of research aimed at minimizing the impact on the external environment or calculate the number of new eco-sustainable projects started. To define the degree of eco-innovation of companies, this type of indicator is the one that provides greater knowledge of the level of activity that the company organizational structure carries out within it. Through these measurements that detect the value of investments in R&D it is possible to understand the position of the company with respect to

rivals, but also to understand at the level of the organizational structure how the budget is managed, or the number of eco-innovative ideas approved by top managers.

Table 1

Eco-R&D expenditure/investment	%
Eco-R&D costs/revenue	%
Average expenditure per selected eco-idea	%
Percentage of sales related to new eco-projects	%
Percentage of eco-innovations that met financial benefit projections	%

This indicator, however, being an input indicator, does not measure the result. “The European Council tried to solve these problems and asked the EC to develop “a new indicator measuring the share of growing innovative companies in the economy”<sup>1</sup>; to add an output and outcome dimension to the input dimension already provided by the R&D intensity indicator. In the following two years, the Commission services experimented with different approaches to develop and measure such an indicator, consulting also with a High-Level Panel on the Measurement of Innovation (2013) and finally presented the EU 2020 Innovation Indicator. It combines four individual indicators intended to measure innovation outputs and outcomes into a single composite indicator: (1) patent applications, (2) economic significance of knowledge-intensive sectors, (3) trade performance of knowledge-intensive goods and services and (4) significance of fast-growing firms in innovative sectors.” (Janger, 2017)

*Human resources* represent another input linked to company organizational eco-innovativeness, we can measure the Percentage of leaders trained in creativity techniques, atmosphere or Number of managers trained in the methods and tools of innovation but this indicator that was born as an input indicator can turn into an output indicator because Through these indicators it is possible to calculate the level of knowledge that the eco-innovation process has brought to the company by measuring the number of new knowledge/skills generated during the process, which can be detected by asking the people employed in the projects to indicate the lessons learned at the end of the process. and the number of new strategic options opened. “The competences and knowledge of a company’s employees are crucial resources for new ideas and innovation projects. The individual competence is the ability to implement

knowledge into actions to achieve the defined goals. At 9%, this dimension (Fig. 5) is presented quite often. Innovation oriented learning (De Medeiros et al., 2014) is a category in this field.” (Dziallas B. , 2019).

“Firms can transform innovation inputs (e.g. R&D, human resources, research infrastructures and the stock of existing knowledge) in a first stage into intermediate outputs, such as patents, often referred to as throughputs (Grupp, 1997; Frietsch and Schmoch, 2006) and potentially,3 in a second stage, into innovation outputs. They refer to the direct results of innovative efforts of economic actors. This is typically the introduction of an innovation on the market (product innovation, marketing innovation) or in the economic actor’s operation (process innovation, organisational innovation). Typical measures of innovation output are counts of product and process innovations (see Geroski, 1994) or the share of firms that have introduced innovations. Innovation outcomes are the consequences of the introduction of innovations, among them the economic effects of innovation outputs on the firms introducing them.” (Janger et al 2017).

In fact, we can measure for example also “the number of new product ideas (Cooper and Kleinschmidt, 1993), future duration of products (Astebro and Michaela, 2005). To evaluate ideas for innovations, these indicators may play an important role in the product definition and concept phase. Furthermore, a precise, stable, and early product definition before development starts (Cooper, 1999) is important for the subsequent development of a product, and thus it could be used as an indicator.” (Dziallas B. , 2019).

Table 2

the Percentage of leaders trained in creativity techniques, atmosphere	%
Number of managers trained in the methods and tools of innovation	absolute value
the number of new eco-product ideas	Absolute value

Investments in *raw materials*, energy and other material resources are the second financial input indicator: the amount of money used to acquire resources is taken into consideration, therefore also in this case their cost must be additional and identifiable to be counted among the socio-environmental costs. The indicator about raw material describes how effective the recovery process is, i.e., the recovery rate of products from total raw material inputs. In material efficient production concepts, nearly all fractions are utilized for sellable products, indicating efficient utilization of production side streams. “The indicator evaluates the ore and the

processing methods, although the ore dominates the outcome. The indicator is calculated by taking the mass of products per mass of raw material and compared against reference values, which define the limits. Another important Indicator is evaluates the utilization of secondary raw material, which the circular economy aspect targets. Describes how primary resources are being saved by using recycled raw material in the process itself. The value is compared against percentual thresholds defined by the current use of secondary raw material.” (Rönnlund, 2016)

Table 3

Raw material suitability and utilization	(%)
Secondary raw material/ total raw material	(%)

- Process indicators are those by which we can measure: the *eco-innovation management*, *performance of organizational eco-innovativeness*, the *resource consumption*, *Financial Performance*.

the measurement of *eco-innovation management* is important to consider the management capacity of a company in a competitive and innovative context; to grasp the degree of efficiency of eco-innovation management, thus also being able to evaluate the competitiveness that the company can guarantee on the market. Companies can quantify using this indicator: “Project efficiency in relation to cost and time Chiesa et al. (2009) , Measurement of time Griffin and Page (1993), Project delay Feurer et al. (1996), Rate of received approval on time Han et al. (2009), Quality of execution of the activities that comprise the innovation process Cooper and Kleinschmidt (1993), High-quality new product process Cooper and Kleinschmidt (1995) Efficient processes like tough go/kill decision points or gates Cooper (1999), New product development process/process management itself Lester (1998), Slater et al. (2014), Raja and Wei (2015), Heavyweight project management Blindenbach-Driessen and van den Ende (2006), Lenfle (2008) Percentage of projects in the total portfolio going through a defined project management system with defined milestones Tipping et al. (1995), Clear goals and milestone measurements Lester (1998) Percentage of completion of objectives at the expected milestone date Tipping et al. (1995), Planning and monitoring of the innovation process Huergo (2006), Way in which the new product development process is formalized Graner and Mißler-Behr (2013), Common understanding of the process for new product development Lester (1998), Procedural clarity Fleuren et al. (2014), Project ownership/empowerment (=support

and freedom) Tipping et al. (1995), Flexibility and agility, such as centralization of decision-making Koberg et al. (1996), Feedback effects in-between innovation decisions Martinez-Ros (1999) Number of meetings De Felice and Petrillo (2013)” (Dziallas B. , 2019).

Table 4

Amount of time managers spent with eco-innovations compared to normal tasks	%
Percentage of projects in the total portfolio going through a defined project management system with defined milestones	%
support and freedom	Project ownership/empowerment
Approval rate received in time	Absolute value
Number of meetings about eco-product/service	Absolute value

through the *performance of organizational eco-innovativeness* it is possible to measure, taking into account the initial elements, the percentage of achievement of the deadlines for the projects, the percentage of achievement of the objectives of the new ecological projects. The percentage of achievement of the objectives of the new ecological projects and some values such as the number of projects that reached the milestones are considered no longer suitable and not allowed to enter the subsequent development phases. “The number of project definitions with business approval or Percentage of projects in the total portfolio going through a defined project management system with defined milestones Tipping et al. (1995)” (Dziallas B. , 2019).

Table 5

The percentage of achievement of the deadlines for the projects	%
the percentage of achievement of the objectives of the new ecological projects	Number of eco projects started / number of successful projects (%)
number of project definitions with business approval	Absolute value

Percentage of projects in the total portfolio going through a defined project management system with defined milestones	%
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*Product concept:* “The product concept is created on the basis of the product definition to coordinate and start the validation and production phases. The potential costs and required resources are considered according to the business case calculations of the innovation idea. The development of the product begins. Number of on-going innovations Hittmar et al. (2015) Innovation activity Therrien and Mohnen (2003) Design orientation, such as, number of designers on the company’s staff, source of design Alcaide-Marzal and Tortajada-Esparza (2007) Making business cases.” (Dziallas B. , 2019).

Table 6

The development of the product begins	%
Number of on-going innovations	Absolute value
Innovation activity	Absolute value
number of designers on the company’s staff	Absolute value

Other measurements that we can make with process indicators are the *resource consumption* of resources such as water, electricity, and other natural elements and the use of resources that are used for the construction of the product or development of a service. For example, a possible indicator can be The indicator which determines the intensity of the processing water “describes how much water is used in raw material production and processing in cubic meters of water per kilogram of product, compared to other comparable products. All water required for processing and cooling purposes are included, also salt water. Water, which is immediately returned and has not been altered, for example turbine water, is not included. The indicator compares the water intensity to other comparable products.” (Rönnlund, 2016).

Table 7

Water intensity of processing	(m3 water/kg product)
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The process indicators are used to understand the performance of the company process, with these it is possible to monitor the progress and achievement of the targets that form the basis of information necessary to make decisions regarding the R&D and Operations areas. Looking outside the company boundaries, they also constitute a good basis for understanding the level of eco-innovation in companies.

- Output indicators measure the organizational eco-innovativeness in relation to what the company produces such as: *Financial Performance and the quantity of waste*.

The *Financial Performance* of the process is given by the greater use of sustainable elements and the lower amount of costs associated with environmental management. There are costs related to sanctions or penalties for environmental crimes, investments and costs incurred to improve the environmental impact rather than to restore the initial conditions etc., it is also possible to measure the number of environmental certifications that a company has obtained. “Financial performance is defined as the earnings of a business through the sale of innovative products in the market. Financial performance is found to be the third lowest dimension in the relevant research publications. One reason for this result is that, although innovation plays an important role in the success of a business, the actual success that is based on innovation is difficult to capture. Examples of indicators in this field are return on investment with innovations (Kim, 2014) and new-to-market and new to- business sales (Caird, Hallett, and Potter, 2013). Can be measured through: “Revenue, profits/profitability Griffin and Page, 1993; Zahra, 1993; Tsai, 2001; Keizer et al., 2002; Czarnitzki and Kraft 2004; Flor and Oltra, 2004; Astebro and Michaela, 2005; Palmberg, 2006; Chiesa et al., 2009; Sawang, 2011; Idris and Trey, 2011; Caird et al., 2013; De Felice and Petrillo, 2013; Ivanov and Avasilcăi, 2014; Dewangan and Godse, 2014; Kim 2014; Hittmar et al., 2015 (processed according to Trommsdorff and Steinhoff, 2007; Chromjaková and Rajnoha, 2009). (Dzialis B. , 2019).

EBITDA, budget fulfilment, Net cash flow Potential Sales, ROI of R&D projects/new product program, Return on investment in innovation, Sales of new product program, Sales through innovation, Sales percent of new products and services in total sales, Sales under patent protection, Sales and sales growth, Share of sales with newly developed products, Share of turnover of new product, Share of a business’ total sales deriving from innovative products, Share of new and improved products in total sales as output indicators, Share of new products in % from revenue = return on sales, Share of new products in % compared to the total revenue

in comparison to previous years, Share of innovation expenses to total turnover, Revenue based on new products, Percent of new products that equals 80% sales, Profits under patent protection, Rate of turnover, perception of innovation returns, Revenue from new products, services, new customers, Innovation momentum: number of new products to sales, Volume of sales from innovative products, Payback period/amortization time. Internal rate of return (%), R&D costs/revenue in %, profit margin measures, New-to-market and new-to-business sales, Percentage increase in innovation revenues per employee, portfolio ROI realized, Current idea portfolio NPV/ROI/IRR (net present value/return on investment/internal rate of return)” (Dziallas B. , 2019).

Table 8

Return on investment in innovation	Absolute value
Percentage of innovations that met financial benefit projections	%
Revenue	profits/profitability (%)
Return on investment in innovation	(%)
Sales of new product program	Absolute value
Internal rate of return	%
R&D	costs/revenue (%)
Profits under patent protection	Absolute value

the company can measure, *the quantity of waste* produced such as: the level of soil contamination, the level of emissions from air and water, noise pollution, the amount of waste produced, and waste, as well as the cost of their management. “The emissions from production in an indicator describes the greenhouse gases emitted from production in kilogram CO2 equivalents per kilogram of product. The emissions are compared to emissions of other comparable products. Both energies used for processing and direct greenhouse gas emissions from processing are included for all steps of the value chain, indicating the carbon intensity of the processing chain. The emissions from transport in an indicator describes the greenhouse gas emissions from transportation in kilogram CO2 equivalents per kilogram of product. The emissions are compared to emissions of other comparable products. Raw material and intermediate product logistics are included. This indicates the carbon intensity of

transportation, taking into account both transportation means and distance. Greenhouse gas emissions can be reduced by utilizing as local raw materials and production concepts as possible. However, product groups differ strongly on possibilities to do so, and therefore, the issue must be analysed relative to the product category in question. For calculating transport to end use, the specific end user and location must be determined.”. (Rönnlund, 2016).

Therefore, it is useful to measure this level to understand eco-innovation within the organization of the company. “The indicator describes waste prevention, which is analysed by looking at prevention of exergy loss. A material in a form that has little available work left will require external energy to reprocess into something else and is thus a waste. The value is compared against percentual thresholds based on theoretical calculations or similar products”. (Rönnlund, 2016)

*Table 9*

The emissions from production	(kg CO2 eq./kg product)
The emissions from transport	(kg CO2 eq./kg product)
Waste prevention	(%)

## **Chapter 3 Methodology**

The objective of this thesis is to understand the elements of the organization that incentivize corporate eco-innovation and explore how these elements are influenced. In order to provide answers to research questions and achieve the goal of the thesis, it is necessary to decide on the research methodology which includes the choice of research methods, data collection techniques and recognition of the limitations of data collection.

### **3.1. Justify the research methodology**

The aim of the thesis is to study the impact that the organization has on eco-innovativeness, identifying specific elements of the organization that influence the eco-innovation of companies and that generate solutions to promote and encourage it.

For the type of information to be collected in this case, the most suitable type of research was the qualitative one, as an analysis was carried out with a series of open questions, in order to deepen the answers given and be able to analyse them in depth. The interest was aimed at formulating hypotheses, conjectures and identifying connections between the various companies analysed. Through this type of interview, it was possible to detect the components and organizational characteristics of the companies common to the companies in which eco-innovation is undertaken. Data collection is the key point of all research projects, (Bryman, 2015). To study how companies are turning towards eco-innovation, primary data from interviews were collected. In qualitative interviews, the focus is on respondents' perceptions and thoughts on the topic (Bryman, 2015). Therefore, based on the purpose of the study, the interviews were deemed adequate as a deeper understanding of the link between organizational innovativeness and eco-innovation was required. For this study, semi-structured interviews were conducted. According to (Denscombe, 2016), one of the advantages of this type of qualitative interview method is adaptability, as follow-up questions can be asked. With this method, to achieve the purpose of the study, different types of companies operating in different fields were chosen. The analysis was performed on eight companies that responded to the interview submission request, which were taken as our primary data. To provide anonymity, the companies were named 1-2-3-4-5-6-7-8-9 companies and the respondents with

ABCDEFGH. After the selection of the companies, contacts were made with managers at each company. Contacts were then made with senior executives and managers within appropriate areas such as sustainability and innovation. (According to (Denscombe, 2016), an important part of qualitative research is the safety of respondents who should not suffer any harm from participating in corporate research.) A total of eight interviews were conducted, lasting an average of 50 minutes. Some of the interviewees, due to the restrictions caused by covid-19, were not available for a personal meeting, others were in a geographical position far from ours and for this reason the interviews took place through Skype. In cases where the interviewee was in our vicinity, a physical interview was performed safely.

The starting point when conducting the interviews was that they had to be recorded in order to make it easier to browse and compile the data later, so that the interviews could be carefully reviewed later, and no data would be lost. Each interview was carried out in total privacy, so their names and workplace details are kept private due to their wish. Respect for the privacy of participants is seen as a significant ethical issue according to (Denscombe, 2016). Secondary data was also collected. The secondary data in this study mainly consist of annual reports and sustainability reports from the different companies. The reports were collected through the companies' websites. Secondary data was applied to the study to obtain triangulation. According to (Bryman, 2015), triangulation means using multiple data sources when studying a social phenomenon with the aim of gaining greater confidence in the study results. The main purpose of triangulation is not necessarily the cross-validation of the data, but rather to observe the phenomenon from different angles (Denscombe, 2016), (Denscombe, 2016) also affirms the importance of corroborating the data collected through the interviews to provide support for the statements of the interviewees that was also done by triangulation.

To achieve the exploratory goals of this study, qualitative data are used in this research for two reasons. The first reason qualitative data is more appropriate for exploratory study. The second which is well known for the nature of richness and fullness. (Saunders, Copenhagen Business School 2013).

### **3.2. In-depth interview**

The interview method is chosen because it can help the researcher discover hidden information by talking to respondents, Qu (2011,246) said because semi-structured interviewing has its basis in human conversation, is "flexible, accessible and intelligible and, more importantly,

capable of revealing important and often hidden aspects of human and organizational behaviour". The semi-structured interview allows the author to ask a wide range of questions from open questions, surveys to specific and closed questions from which the phenomenon is seen in a variety of perspectives (Saunders, Copenhagen Business School 2013). Agreeing on this point, Qu (2011,246) argued that the semi-structured interview has its basis in human conversation, is "flexible, accessible and intelligible and, although there was a fixed and common track for all, the conduct of the interview could still vary based on the answers given by the interviewee and on the basis of the individual situation

### **3.2.1. In-depth interview overview**

After requesting some basic information, the interview questions were previously divided into two parts, a part on corporate eco-innovation and a part on organizational innovativeness in order to create a continuous flow during the interview. group of questions was divided into subgroups of questions, in fact, two initial questions were asked regarding the efforts that the company conducts to be eco-sustainable. Continuing with two other questions referring to the practices that are used to be eco-compatible and then conclude the sub-group of questions with a question to understand what the company's motivations are, how much it has invested to be eco-sustainable and what top managers do to encourage the development of eco-products and eco-services. The second sub-group of questions focused on understanding what are the eco factors that influence the choice to become eco-sustainable. The second part of questions was addressed to the business organization to understand what kind of organizational structure and culture is present in eco-friendly companies, other questions were asked to understand what types of skills individuals must have to work in a company eco-innovative and what business practices in terms of remuneration, incentives, coordination and motivations are adopted to favour this type of innovation.

Furthermore, due to the nature of the research questions and the size of organizational innovativeness and corporate eco-innovation, the target group for the interview are executives / or managers with at least two years of work experience instead of a casual employee in a organization. The rationale is that executives and managers have a better opportunity to see corporate organizational innovativeness in a big picture (e.g., strategy, vision, external environment) and from more levels of the organization than a entry-level worker.

### 3.2.2. Selection of participants

The subjects to be involved for interviews and focus groups are identified based on different types according to different possible criteria such as: age, sex, professional activity, nationality. The evolution of the theoretical conceptualization process was then recorded and traced through special memos and diagrams. In particular, for this study, a total of eight managers were interviewed. The interviewees were 4 women and 5 men, between 28 and 45 years old, managers representing different areas of knowledge: Technical IT manager, Consultant manager, Advertising manager, Assistant technical manager, Sales manager, pharmaceutical manager, Manager it, Laboratory manager and product quality manager. Researchers may use business owners and management officers in a study due to their first hand and in-depth knowledge of business challenges (Emmel, 2015; Fugard & Potts, 2015; B. Marshall, Cardon, Poddar & Fontenot, 2013). To enable researchers to answer the research question, participants in a qualitative study must meet the eligibility criteria of having experience and knowledge of the research phenomenon (Palinkas et al., 2015; Robinson, 2014; Yin, 2014).

Each interview lasted 50/60 minutes and was recorded for further listening. Participation was voluntary. The only incentive to encourage participation was to ensure their privacy. Qualitative researchers ensure privacy and confidentiality, critical aspects of research (Carbonetti, 2016; JM Morse & Coulehan, 2014; Tetnowski, 2015; Yin, 2014). I conducted confidential interviews and made sure that all methods of data collection were confidential. Researchers should follow a research protocol that requires participants to sign informed consent forms to participate in the study (Broom, Broom, Kirby, & Post, 2018; Chapple & Ziebland, 2018; Levitt et al., 2018).

Table 10

	Interviewee	age	gender	positions	Working in industry in general	work experience in the current company
COMPANY 1	A.	33	Man	Technical IT manager	6 years	2 years
COMPANY 2	B.	30	Man	Consultant manager	5 years	3 years
COMPANY 3	C.	34	Woman	Advertising manager	5 years	2 year
COMPANY 4	D.	28	Man	Assistant technical manager	4 years	2 years
COMPANY 5	E	28	Man	Sales manager	6 years	2 year
COMPANY 6	F.	30	Woman	Pharmaceuticl manager	3 years	2 years
COMPANY 7	G.	38	Man	IT manager	12 years	8 years
COMPANY 8	H.	45	Woman	Laboratory manager	20 years	20 years
COMPANY 9	I	32	woman	product quality manager	6 years	4 years

The companies taken in reference are located in different geographical areas, the areas in which they operate are: IT consulting, consulting, advertising, electronics, augmented reality, pharmaceutical, food and services, chemistry and beauty; each company has been categorized on the basis of size and level of eco-innovation. Each company relies on its own competitive advantage and caters to different types of consumers such as end users or Business customers or both. Firm size was measured by total number of employees (Huang and Li, 2015). (Azar, 2017)

Table 11

	INNOVATIVENESS LEVEL (high, medium, and low)	LOCATION	Firm size (Number of employees) <150 SMALL, 150-200 MEDIUM, > 200 BIG	COMPANY TYPE	Competitive advantages	Types of consumers Consumers - end users or Business customers
COMPANY 1	low	BOLOGNA	MEDIUM	IT consulting	Excellent technological skills currently on the market	Business customers
COMPANY 2	high	BOLOGNA	BIG	consulting	digital transformation of companies	Business customers
COMPANY 3	high	MADRID	SMALL	advertising	knowledge of customers and the media in the various areas of the city	end users
COMPANY 4	medium	MILAN	BIG	electronics	exploits the economy of scale thanks to the high production demand	Business customers
COMPANY 5	high	BOLOGNA	BIG	augmented reality	product quality	Business customers
COMPANY 6	low	NOVARA	SMALL	pharmaceutical	Solid Italian reality, tradition	Business customers
COMPANY 7	high	BOLOGNA	BIG	FOOD and services	Future orientation	end users and Business customers
COMPANY 8	medium	MILAZZO	SMALL	CHEMISTRY	qualifications and continuous updates	end users
COMPANY 9	medium	MILAN	MEDIUM	beauty	excellent beauty products	end user

### 3.2.3. Planning and conducting in-depth interviews

Initially, the questions that had to be included in the interviews were planned by selecting the main themes that wanted to be treated during the interviews; consequently, companies operating in different categories were chosen that could be of help for the purpose of the

research, by contacting them via email. Data collection took place according to the "Grounded theory" with the following procedures:

- During the observations, field notes were taken and reports are processed once they are completed.
- the interviews, conducted according to a semi-structured scheme, and the focus groups (9 participants), were conducted in an unstructured manner. For greater security, the interviews were re-listened and transcribed to double-check the notes taken.
- texts and documents relating to the theme of eco-innovation and business organization were collected through an analysis of the main newspapers, generalist or specialist and scientific magazines, both in print and in electronic format (through the Library System, Scopus and Google Scholar) , with respect to a specific time period.
- The texts thus obtained constitute the material of analysis.

### **3.3. Data analysis**

The data analysis is conducted, simultaneously with the data collection, through three progressively more abstract coding phases. In this way we proceed to the conceptualization of the data, identifying the categories of analysis of the phenomenon (in particular the core category, which is the central element for the explanation of the psychosocial process at the base of the social phenomenon in question) and the relationships between them, to achieve the integration of all these elements in an articulated theoretical model that allows to explain the phenomenon in its complexity.

Based on the first two codification phases, subsequent theoretical sampling phases are carried out in order to saturate the categories, identifying further cases that allow to explore all the specificities of the phenomenon and fill the gaps with respect to the categories identified (Tarozzi, 2008)

The first phase of coding that follows the transcription of the data is an open coding (word by word, line by line, event by event) with the aim of bringing out possible interpretative leads (Tarozzi, 2008), through the identification of units of minimal meaning and the naming of categories. The initial step when processing primary interview data was the transcription of all collected data in order to make it easier for the transcribed interviews to be processed and compared with each other. This also allowed the collection of precise quotes. The citations were subsequently used to illustrate and highlight important findings in the thesis. The interviews were carried out in Italian and English and transcribed in both languages. This choice was made to prevent the data from disappearing during translation. Each transcript was then carefully read, to gain an understanding of the companies and the perceptions that managers have regarding the eco-innovation of their respective companies.

The second phase of coding is more focused, also thanks to the second phase of sampling and data collection which helps to better specify the focus of the survey. In this phase the salient themes and interpretative categories are identified. The next step in the data analysis was to summarize the main aspects and key points of each interview. According to (Saunders, Copenhagen Business School 2013), summaries of large parts of the text allow authors to become familiar with the main themes of the text. This is essential when working with

qualitative data, consisting of large volumes of text (Saunders, Copenhagen Business School 2013). The transcribed text was then structured and divided into various eco-innovative, organizational and governance themes.

The third phase of coding involves the more abstract conceptualization of the data based on the identification of the relationships between the categories that emerged from the focused coding, the hierarchical organization of the themes, the identification of the core category around which to articulate the complete interpretative model of the phenomenon. From each interview, the fundamental issues that were discussed by the interviewees and the key factors that could have been important for the study to be conducted were then extrapolated. For each of these themes, diagrams have been constructed to represent the existing correlations that emerged. The aim was to build a table by inserting all the topics with the relative answers from each interviewee and find the various correlations between them. (as described by the Grounded theory).

Based on the quantity of materials to be collected, the texts can be analysed with the aid of IT tools, such as the Nvivo and Atlas software for the automatic and semi-automatic analysis of qualitative data. Ti (Cipriani, Bolasco 1995, Giuliano 2008, Coppola 2011). According to Bryman and Bell (2015), this way of coding the data facilitates the work of identifying different patterns and themes. In order to gain more information on the research question, I reviewed business documents such as multi-year strategic plans, annual reports, past marketing campaign flyers, sustainability reports, customer needs documentation, statements and other relevant information from the website of the company. Researchers use corporate or archival records as a tool for data collection (Behr, 2014; C. Marshall & Rossman, 2016; A. Smith, 2016).

### **3.3.1 Grounded theory**

According to the procedure proposed by Grounded Theory, we start from data to arrive at theoretical concepts and produce an explanation that takes into account the relationships between the data and the processes that organize these relationships. (Tarozzi, 2008)

The "Grounded Theory" was born thanks to Glaser and Strauss who, in 1967, published their work "The Discovery of Grounded Theory" in which they defined it as: "a qualitative research method that uses a systematic set of procedures to develop an inductively derived grounded

theory about a phenomenon "(Strauss and Corbin, 1998). It is based on the simultaneity of the data collection and analysis phases, by means of theoretical sampling and progressive coding of the data, according to a method of continuous comparison. By virtue of the link with the data, the theory obtained is significant within a certain context; that is, it is applicable only to a specific situation, that delineated by the conditions (micro and macro) in which the phenomenon under study has developed. As with other qualitative approaches, The data to be analysed can be collected through various qualitative methods: unstructured participant observation, of an ethnographic type (Garfinkel 1967, Bruni & Gobo 2005), in-depth interviews (Glaser and Strauss 1967, Ricolfi 1997, Tarozzi 2008) focus groups (Corrao 2005, Zammuner 2003) and the collection of texts and documents relating to the research topic (Cipriani and Bolasco 1995, Corbetta 2005).

The backbone of the analysis process of the grounded theory is the coding which, according to the Corbin and Strauss approach, is divided into three types: open, axial, systematic.

During open coding, the content to be analysed is broken down into small parts, each of which is given a conceptual label. During the analysis, units similar to each other - "conceptually similar ones" - (Corbin, 1990)(p. 423) are grouped into categories through a continuous and constant comparison "Constant - comparative method" (Snyder, 2013) (p. 258). Each new piece of content is compared with the parts already tagged and with the categories already created. At this point it is decided whether the new unit can be inserted into an existing category or whether it is necessary to create a new one. The continuous comparison allows the researcher not to give in to subjectivity and errors: "Open coding and its characteristics of making use of questioning and constant comparison enable investigators to break through subjectivity and bias. [...] A researcher can inadvertently attempt to place data into a category where it does not analytically belong, but by means of making systematic comparisons, these errors will eventually be located and the concepts placed in appropriate classifications (Corbin, 1990), (p. 423). As the classification continues, the categories can in turn be grouped into broader and more abstract categories, giving rise to the "category - subcategory" relationship, where the category is now the higher level one. but by means of making systematic comparisons, these errors will eventually be located and the concepts placed in appropriate classifications"(Corbin, 1990)(p. 423). As the classification continues, the categories can in turn be grouped into broader and more abstract categories, giving rise to the "category - subcategory" relationship, where the category is now the higher level one. but by means of making systematic comparisons, these errors will eventually be located and the concepts placed in appropriate

classifications” (Corbin, 1990) (p. 423). As the classification continues, the categories can in turn be grouped into broader and more abstract categories, giving rise to the “category - subcategory” relationship, where the category is now the higher level one.

The evaluation of a research conducted according to the Grounded Theory methodology is based on the following aspects:

- the ex-ante evaluation, also considering the specificities of this methodology, takes into consideration the significance and originality of the research topic and its connections with the literature on the topic.
- the ex-post evaluation is based on the evaluation of some aspects of the theory developed as a result of the research (Tarozzi, 2008):
- the significance and depth of the results, i.e. the ability of the theory developed to explain the phenomenon under consideration in its complexity - in relation to the data collected - adequately highlighting the psychosocial process underlying it
- the relevance of the results, that is the ability of this theory to open new perspectives for research and intervention on the phenomenon.
- the usefulness of the theory produced, from the point of view of the participants in the research, i.e. the applicability from their point of view of the interpretations provided by the theory and the possibilities it offers to make concrete changes with respect to the phenomenon examined (for this purpose the results of the research may be submitted to some of the participants involved in the research)

Furthermore, again at the ex-post level, the adequacy of the methods of carrying out the theoretical sampling in relation to the proceeding of the data analysis phases (coding and interpretation) and the traceability of the theory development process starting from the data will be examined, through the examination of memos and diagrams in order to evaluate the method of elaboration of the categories of analysis and the path that led from them to the theory.

### 3.3.2 Content Analysis

The companies in question were divided into three groups: high level of eco-innovation, medium level of eco-innovation and low level of eco-innovation, based on how much a company was found to be eco-innovative. A fundamental role in the classification of these typologies has been played by research and development, the organizational structure and the culture inherent in it, but we have emphasized in line with some studies found in the literature, that medium and small enterprises with an undeveloped technology large companies can innovate in different ways. Measuring innovation is a challenging task especially when specific technology domains need to be analysed. Indeed, innovation depends on a variety of activities ranging from formalized R&D to manufacturing engineering. Organizational innovations and the various forms of soft innovations are also relevant (Archibugi and Pianta, 1996; Sirilli, 1997). (Costantini, 2015)

Internal knowledge creation is, fundamentally, generated by R&D investment and internal problem solving (Grant, 2000). However, firms particularly those belonging to low- and medium-technology industries can create knowledge through other innovative activities that are not based exclusively on formal R&D (Santamaría et al., 2009), mainly through creativity and experimentation. In the context of organizations as open systems, teamwork enables continuous internal knowledge creation by exploring complex and difficult issues from many points of view. It facilitates the sharing of strategies, ideas, and knowledge among members and across units and reduces misunderstandings, thereby enabling a common language, cognitive maps and a shared vision to develop (Nonaka, 1994). Teamwork is also considered a powerful tool to help integrate new knowledge within the organization that can subsequently be applied to different situations, guaranteeing the firm's constant strategic renewal. The firm's directors can also collaborate in the amplification and crystallization of new created knowledge (Nonaka & von Krogh, 2009) by developing an appropriate structure, an organizational culture to attract and retain qualified human capital, a climate that favours risk taking, a leadership focused on knowledge creation and learning objectives, as well as a clearly recognizable mission to foster employees' identity and alignment with the firm's strategy constant strategic renewal (Nonaka, 1994; Smith et al., 2005). (Fores, 2016).

In the study carried out, the companies with a high level of eco-innovation are those that have embraced this aspect in every business area and consequently have this theme inherent in their

culture. Mid-level companies are those that have welcomed eco-innovation within the company but have not yet transmitted this theme to all business areas or that, due to their smaller size, need more time to be defined as eco-innovative; while the companies with a low level of eco-innovation are those that have only very few aspects or that have not introduced the concept of eco-friendly in their company and therefore in their corporate culture at all.

Regarding the **eco-office**, there is an interest, on the part of all companies that have a high level of eco-innovation, in recycling in the office and particular attention to the reduction of pollution caused by the movements of employees optimized the latter thanks to the concession of electric cars for employees and / or the shuttle service. Product companies with a high level of eco-innovation also show an interest in the optimization of logistic transport and a constant commitment to avoid overproduction due to the reduction of environmental pollution caused by these factors. Only some of the companies that have a medium level of eco-innovation show an interest in the eco-office aspect, also embracing shuttle service and recycling methods inside the offices as the use of FSC certified sustainable paper. While in companies that have a low level of eco-innovation there is a total lack of interest in the practices of reducing pollution applicable within the office.

About **Eco-practices within the company** many companies that have a high level of eco-innovation promote Eco-practices within the company, such practices can be the development of eco-sustainable products, the reduction of paper, water and plastic waste by applying the recycling and reuse of materials waste, or practices promoting eco-sustainable products to its stakeholders. Some of the companies that have a medium level of eco-innovation, instead they do eco-practices through campaigns to raise awareness of recycling practices to their customers and adopt alternative methods that aim at greater respect for the environment As for companies that have a low level of eco-innovation, for some it is not necessary to do these practices within the company, for others, these practices are not necessary for their customers and therefore they are not incentivized to use these practices. Green innovation can be divided into green products and processes, including the innovation in technologies that are involved in energy saving, pollution-prevention, waste recycling, green product designs, or corporate environmental management (Chen et al. 2006) (Granero, 2018). In this context, the development of green products can be understood as a development process based on possible

environmental optimizations throughout the product life cycle (Albino et al., 2009; Dangelico and Pujari, 2010), in which elements such as reduction of the costs of materials and energy , both in the production of a product and in its use, the ability to disassemble the product at the end of its useful life to allow for parts reuse and recycling and reduction of carbon dioxide (CO<sub>2</sub>) emissions during the life cycle, are treated as objectives of the project (Pujari, 2006; Rajaeifar et al., 2014; Gmelin and Seuring, 2014). González-Benito and González-Benito (2005) identified the practices that should be adopted in green product development: the replacement of polluting and hazardous materials / parts, design focused on reducing resource consumption and generating waste during production, distribution and use and design for disassembly, reusability and recyclability. (Jugend, 2017)

About **Market demand**, it emerged that for many companies, market demand increases if economies of scale increase as environmentally friendly products / services are more expensive for companies and manage to reduce the price if they increase the quantity produced in such a way that demand can increase , for other companies the digital age has increased the demand for them but for others the market demand has increased as their customers' desire to select eco-friendly companies has increased so for these companies the brand is their springboard launch in order to increase their demand. Market demand is therefore positive for all companies that have a high and medium level of eco-innovation. For some companies that have a low level of eco-innovation, a market demand is present,

the extent of market demand and the level of prices have been considered important incentives to eco-innovation (Beise and Rennings, 2005; Johnstone et al., 2010; Newell et al., 1999, 2006; Popp, 2002). (Costantini, 2015).

Regarding **Eco-related intellectual assets**, all the respondents of high and medium level eco-innovation companies believe that the Eco-related intellectual asset is an essential factor for a company based on eco-friendly and with a competitive intent, any eco-intellectual asset that is tangible or intangible allows companies to be more difficult to imitate. The knowledge that the company accumulates is a critical success factor. Many companies with a high and medium level of eco-innovativeness deem it necessary to hire human resources with creative abilities, with a future vision and aimed at innovation, other companies. Although creativity flourishes better in stable social environments, organizational creativity is crucial to solving problems in uncertain conditions (Kor et al., 2007; Mabey & Nicholds, 2015). The competences and

knowledge of a company's employees are crucial resources for new ideas and innovation projects. The individual competence is the ability to implement knowledge into actions to achieve the defined goals. At 9%, this dimension (Fig. 5) is presented quite often. Innovation oriented learning (De Medeiros et al., 2014) is a category in this field. While also in this case for companies that instead have a low level of eco-innovation these intellectual assets are not necessary and important due to the fact that the companies themselves have no interest in changing.

About **External motivations for developing eco-innovation** for all companies with high and medium eco-innovativeness, the external motivation is given by public policies, that is, compliance with the laws in force and the positive impact that eco-friendliness has on the brand in order to thus capturing more customers through the positive image that the brand gives. some companies with media-eco-innovativeness are pushed beyond the previous external motivations both by public policies and also from a social point of view by engaging morally in respect of ecological practices. Companies with low eco-innovativeness admit the external motivation represented by public policy may incentivize them to make an eco-innovative change, but the current external motivations do not motivate them enough to change their routine. Strict environmental regulation can induce streams of innovation that facilitate compliance with environmental goals by changing the relative prices and relative profitability of alternative technologies (Jaffe and Palmer, 1997; Newell, 2010; Porter and van der Linde, 1995). Furthermore, environmental policies can create or expand the potential market for specific eco-innovations through the adoption of niche strategies (Kemp et al., 1998; Nill and Kemp, 2009). Innovative companies transform threats (eg government regulations) into opportunity (for example, going well beyond the regulations). They view political regulations not as immovable impediments, but as obstacles to be overcome (Hunt & Auster, 1990). This can happen through a complementary or interactive relationship between skills (Sok and O'Cass, 2011) (Gabler., 2015).

**Company flexibility** companies with a high level of eco-innovation have said that within their organization there is a need for the company to be willing to make changes in terms of innovation both at the structural and organizational level, to ensure that this happens at 'inside it there must be tangible and intangible resources that allow this type of flexibility, especially as regards human resources, it is necessary for employees to be creative, have a flexible

mentality, a predisposition to change and an open mind towards new technologies , for some companies with a medium level of eco-innovation, company flexibility is an important factor, while for all companies with a low level of eco innovation it is not important to have a corporate culture aimed at innovation, change and therefore that it is flexible.

Innovation culture is an organizational culture in which organizational members share the belief that openness to new products, processes, or ideas are distinctive organizational values (Hurley & Hult, 1998; Rubera & Kirca, 2012). These values provide norms for behaviour that result in the development and launch of new products (Damanpour, 1991; Deshpandé, Farley, & Webster, 1993). Firms that nurture an innovation culture emphasize creativity, risk-taking, flexibility, and spontaneity, while de prioritizing control, rigidity, tradition, and stability (Burns & Stalker, 1966; Chatman & Jehn, 1994; Deshpandé et al., 1993; Hurley & Hult, 1998; Jassawalla & Sashittal, 2003). (Mohan, 2017).

About the **organizational structure** most of the companies with high eco-innovativeness have a functional structure, the rest of them instead have a hybrid structure, but all have a horizontal internal organization. Most of the companies with medium eco-innovativeness have a divisional structure with a horizontal organization while only some of these have a functional structure with a vertical organization. While as regards the companies with low eco-innovativeness some have a functional structure with a horizontal organization while others have a divisional structure with a vertical organization. Although there is a more structured hierarchy in larger companies, it may not represent a major obstacle, as they have greater investment opportunities and by introducing an organizational culture in favour of eco-friendly, they are able to innovate thanks to a horizontal organization. The organizational structure regulates how rules, hierarchies, and responsibilities are established, controlled, and coordinated. Regarding the previously identified publications, the relation between business size and innovation is investigated comparatively often in the reviewed literature. However, different results have been published. On one hand, small companies seem to have an advantage in the management of their innovations (Rothwell, 1986; Bughin and Jacques, 1994). On the other hand, large companies are more likely to invest in innovative projects because they can allocate greater R&D resources than small firms (Becheikh et al., 2006). (Dziallas, 2019).

About the **HRM practices - Motivations** many companies that have a high level of eco-innovation use both as a motivation practice for employees remuneration for merit is the granting of more decision-making space without having to submit to the corporate hierarchy, the same practices are used by some companies that have a medium level of eco innovation and by some that have a low one. some companies with a medium level of eco innovation use a remuneration practice that depends on the result or the achievement of the objective, the rest do not use any practice as well as some companies that have a low level of eco innovation.

An organization's culture helps employees understand the firm's priorities and provides them with norms for their behaviours (DeBrentani and Kleinschmidt, 2004; Deshpandé and Webster, 1989) For instance, the higher level of autonomous R&D climate refers that R&D employees have greater autonomy to decide the direction of research and development projects.

As the simple possession of organizational resources does not per se assure the achievement of sustainable competitive advantages; firms must deploy them in an intelligent way (Sirmon, Hitt, & Ireland, 2007). developing resources, eg, creating a favourable work environment and culture, investing in advanced human resource practices, reinforcing marketing related capabilities, and collaborating with suppliers to improve processes, among others, enhances the predisposition of firms to innovate and their subsequent performance (Leonidou & Spyropoulou, 2007) (Prange, 2017).

About **HRM practices** many companies that demonstrate a high level of eco-innovation offer their employees technical training or in general training courses in this regard, an aspect that we see in the minor part of companies with an average level of eco-innovation and in those that have a low level of eco-innovation, while most of the companies that are part of the medium and low level of eco-innovation do not have any type of training courses.

About the **Internal motivations for developing eco-innovation** most of the companies that have a high level of eco innovation believe that it is important to cooperate with government agencies and other organizations in order to have a higher level of income from the point of view of respect for the environment and to make the staff more satisfied in the achievement of the objectives, objectives that if achieved allow the staff to win merits from the companies. For many companies that have a medium and low level of eco-innovation this internal motivation is not important as some have no incentive to do so, for others it is not necessary for business purposes, some companies instead believe that internal motivation is important. development

of eco-innovation only if this is requested by the customer and therefore is linked to customer satisfaction.

Acquisition capability integrates both the firm's capability to access external knowledge through contractual arrangements in the market and a permanent system of environmental monitoring. The inclusion of transformation capability calls for particular emphasis since, although neglected or implicitly included in the assimilation capability (eg, Lane et al., 2006) in most of the literature on the absorptive capability construct, the firm's success in applying new external knowledge to its internal processes and operations to obtain radical innovation performance hangs on this capability (Zahra & George, 2002). (Fores, 2016).

**Research and development for investments in eco innovation** is financed by all companies with a high level of eco-innovation, and by some companies that have a medium level of eco-innovativeness, while other companies belonging to this category companies that instead have a low level of eco innovation do not finance R&D, they do not show interest in financing this type of research. Scholars agree that research is needed to determine how to make environmentally-focused, or green, initiatives profitable. Such an understanding is essential if sustainability is to transition from a special interest topic to a pervasive business norm (Lirn, Wu, & Chen, 2013). and a number of studies have analysed the direct effect of size on the degree of innovation (eg, Arias-Aranda et al., 2001), and on innovation in terms of R&D, new products and processes or patents (eg, Cáceres et al., 2011; Laforet, 2008), (Forées et al 2016) Technology-push factor, ie, advances in science and R&D, is also a key determinant of EI (Cleff and Rennings, 1999; Horbach, 2008; Ghisetti and Pontoni, 2015). (Granero, 2018).

Farias, Costa, Freitas and Cândido (2012) point out that large companies tend to invest significant resources in research and development and therefore find it easier to incorporate organizational ecological innovations. Conversely, micro and small businesses use creativity in their processes and products through the recycling and reuse of materials.

About **Top management commitments** are present in all companies with a high and medium level of eco-innovation and in almost none of those that have a low level of eco-innovation, as far as most companies with a high level of eco-innovation are concerned. -innovation the commitment on the part of top management is to keep the level of carbon emissions low, some of them also underline the commitment to digitization, commitment also supported by some medium-level eco-innovation companies. Some top management of companies with a high and

medium level of eco-innovation show a particular interest also in supporting laws to protect the environment. While Top management commitment is not present in companies with a low level of eco innovation. diversity and heterogeneity in a firm's top management team can drive the firm to be more innovative. The third research stream focuses on the involvement of managers in the firm's innovation processes. Some authors suggest that a firm's success in innovation needs top managers'support (eg, Smith & Tushman, 2005). (Wang, 2018).

**Market orientation** for many companies with both high, medium and low levels of eco-innovation is oriented towards customer focus, while only some companies that have a high level of eco-innovation have a cross-functional focus and some with a medium level of eco innovation presents a competitor focus. . For instance, Li, Wei, and Liu (2010) argue that entrepreneurial orientation (EO) and market orientation of sourcing vendors positively influence their knowledge acquisition from partners. International market orientation is present when the organization interacts with its customers to develop market intelligence on customer needs and then disseminates this intelligence throughout the firm, increasing responsiveness to it (Kohli & Jaworski, 1990).

MO enables the firm to respond to market intelligence in a timely and efficient manner and allows it to create more effective strategies for R&D, production, competition and customer services. (He, 2011)

Concerning the **Competitive intensity** it is high in many companies with a high level of eco innovation and the rest instead has a low competitiveness, the companies with a low level of eco-innovation have a high competitive intensity, the rest of these instead have a high competitive intensity. Most of the companies with a medium level of eco-innovation have a medium competitive intensity and only for a few of these the competitive intensity is high.

Competitive intensity is characterized by aggressive price wars, cutthroat rivalry, substantial advertising expenditures, and many competing product offerings (Jaworski & Kohli, 1993). Consequently, the result of a firm's behaviour “will no longer be deterministic but stochastic as the behaviour is heavily influenced by the actions and contingencies undertaken by competitors” (Auh & Menguc, 2005, p. 1654). (Ndubisi, 2019)

Regarding the **Pollution levels of industries / Emission levels** it is low for many companies that have a high level of eco-innovation and high for some of them, the same situation can be observed in companies that have a medium level of eco-innovation instead as regards those companies with a low level of eco-innovation some have a high level of emissions others have low. It can be seen from these data that the push of companies towards eco-innovation does not depend very much on the high impact of pollution that is caused by the company itself, as many companies, despite producing a low level of pollution, embrace in a high way the development of eco-innovation, while others that have a low level of eco-innovation produce an excessive emission of industrial pollution.

Burning of fossil fuels by energy and transport activities is the main cause of sulphur and nitrogen oxide emissions. As the energy sector accounts for most sulphur emissions, policies addressed at improving efficiency in the use of energy and replacing fossil fuels with renewable energy sources would contribute to reducing acidification and particulate formation potentials. Likewise, further promoting the use of environmentally friendlier vehicles and fuels would help to alleviate these pressures by reducing nitrogen oxide emissions. Incentives to improve waste management and measures in the agricultural sector specifically addressed at incentivising the use of less contaminating fertilization practices and better manure management systems would contribute to reducing ammonia emissions. Regarding primary particulate matter formation, it would be advisable to reinforce measures such as incentivising the installation of particulate abatement equipment at industrial combustion facilities; encouraging a shift from the use of coal to cleaner burning fuels such as gas in the energy industries and industrial sector; or stipulating the use of more efficient particle filters on new vehicles, in accordance with the EU's vehicle emissions standards (the so-called Euro standards).

Promoting more sustainable mobility systems and regulating the access of vehicles to cities might also be instrumental in controlling emissions at the local level (EC, 2013). (Beltrán-Esteve, 2017), emission reductions in the transport sector, a number of specific policies from both demand and supply sides have been implemented worldwide in this sector to create a stable investment environment and allow the commercialization. Over recent decades, several policy instruments have been progressively adopted, especially at the European Union (EU) and OECD level, in order to reduce GHG emissions, and actions for decarbonising road transport are particular relevant within this strategy (EEA, 2012). In this respect, biofuels are expected to substantially contribute to decreasing emissions, but also to improve the sustainability of the transport sector from an energy security point of view by reducing its oil

dependence in a context of high volatility of oil prices and increasing fossil fuel scarcity. (Costantini, 2015).

These results appear to have relevant analytical and policy implications. Public policies seem to be effective in shaping the dynamics of eco-innovation and a well-designed policy framework therefore has the potential to allow innovation and energy systems to escape carbon lock-in. But for some sectors such as pharmaceuticals where there is a high level of industrial pollution, public policies are not influential.

Regarding the **Government regulatory**, most companies with a high level of eco-innovation are committed to research to reduce waste, waste recycling, to incentivize customers and employees to respect the environment other companies such as product companies are committed also to recycling energy, rainwater and avoiding waste caused by production. Some of these issues are also respected by companies with an average level of eco-innovation such as waste recycling or encouraging customers and staff to respect the environment, even in the case of companies with medium eco-innovation as in those where altogether many product companies are committed to avoiding waste caused by production and reducing the impact caused by this.

As we can see, the companies in which there is a regulatory governance are those that are most committed to respecting the environment, encouraged by the fact of following the regulations in force; while the companies in which it is not present are those that are not at all incentivized to change, always tending to do what they have done and not to innovate. Governments introduces penalties, tax exceptions etc. due to which reasons GPR is below GC category. Customer pressure is a tremendous variable for motivation of environmental adoption (Klassen and Vachon 2003; Zhu and Sarkis 2004; Al Khidir and Zailani 2009) (Mathiyazhagan et al 2014). In fact, we can denote that governments play a very important role but could incentivize companies to innovate not only through regulations but also through prizes when they reach the set goals. Government intervention plays a major role for pushing the businesses to be environmentally sustainable. Roodman (1996, 1997) and Hawken et al. (1999) urged for governmental intervention to push businesses for changing production technology and to implement tax and subsidies for meeting environmental goals (Hazarika and Zhang 2019). In addition, eco-innovation policies need to be linked to industrial and competition issues (OECD, 2010); coordinated in several ways, eg, cross time, layers of governments and the public and

private sectors; and linked to effective technology transfer models, if we are to reap the full environmental benefits of eco-innovations. (Beltrán-Esteve, 2017).

Regarding **Financial performance**, companies with a high level of eco-innovation are those that have a turnover of over one billion euros and are all growing compared to previous years, companies with a medium and low level of eco innovation have the greatest a lower turnover starts and almost all have an increase in turnover compared to the previous year, but some have a decrease in turnover compared to previous years or the year before.

Some companies that have begun to eco-innovate have not found a positive financial performance because even if "The most effective business strategy is said to be one that is aligned with the appropriate corresponding orientation (Slater, Olson, & Hult, 2006). Stead and Stead (1992) even assert that a green, or environmental, strategy is only effective when the organizational culture is reflective of those values. But while research shows that an effective environmental strategy and orientation can lead to increased financial performance (Fraj, Martínez, & Matute, 2013), in practice, many firms struggle to adopt, embrace, or convey a green reputation. According to Lubin and Esty (2010), most firms "are flailing around, launching a hodgepodge of [environmental] initiatives without any overarching vision or plan" (p. 154).

Regarding **International operations**, most of the companies that have a high level of eco-innovation have most of the companies not only in Italy but also abroad, while some companies with medium and low level of eco-innovation have companies only in a single country, others also have companies abroad in addition to the country in which they have their registered office. With little consideration of individual firm's resources and capabilities, past research, particularly the internationalization model (Johanson & Wiedersheim-Paul, 1975), argues that firms seeking to enter an international market are more likely to use cultural distance as a "rule of thumb" (Andersen & Buvik, 2002): beginning with a culturally close market, then expanding to a culturally distant market when becoming more experienced (He, 2011).

Scholars have acknowledged the significance of exporting in the global economy (Dhanaraj and Beamish, 2003; Singh, 2009). Exporting, one of the most common means of entering international markets, enables firms to employ non-utilized operating capacity, increase production efficiency and, in turn, profits, and to ensure survival in a highly globalized

marketplace (Guan and Ma, 2003; Katsikeas, Piercy, & Ioannidis, 1996; Matanda and Freeman, 2009; Sousa, Martínez-López, & Coelho, 2008). Cavusgil and Zou (1994, p. 4) (Azar, 2017).

We argue that international markets have sufficient complexity to explore the association between organizational creativity and IBC. As a concept, IBC refers to the capabilities that firms need for growth in international markets (Knight & Kim, 2009). This concept differs from the dominant view of internationalization proposed by Johanson and Wiedersheim Paul (1975), which considers that the stages firms go through to enter markets are dependent on the growth of knowledge and organizational structure and, therefore, suggests that internationalization knowledge is dependent on the experience of the decision makers. As a competence, IBC is not restricted to a list of entry modes. IBC combines international orientation during the plan's conception, international innovativeness, and international market orientation (Knight & Kim, 2009), similar to the way in which Manyika et al. (2016) described it – as an evolving process of interconnection of people and businesses. As interactions between the external environment and preexisting routines intensify, creativity becomes necessary to enable firms to meet the new challenges with which they are faced (Zollo & Winter, 2002). (Azar et al 2017).

Innovation is a crucial component of a firm's strategy (Gunday et al., 2011) and a source of competitive advantage in international markets (Pla-Barber and Alegre, 2007; Singh, 2009). Moreover, in the context of internationalization and export strategy, the notion of local adaptation and slow learning is key to performance (Cavusgil, Zou, & Naidu, 1993; Johanson and Vahlne, 1977); this idea fits well with the process of testing different products and offering variations. In other words, export performance may benefit from the introduction of a series of innovations as it provides room for trial and error, ie, learning how to best serve and develop the foreign market (Azar et al 2017)

## Chapter 4 Qualitative findings

### 4.1. Characteristics of the companies selected for the interview

Table 12

<b>Company 1 medium</b>	
Eco-office	Not present
Eco-practices within the company	Not present
Market demand	low
Eco-related intellectual asset	Not present
External motivations for developing eco-innovation	Not present
Company flexibility	Not present
Organizational structure	Functional structure
HRM practices Motivations	yes
HRM practices - Training	present
Internal motivations for developing eco-innovation	present
R&D investement for eco-innovation	no
Top management commitment	no
Market orientation	Customer focus
Competitive intensity	high
Pollution levels of industries / Emission levels	low
Government regulatory	Not present
Financial performance	increase
International operations	Outside Italy

Company 1 is a medium-sized IT consulting firm made up of a number of managers equal to 15. This company was classified among the companies with low eco-innovativeness as it is not characterized by important factors such as: R&D investment for eco -innovation, Top management commitment, Government regulation in terms of eco-friendly and even less influential factors such as: eco-office, eco-practice and the company does not require and Eco-related intellectual asset from its employees. It is not a company that at this moment is pushed towards eco-innovation as the market demand addressed to this area is very low and in the context in which it operates there are also no external factors such as government regulations that push it towards eco-innovation. From the interview carried out, there are no internal reasons for which employees are encouraged to change from this point of view, an aspect also increased by the absence of eco-friendly in the corporate culture. The company is also not interested in hiring human resources who may possess the necessary requirements to be able to initiate a change in terms of eco-innovation. The interviewee admits that the competitiveness in his sector is high, but that despite there being this external motivation they do not need to make such a change right now, but that they would be ready to change if there were more external motivations. The company is also not interested in hiring human resources who may

possess the necessary requirements to be able to initiate a change in terms of eco-innovation. The interviewee admits that the competitiveness in his sector is high, but that despite there being this external motivation they do not need to make such a change right now, but that they would be ready to change if there were more external motivations. The company is also not interested in hiring human resources who may possess the necessary requirements to be able to initiate a change in terms of eco-innovation. The interviewee admits that the competitiveness in his sector is high, but that despite there being this external motivation they do not need to make such a change right now, but that they would be ready to change if there were more external motivations.

Table 13

<b>Company 2 big</b>	
Eco-office	present
Eco-practices within the company	present
Market demand	high
Eco-related intellectual asset	present
External motivations for developing eco-innovation	present
Company flexibility	present
Organizational structure	Divisional structure
HRM practices Motivations	yes
HRM practices - Training	present
Internal motivations for developing eco-innovation	present
R&D investement for eco-innovation	yes
Top management commitment	yes
Market orientation	Customer focus
Competitive intensity	high
Pollution levels of industries / Emission levels	low
Government regulatory	present
Financial performance	increase
International operations	Outside Italy

Company 2 is a large consulting firm made up of more than 20 managers and with extensive international operations, with a focus on customers. This company has been classified among the companies with high eco-innovativeness as it is characterized by important factors such as: R&D investment for eco-innovation, Top management commitment, Government regulation in terms of eco-friendly and by less influential ones such as eco -office, eco-practice Eco-related intellectual asset. In this company we can denote that every single internal factor that goes from the corporate organizational structure to the human resource is aimed at eco-innovation, in fact the corporate culture is cantered on eco-innovation and there is an eco-innovative organization. The most effective business strategy is said to be one that is aligned

with the appropriate corresponding orientation (Slater, Olson, & Hult, 2006). Stead and Stead (1992) even assert that a green, or environmental, strategy is only effective when the organizational culture is reflective of those values. (Gabler., 2015).

During the interview it was found that within this company there is a corporate culture aimed at eco-friendly and this allows a greater interest on the part of employees in this aspect, who are more incentivized to develop new ideas eco-innovative being pushed and motivated both internally and externally. The interviewee said that the most influential internal motivation is corporate culture as the idea of eco-friendly is present in every area of the company from recycling in the office to hiring staff with a flexible mindset and oriented towards the eco-innovation, creativity and hard work.

Table 14

<b>Company 3 small</b>	
Eco-office	Not present
Eco-practices within the company	present
Market demand	high
Eco-related intellectual asset	required
External motivations for developing eco-innovation	present
COMPANY FLEXIBILITY	present
Organizational structure	Matrix structure
HRM practices Motivations	yes
HRM practices - Training	Not presentpresent
Internal motivations for developing eco-innovation	Not present
R&D investement for eco-innovation	Not present
Top management commitment	yes
Market orientation	Customer focus
Competitive intensity	high
Pollution levels of industries / Emission levels	low
Government regulatory	present
Financial performance	decreed
International operations	Outside Italy

At the moment eco-innovation is being implemented in the company so it has not covered every business area, but they have set out to do so above all for external reasons due to the market and environmental regulations established, but also for social responsibility aimed at respecting the environment. Unfortunately, from the study carried out, the company has not yet been able, as can be seen from the financial performance, to derive a competitive advantage from the choice to become eco-friendly, a key factor on which the interviewed manager admitted that they are working to improve. but also for a social responsibility aimed at respecting the

environment. Unfortunately, from the study carried out, the company has not yet been able, as can be seen from the financial performance, to gain a competitive advantage from the choice to become eco-friendly, a key factor on which the interviewed manager admitted that they are working to improve. but also for a social responsibility aimed at respecting the environment. Unfortunately, from the study carried out, the company has not yet been able, as can be seen from the financial performance, to derive a competitive advantage from the choice to become eco-friendly, a key factor on which the interviewed manager admitted that they are working to improve.

Table 15

<b>Company 4 big</b>	
Eco-office	present
Eco-practices within the company	not present
Market demand	High
Eco-related intellectual asset	present
External motivations for developing eco-innovation	present
Company flexibility	required
Organizational structure	divisional structure.
HRM practices Motivations	yes
HRM practices - Training	Not present
Internal motivations for developing eco-innovation	present
R&D investement for eco-innovation	yes
Top management commitment	yes
Market orientation	Competitor focus
Competitive intensity	high
Pollution levels of industries / Emission levels	high
Government regulatory	present
Financial performance	increase
International operations	Outside Italy

Company 4 is a large electronics company made up of more than 20 managers. This company was classified among the companies with medium eco-innovativeness because even if it is characterized by important factors such as: R&D investment for eco -innovation, Top management commitment, Government regulation in terms of eco-friendly there is no organizational culture within the company aimed at eco-friendly, in fact there is no internal motivation for employees to be eco-innovative there are no training courses with eco-innovative themes, Eco-practices within the company are not applied. Despite this, the company is encouraged to become eco-innovative because it is driven by external reasons: that is from the government policies that came into force referring to the high level of industrial pollution and emissions that its industries generate and also from a high market demand for

eco-sustainable products as the company gives importance to the brand image and to its stakeholders. Respondent admitted that eco-innovation is slower for their company due to the high cost of green raw materials, therefore, the company must apply policies such as economies of scale in order for it to be able to amortize these costs. In fact, in this company there are no eco-practices as the materials used are difficult to recycle and the materials for this type of industry are very expensive.

Table 16

<b>Company 5 big</b>	
Eco-office	present
Eco-practices within the company	present
Market demand	high
Eco-related intellectual asset	required
External motivations for developing eco-innovation	present
Company flexibility	present
Organizational structure	divisional structure
HRM practices Motivations	yes
HRM practices - Training	present
Internal motivations for developing eco-innovation	present
R&D investement for eco-innovation	yes
Top management commitment	yes
Market orientation	Customer focus
Competitive intensity	Medium
Pollution levels of industries / Emission levels	low
Government regulatory	present
Financial performance	increase
International operations	Outside Italy

Company 5 is a large augmented reality company made up of more than 20 managers. This company was classified among the companies with high eco-innovativeness as it is characterized by important factors such as: R&D investment for eco- innovation, Top management commitment, Government regulation in terms of eco-friendly and also by factors such as: eco-office, eco-practice and the company does not require an Eco-related intellectual asset from its employees. the interviewee said that within the company there is an organizational culture aimed at eco-friendly, in fact the company optimizes logistical transport, avoids overproduction of the service and reduces emissions from cars with the inclusion of the shuttle corporate, ecological practices are aimed at developing products that help eco-sustainability. The human resources present in the company must have mental flexibility and future vision required to be able to have a predisposition to innovation, companies allow a

variable remuneration for merit and undertakes to increase knowledge of human resources through training courses focused on ecological sustainability and on eco-innovation. The company motivations are both internal as described above and external due to the high market demand and the company's willingness to build brand loyalty by stakeholders. The interviewee said that digitization has allowed the development of eco-innovation for the company. The company's commitment is to support customers towards sustainability, and the company is committed to becoming carbon positive, these commitments exemplify innovation for a fully digital and fully electric world. therefore, the company wants to take bold steps to accelerate the emergence of a low-carbon world that will meet the needs of future generations and is conducting research to reduce waste.

Table 17

<b>Company 6 small</b>	
Eco-office	Not present
Eco-practices within the company	not present
Market demand	low
Eco-related intellectual asset	Not required
External motivations for developing eco-innovation	Not present
Company flexibility	Not present
Organizational structure	Functional structure
HRM practices Motivations	Not present
HRM practices - Training	Not present
Internal motivations for developing eco-innovation	Not present
R&D investement for eco-innovation	Not present
Top management commitment	Not present
Market orientation	Customer focus
Competitive intensity	low
Pollution levels of industries / Emission levels	high
Government regulatory	Not present
Financial performance	increase
International operations	Only Italy

Company 6 is a small pharmaceutical company made up of fewer than 15 managers. This company has been classified among the companies with low eco-innovation as it is not characterized by any factor that makes a company eco-innovative. The interviewee admitted that since there is no social commitment on the part of the company and there are no other internal or external reasons, they are not motivated to change. Basically, according to research, the production and management of waste in the pharmaceutical sector is disappointing. (Aboutpharma, 2019).

Table 18

<b>Company 7 big</b>	
Eco-office	present
Eco-practices within the company	present
Market demand	high
Eco-related intellectual asset	required
External motivations for developing eco-innovation	present
Company flexibility	present
Organizational structure	Divisional structure
HRM practices Motivations	yes
HRM practices - Training	present
Internal motivations for developing eco-innovation	present
R&D investement for eco-innovation	yes
Top management commitment	yes
Market orientation	Cross-functional focus
Competitive intensity	high
Pollution levels of industries / Emission levels	High
Government regulatory	present
Financial performance	increase
International operations	only Italy

Company 7 is a large food and services company made up of more than 20 managers. This company has been classified among the companies with high eco-innovativeness as it is inherent in a corporate culture aimed at eco -innovation and R&D for environmental sustainability. The company, in fact, is committed to ensuring environmental sustainability by applying ecological practices both in the offices through means such as recycling and thanks to the optimization of logistic transport, the use of electric cars for employees, through the use of machinery eco-sustainable. The company is committed to producing more and more eco-sustainable services, this is the subject of research on which it constantly works. The motivations for this company come both externally and internally. Externally, as being a company, with a high level of industrial pollution and a very high competitiveness in its sector, it focuses on maintaining a high level and visibility of the brand to retain stakeholders, for this reason the company is externally incentivized not only by government regulations in terms of sustainability. "Consensus is growing on the potential central role played by public policies on the environment and innovation, which are increasingly being investigated jointly in order to understand how to foster the pace of introduction and diffusion of new environmental technologies and guarantee the conditions for promoting economic development by protecting the 'environment "(Corradini et al., 2014; Del Río, 2009; Mowery et al., 2010; Newell, 2010). Another external incentive that the company has is that of high demand from customers who are increasingly attentive to environmentally friendly companies in terms of pollution and

production of eco-sustainable products and services. Internal motivations are encouraged by training courses aimed at the vision of eco-innovation for employees and by the search for human resources with an innovative and creative mentality; employees are also rewarded through a variable remuneration for merit. The company is also committed to developing a remote control and regulation system for condensing boilers and methods for recovering heat from the exhaust air and heat recovery from the food refrigerator, for the introduction of lamps energy saving, water saving, and rainwater harvesting production and use of energy from renewable sources.

Table 19

<b>Company 8 small</b>	
Eco-office	present
Eco-practices within the company	present
Market demand	high
Eco-related intellectual asset	present
External motivations for developing eco-innovation	present
Company flexibility	present
Organizational structure	Matrix structure
HRM practices Motivations	yes
HRM practices - Training	present
Internal motivations for developing eco-innovation	Not present
R&D investement for eco-innovation	Not present
Top management commitment	Not present
Market orientation	Customer focus
Competitive intensity	medium
Pollution levels of industries / Emission levels	low
Government regulatory	present
Financial performance	increase
International operations	only Italy

Company 8 is a small chemical analysis company made up of fewer than 5 managers. This company was classified among the companies with medium eco-innovativeness as it is not characterized by important factors such as: R&D investment for eco -innovation, but it is a company that is dedicated to respect for the environment and its sustainability, in fact the company focus is to direct their customers towards environmental sustainability and compliance with current regulations. In the company there is a high respect for the environment, in fact, there is continuous training of the staff on the new regulations in force and training courses for carrying out tests, in addition, training courses are also held for their

customers. The company, however, despite being socially responsible towards the environment.

Table 20

<b>Company 9 medium</b>	
Eco-office	present
Eco-practices within the company	present
Market demand	high
Eco-related intellectual asset	present
External motivations for developing eco-innovation	present
Company flexibility	present
Organizational structure	functional structure,
HRM practices Motivations	yes
HRM practices - Training	Not present
Internal motivations for developing eco-innovation	Not present
R&D investement for eco-innovation	Not present
Top management commitment	yes
Market orientation	Customer focus
Competitive intensity	high
Pollution levels of industries / Emission levels	high
Government regulatory	present
Financial performance	decreed
International operations	Only Italy

Company 9 is a medium-sized beauty products company made up of a number of managers equal to 18. This company has been classified among the companies with medium eco-innovation as the company does not bother to involve all sectors company in the ecological choices it makes, thus creating a distance with employees that does not favor an eco-innovative corporate culture. Eco-friendly is not inherent in the corporate and organizational culture.

In this company only some types of practices are applied, such as the use of sustainable paper with FSC certificate, or the search for eco-sustainable packaging, the use of plastic obtained from renewable sources, such as sugar cane, but there are no reasons internal to the company such as offering training courses to employees or using ecological practices. Instead, there are external reasons which are those that give the company input to innovate in ecological terms as the market demand is linked to the demand of an increasing number of customers looking for environmentally friendly companies and this leads the company to retain its stakeholders in the brand above all because there is awareness of the high emissions, waste and pollution produced. The organization adopts eco-innovations to reduce their high consumption of

emissions, waste and pollution. Research and development is aimed at researching and developing new functional eco-innovative formulas and recipes for beauty products. The company would like to try more and more to respect the environment, animals, dedicating itself to social responsibility by supporting foundations and voluntary associations. the company's commitment is also to devote itself to the production of organic farming products that can be used for products encouraging sustainable agriculture. For this company the financial factor did not have a positive effect and from the questions posed to the interviewee we deduced that it is due to the high competitiveness of the market.

## 4.2. Themes from in-depth interviews

Among the interviews carried out, recurring themes emerged, for which it was necessary to highlight them, in order to be able to carry out an in-depth analysis on these aspects among the various companies. These topics analysed in depth are:

**Competitive advantage** the environment, brings to the company various advantages not only in terms of marketing, but also economic, deriving from the fact that the market, increasingly sensitive to these issues, is able to understand and evaluate the real benefit that a company brings to the surrounding environment. Obviously, the advantage, which can always be translated into economic terms, of the various incentives established in favour of companies that protect the environmental heritage cannot be overlooked. Environmental management is getting important for companies in the dynamic global environment, and more companies are willing to put more efforts on developing green innovations. Therefore, developing green innovations is a win – win solution for the conflict between economic development and environmental protection. (Chang, 2011). Previous research and study carried out in fact they strongly suggest companies to make greater efforts to understand customer needs and excel in their skills in innovating products and processes in an environmentally friendly way to better align green innovation initiatives with consumer values to promptly meet market demand and gain more effective competitive advantages. Many companies have in fact highlighted the importance of the visibility of an ecological corporate brand. competitive advantage that generates value and profit just like any other asset. Have been awarded have been awarded.

**Brand:** many companies have admitted that an external motivation is that dictated by the market demand for new ecological product systems or services and therefore try to give ecological visibility to their brand, but this aspect could be counterproductive for companies, not only in economic terms because as highlighted in the previous paragraphs it is not possible to carry out an eco-innovation without preparing an ecological culture within one's organization and therefore introducing eco-friendly without any corporate strategy, most firms "are flailing around, launching a hodgepodge of [environmental] initiatives without any overarching vision or plan" (p. 154). " (Gabler., 2015), but there is also the possibility that the company's stakeholders capture the company's non-social intent, and this can backfire. The greening of a firm's marketing strategy is a delicate task. If it is not approached authentically, business

partners may infer it as greenwashing, or a manipulation tactic where the underlying motive is to earn a profit rather than to help the environment (Laufer, 2003). In conclusion, it is possible to say that companies that are market-oriented and therefore want to respond to stakeholder demand in a positive way.

**Social responsibility** this type of responsibility to be applied must be integrated in the spirit of those who lead the organization, going beyond the strategic consideration that sustainability possesses. Certain “good” managerial practices are carried out driven by profound motivations that guide company choices, believing that they are simply right. At this level, we go beyond what is the traditional concept of "doing business", even reaching the point of questioning the concepts of ownership or corporate purposes, deeply impacting the governance model. Socially committed companies that carry out business activities in full respect of the environment go beyond simple advertising created ad hoc to improve the image.

**Public policies** in this regard, many of the interviewees confessed that a greater incentive from public policies would be an excellent motivation for their company to eco-innovate. Especially in certain fields such as the pharmaceutical one where there are still no clear and specific regulations in force so that they can give input to companies that have always operated in a certain way and without a flexible organizational structure to eco-innovate. Public policies can act on both the demand and the supply sides to create favourable conditions for eco-innovation (Johnstone et al., 2012; Nemet, 2009), with environmental policies and subsidies to R&D recognized as the most important drivers of eco-innovation. 2 Stringent environmental regulation may induce flows of innovations that facilitate being compliant with the environmental targets by changing relative prices and the relative profitability of alternative technologies (Jaffe and Palmer, 1997; Newell, 2010; Porter and van der Linde, 1995). Moreover, environmental policies can create or enlarge the potential market for specific eco-innovations through the adoption of niche strategies (Kemp et al., 1998; Nill and Kemp, 2009) (Costantini, 2015).

**Corporate culture** it is a theme that is repeated in almost all the interviews carried out; it provides for the integration of the aspects inherent to eco-innovation within the company strategy, blending with it in an indissoluble way, in search of the competitive advantage that can arise from it. This is possible only if there is a real conviction that the choices made in terms of eco-innovation provide the company with that advantage on the market that also

derives from a more effective and efficient management of resources, obviously including, in this term, all the stakeholders. In this way the organization is infused with that sense of real responsibility that arises towards the company, and towards the interlocutors in general, which is able to gradually nourish the competitive advantage, which will base its roots on the quality of the relationship that is created over time with the stakeholders. For companies, however, it is essential to integrate, with a corporate culture aimed at eco-innovation, the appropriate analysis on the management of sustainability, since, only at this level, it becomes a critical success factor that reaches the necessary importance, equal to any other strategically planned competitive tool.

**Organizational structure and investments:** The choice of the organizational structure is very important for eco-innovation as "The organizational structure regulates how rules, hierarchies, and responsibilities are established, controlled, and coordinated." What is certain is that a horizontal organization within the company structure allows greater flexibility to employees who are more prone to invitation, thanks to the fact that their ideas do not have to pass through the various hierarchies to be approved and this accelerates the innovation process.

Regarding the previously identified publications, the relation between business size and innovation is investigated comparatively often in the reviewed literature. However, different results have been published. On one hand, small companies seem to have an advantage in the management of their innovations (Rothwell, 1986; Bughin and Jacques, 1994). On the other hand, large companies are more likely to invest in innovative projects because they can allocate greater R&D resources than small firms (Becheikh et al., 2006). (Dziallas B. , 2019).

#### 4.2.1. Core determinants of organizational eco-innovativeness

The fundamentals of organizational eco-innovation taken into consideration are six: top management, organizational structure, competitive advantage, environmental corporate culture, corporate environmental ethics, intellectual asset .

In order for an eco-innovative organization to be present in a company, these fundamental determinants must be inherent within it. Organizational eco-innovations therefore include management projects interested in the economic, social and environmental dimensions, which reduce administrative and transaction costs and further increase productivity.

**Organizational structure** companies based on the organizational structure they introduce influence the eco-innovative organization. Therefore, an organizational structure suitable for eco-innovation turns out to be fundamental for the start of an excellent eco-innovative organization, the organizational structure depends in turn on company data, company flexibility, customer adaptation time from internal communication, from the internal hierarchical structure.

Organizational structure is regarded as an internal factor considerably influencing a company's capacity to innovate and base its daily operation and competitiveness on regular generation and implementation of novel ideas (Birkinshaw et al., 2008; Cosh et al., 2012).

Organizational structure can be described as the set of ways in which organizational work is divided into separate tasks, delegated and coordinated towards the achievement of corporate goals (Mintzberg, 1983; Stacey, 2003). Structure configures the context within which power and control are exerted, duties are fulfilled, strategic options are formulated and enables the implementation of these options (Hunter, 2002; Spanos et al., 2001). It influences resource allocation, favors internal and external communication and strengthens organizational ability to respond to changes in business environment, to learn and innovate (Chen et al. 2010; Martínez-León and Martínez-García, 2011).

**Top management** is a fundamental factor for the constitution of an eco-innovative organization as it allows the company to eco-innovate thanks to the central role they play within

the strategic process. "Top management innovativeness (TMI) refers to the extent to which a firm's top managers have favourable attitudes toward innovation and are willing to take risks to invest resources in innovation activities" (Rodríguez, Pérez, & Gutiérrez, 2008). Accordingly, innovative managers (ie, those with high TMI) are supportive of innovation activities (LlorénsMontes, Ruiz Moreno, & MiguelMolina Fernández, 2004). The literature (eg, Amason, 1996; Hunt, 2010) suggests that top management is the central actor in strategic decision-making and can therefore guide a firm's strategic orientation (Smith & Tushman, 2005). Accordingly, top managers' innovativeness enables them to devote more efforts to facilitate innovative activities and adopting innovation-oriented strategies (Talke et al., 2011). Consequently, when making decisions regarding strategic resource allocations, managers tend to allocate a greater amount of valuable resources to innovation activities (eg, new product development), which results in enhancing the firm's ability to compete with rivals (Hunt, 2010) (Wang et al 2017). , top management innovativeness facilitates innovation within the top management team (West & Anderson, 1996) and helps build a competitive advantage barrier that is difficult for rivals to replicate (Hamel, 2006). (Wang and Dass 2017) innovativeness enable them to devote more efforts to facilitate innovative activities and adopting innovation-oriented strategies (Talke et al., 2011). Consequently, when making decisions regarding strategic resource allocations, managers tend to allocate a greater amount of valuable resources to innovation activities (eg, new product development), which results in enhancing the firm's ability to compete with rivals (Hunt, 2010) (Wang et al 2017). , top management innovativeness facilitates innovation within the top management team (West & Anderson, 1996) and helps build a competitive advantage barrier that is difficult for rivals to replicate (Hamel, 2006). (Wang and Dass 2017) innovativeness enables them to devote more efforts to facilitate innovative activities and adopting innovation-oriented strategies (Talke et al., 2011). Consequently, when making decisions regarding strategic resource allocations, managers tend to allocate a greater amount of valuable resources to innovation activities (eg, newproduct development), which results in enhancing the firm's ability to compete with rivals (Hunt, 2010) (Wang et al 2017). , top management innovativeness facilitates innovation within the top management team (West & Anderson, 1996) and helps build a competitive advantage barrier that is difficult for rivals to replicate (Hamel, 2006). (Wang and Dass 2017) managers tend to allocate a greater amount of valuable resources to innovation activities (eg, newproduct development), which results in enhancing the firm's ability to compete with rivals (Hunt, 2010) (Wang et al 2017). Top management innovativeness facilitates innovation within the top management team (West & Anderson, 1996) and helps build a competitive advantage barrier

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**Competitive advantage:** the company's intention to want to compete on the market can be a fundamental input, which pushes the company to introduce the organizational eco-innovativeness within it as a critical success factor. This is because thanks to the organizational eco-innovativeness as we have exposed in the previous chapters, inimitable knowledge is created and difficult to carry out by other companies. It is also necessary to underline that a competitive advantage cannot be made a good advantage without introducing the main theme of the strategy to be implemented within the company in every aspect of the organizational culture, in our case eco-innovation. . Incremental innovation performance can allow firms to sustain their competitive advantages in the short term and in conditions of environmental stability (Fores et al 2016). Barney (1986) suggests that organizational culture can lead to a sustainable competitive advantage if it satisfies the characteristics of other resources; that is, it must provide economic value, it must be unique, and it must be imperfectly imitable so that competitors cannot copy it. Similarly, organizational climate is a “team-embodied, socially complex organizational resource” which acts as a driver of competitive advantage (Ray, Barney, & Muhanna, 2004, p. 28) and firm performance (Powell & Dent-Micallef, 1997). Environmentalism is a part of an organization's culture and climate when a firm "accept [s] the mantra and fully integrates green initiatives across all aspects of the business" (Cronin et al., 2011, p. 164), a process driven by managerial values (Fraj et al., 2013). In essence, that culture and climate become embedded in the firm to such a degree that it would be impossible to extract or copy it. When a firm is recognized as being a "green marketer," that descriptor acts as a valuable resource, particularly relative to marketing and supply chain management functions. (Chan, He, Chan, & Wang, 2012). Environmental orientation, then, may be an environmental resource that is inseparable from the firm itself (Amit & Shoemaker, 1993; Teece, 2009). Using this logic, a firm with an environmental orientation should be more suited to the creation of an

eco-capability. (Gabler., 2015)

**The environmental corporate culture:** organizational culture is fundamental for organizational eco-innovativeness as innovating the organizational culture in eco-friendly terms is a key to achieving success by promoting the development of eco-innovations. In order to be effective, the organizational culture aimed at eco-friendly must cover every department present in the company so that the latter can fully undertake the ecological mission it has set itself. Organizational culture implies a set of ideals shared by all members of an organization (O'Reilly and Chatman, 1986). (Gabler., 2015).

Innovation culture integrating innovation into the company culture is an important means to achieve success and to foster innovation capabilities (Bullinger et al., 2007). The beliefs and values of a company influence the risk tolerance, personal development, and innovation activities of employees and their motivation to develop and implement new ideas (Menzel et al., 2007). (Dziallas B. , 2019). By developing an appropriate structure, an organizational culture to attract and retain qualified human capital, a climate that favours risk taking, a leadership focused on knowledge creation and learning objectives, as well as a clearly recognizable mission to foster employees' identity and alignment with the firm's strategy (Nonaka, 1994; Smith et al., 2005). (Fores, 2016). By developing an appropriate structure, an organizational culture to attract and retain qualified human capital, a climate that favours risk taking, a leadership focused on knowledge creation and learning objectives, as well as a clearly recognizable mission to foster employees' identity and alignment with the firm's strategy (Nonaka, 1994; Smith et al., 2005). (Fores, 2016). By developing an appropriate structure, an organizational culture to attract and retain qualified human capital, a climate that favours risk taking, a leadership focused on knowledge creation and learning objectives, as well as a clearly recognizable mission to foster employees' identity and alignment with the firm's strategy (Nonaka, 1994; Smith et al., 2005). (Fores, 2016).

**Corporate environmental ethics** company that is prone to respect and protection of the environment is prone to environmental problems, it makes sure that these elements become a cornerstone for the company with a view to continuous improvement towards the prevention and elimination of pollution and improvement of the working environment. the company management therefore expects the entire organization to operate according to the indications of the environmental management system. Corporate environmental ethics formalizes corporate value and expectation for ethical behavior, so it is a driving force for green innovation

and competitive advantage. (Chang, 2011).

**The intellectual asset** of a company consists of the Market-based learning and Organizational learning. Firms pursuing the development of radical products, processes, technologies and management methods should invest in developing their capabilities to absorb new external knowledge (Lavie, 2006). As pointed out earlier, this study emphasizes the multi-dimensional nature of this complex construct, and explicitly recognizes the importance of transformation capability to combine new external knowledge with the existing knowledge base and mental models in order to create a more tacit and specific knowledge that is not observable easily and thus imitated by competitors (Lichtenthaler, 2009). (Fores, 2016). The company that follows the market orientation can provide a springboard for an eco-innovative organization as it is able to answer the questions of its stakeholders by acquiring knowledge and using it to gain a competitive advantage in the market. The Market orientation implies "the systematic use of the knowledge generated to guide the recognition, understanding, creation, selection, implementation and modification of strategy" as strategic responsiveness and adaptation to international markets (Hunt & Morgan, 1995, p. 11). This allows companies to provide an adequate offer to the market more efficiently and effectively through, e.g. listening and engaging with customers to provide quality and differentiated products / services to meet their current needs and anticipate their future demand, focusing on external forces (e.g. competitors, suppliers, regulators, and technology) to keep pace with a development and irregular and constantly changing coordination Research and development, production, Organizational learning is a type of learning that is difficult to imitate and therefore represents a critical success factor in achieving lasting competitive advantage. Elkjaer (2004) suggested that organizational learning is the only source of achieving sustainable competitive advantage. She further claimed that all other resources are either be copied by other organizations or can be demolished with time, but the learning capability of the organization can neither be copied nor be ruined with passage of time. So, it is the perfect and permanent source of getting sustainable competitive advantage.

Table 21

ICON	FACTOR	DEFINITION	INFLUENCE
	<b>Organizational structure</b>	The organizational structure is the result of the choices by which work is divided, ordered and coordinated within an organizational system. Organizational innovation is novel organizational structures, best practices, new administrative standards, and the processes and procedures that can create value for the organization to achieve its goals (Birkinshaw, Hamel, & Mol, 2008; Bouquet & Birkinshaw, 2011; Mol & Birkinshaw, 2014). (Vasconcellos, 2019)	The organizational structure influences the eco-innovative organization as based on it the fundamental rules of the company are established, both from the point of view of the responsibilities of control and coordination.
	<b>Top management</b>	The role of management is crucial in establishing a company's norms and expectations about ethics (Tushman and O'Reilly 1997). (Chang, 2011)	The board clearly expressed the company's point of view on eco-innovation and therefore the organization is influenced by the choice of the top management to adopt eco-innovations by promoting an eco-friendly company policy.
	<b>Competitive advantage</b>	Competitive advantage is a condition under which companies occupy some niche positions where their competitors cannot imitate their successful environmental strategies and they can gain the sustainable benefits (Porter 1980; Porter and van der Linde 1995). (Costantini, 2015)	The company seeks to establish a position early, difficult to imitate in the future in order to gain or maintain their competitive advantage. Consequently, the company needs an organization that adopts eco-innovations to obtain or sustain its competitive advantage.
	<b>environmental corporate culture</b>	The environmental corporate culture refers to green organizational skills, ecological organizational commitments and environmentally friendly organizational philosophies. Adapted from previous studies (Williams et al., 1993; Montalvo, 2003, 2008; Scarpellini et al., 2012; de Jesus Pacheco et al., 2016) (Granero, 2018)	The company that encourages employees to think about how to reduce waste, pollution and therefore be sustainable, thus introducing an ecological culture that stimulates the company, facilitates the entry of a co-innovative organization. Employees are pushed towards a new type of culture which translates into greater flexibility on the part of employees in implementing the introduction of organizational-ecoinnovativeness.
	<b>Corporate environmental ethics</b>	Corporate environmental ethics is one of the key elements of organizational culture which is associated with innovativeness (Peng and Lin 2008). (Chang, 2011)	the company that believes it is correct to contribute socially to environmental protection must integrate its ethical responsibility into the corporate vision, this is a fundamental input for the start of the eco-innovative organization that adopts eco-innovations to act in a "right" and responsible way also gaining a competitive advantage ..
	<b>Intellectual asset</b>	Environmental orientation shares a foundation with market orientation (Stone & Wakefield, 2000), or a firm's ability to generate, disseminate and respond to knowledge within the market (Kirca, Jayachandran, & Bearden, 2005; Kohli & Jaworski, 1990; Morgan, Vorhies, & Mason, 2009), and focus on primary stakeholders (eg, business partners and competitors) (Greenley, Hooley, & Rudd, 2005) Organizational learning is defined as "... a method of successfully dealing with continuous change" (Jordan, 2005)(p 456)	The market-oriented company, if it carefully manages the demand of its stakeholders, acquires such knowledge that it can be used in the construction of an eco-innovative organization, which in turn favours eco-innovative outputs that can meet the expectations of stakeholders in ecological terms.

#### 4.2.2 The relationship between organizational eco-innovation and company performance

The relationship between organizational eco-innovation and corporate performance is driven by factors such as organizational innovation, product and process innovation, capacity innovation and marketing innovation. All these types of eco-innovative innovations guarantee a positive performance for the company if used in the most coherent and correct way in the company.

- Organizational innovation is the implementation of a new organizational method in a firm's business practices, workplace organization, or external relationships. Specifically, organizational innovation is primarily concerned with improving work structures such as employing flexible work arrangements and collaboration with partners. Oslo Manual (OECD, 2005), (Lee, 2019). Previous studies depict organizational innovation as a capability that positively influences other capabilities (eg, collaboration, technology, and learning) as well as performance (Berghman, Matthyssens, & Calling for additional research on sustainability and innovation, recent case-based studies have attempted to connect firm capabilities to innovation strategies for both sustainability and competitive advantage (Mariadoss, Tansuhaj, & Mouri, 2011). Serious gaps exist in our knowledge of how organizational innovation and being eco-friendly interact to influence firm performance. While much of the emerging green innovation at the industry level deals with ways to reduce costs, which should eventually allow firms to pass savings across the supply chain, the newness of the strategy implies risk. As such, the key to realizing the benefits of green innovation may be in the openness to new and sometimes risky ideas (Parasuraman, 2000; Rogers, 1995). Only the most innovative firms, then, would be able to fully embrace and implement green technology. Because organizational innovativeness conveys management's commitment to green initiatives, we positively that it will positively influence an eco-capability. (Gabler., 2015).

“The number of innovations has a positive effect on performance. It is not through major radical innovations that firms learn how to best act in a new market; instead, firms learn through a series of smaller innovations or simple changes and adaptations ”(Droge, Calantone, & Harmancioglu, 2008) (Azar, 2017). "Thus, the firm's innovation capabilities such as technological innovation capabilities can be used as an important strategic weapon for improving firm performance" (Hurley and Hult 1998) (Joo, 2018).

Numerous studies evidence a positive relationship between organizational innovation and firm performance. Camisón and Villar-López (2014) show how product, process, and management innovation separately affect firm performance. Similarly, Jiménez- Jiménez and Sanz-Valle

(2011) show that product, process, and administrative innovation jointly influence organizational performance positively. Therefore, this study proposes the following final set of hypotheses. Because some of the innovations introduced will work, while others will fail. The learning outcome will drive subsequent efforts, which will generate other innovations, thus enhancing the overall extensiveness of technological innovation. Firm performance may depend more on the congruency between innovations of different types than on each type alone (Damanpour, 1991). Damanpour (1991) suggests that to enhance performance, firms invest in product and intraorganizational process innovations synchronously, rather than in product innovations alone. This suggests the existence of complex configurations of ACAP and organizational innovation dimensions associated with organizational performance. In line with this perspective, this study posits the following hypothesis: Varied combinations of ACAP (acquisition, assimilation, transformation, and exploitation) and organizational innovation (product, process, and management) associate with superior organizational performance. (Ali, 2016)

Companies must first engage in organizational eco-innovation, developing the necessary infrastructure, and achieving the necessary knowledge so they can improve their processes and products. As the organizational eco-innovations occur, the process eco innovations develop skills that can be used to improve products, which have positive impact on business performance. (Xavier, 2016).

- Product innovation is the introduction of a good or service that is new or significantly improved regarding its characteristics or intended uses. There are several typologies that are related to innovativeness levels, such as radical and incremental. Oslo Manual (OECD, 2005), (Lee, 2019).
- Process innovation is the implementation of a new or significantly improved mode of production, delivery method, or administrative process. Oslo Manual (OECD, 2005), (Lee, 2019).

Process innovation has direct and positive impacts on firm performance when it is accompanied by organizational innovation. It shows that firms that are open to organizational changes obtain productivity growth (Mol & Birkinshaw, 2009) and the full benefits of technological innovation (Doran, 2012). These findings encourage managers to cultivate the cooperation between administrative and production employees, and knowledge sharing with regard to changes in each function. (Lee, 2019).

- Innovation capability, defined as a firm's ability to generate, accept, and implement new ideas, processes, products, or services, is one of the key resources that drive a firm's success in the marketplace (Calantone, Cavusgil, & Zhao, 2002; Ngo & O'Cass, 2013). (Wang, 2018).

Innovative capacity is a key factor for corporate performance. Since environmental management practices such as developing environment-friendly products often necessitates the use of innovative technology in the product design and the manufacturing processes, increasing innovation capabilities is one of essential means to achieve the firm's environmental sustainability. Thus, the firm's innovation capabilities such as technological innovation capabilities can be used as an important strategic weapon for improving firm performance (Hurley and Hult 1998). (Joo et al 2018) Eco-capability is positively related to market performance, financial performance, and quality of the offering. (Gabler., 2015).

In addition, it is important for companies for business performance to be positively reflected that attention is paid to the personal skills of human resources. Thiele, and Lye (2011) argue that personal capabilities influence innovation success, which in turn determines marketing performance within an SME context. Similarly, Hooley, Greenley, Cadogan, and Fahly (2005) considered managerial capabilities as an antecedent to innovation capability. Likewise, Jiménez-Jiménez and Sanz-Valle (2011) found a positive relationship between organizational drivers (ie, learning), innovation and firm performance. (Prange, 2017).

Furthermore, previous studies affirm that Environmental performance is also referred to as the extent of the firm's ability to deliver eco-friendly products to its customers in accordance with customers' specific needs and the government's environmental standards and requirements. Since environmental performance reflects the firm's operational success in terms of environmental sustainability and reduction in environmental quality failures and emission of harmful substances to living environments, its higher environmental performance will lead to a smaller percentage of recalled products, a greater compliance with government regulations, and more favourable responses from target customers which, in turn, can contribute to production / logistics cost savings (eg reduction in product recalls)

- “Marketing innovation is a new or significant change in non-functional characteristics such as product design or packaging, place, promotion, and pricing. For example, changing a product design is related to altering its appearance, not its function or user. Oslo Manual (OECD, 2005), " (Lee, 2019).

Goal to which marketing managers must aim is to make the customer enthusiastic about the transaction, in fact by doing so they will be able to acquire considerable value from consumers,

value that will benefit the entire business. Eco-innovation in marketing deals with controlling different organizational aspects of the company 1) becoming responsible for the connection between the marketing intervention and the generated financial result; 2) become more innovative by increasing the introduction of new products / services; 3) pay more attention to the connection with the customer. Morgan et al. (2009) demonstrate that marketing capabilities, specifically, can increase a firm's return on assets as well as overall firm performance. The moderating effect of marketing innovation in the relationship between product innovation and firm performance is greater in high-tech industry because it increases the positive impacts of both radical and incremental product innovation on firm performance; in low-tech industry, such moderating effect is shown only in incremental product innovation. Therefore, it is necessary for marketing managers to consider the innovativeness dimension their new product belongs to and the characteristics of the relevant industry in deciding the introduction of marketing innovation as a means of commercializing the product. (Ma, 2016).

In conclusion, we can say that eco-innovation increases the know-how or the knowledge base for corporate pollution control, eco-friendly attitudes combined with innovation and increasing entrepreneurial processes increase corporate organizational performance. . Dibrell et al. (2011), suggest that environmental attitudes matched with innovation increase entrepreneurial processes, which then increase performance. In other words, the eco-innovating abilities that a company acquires must be integrated with others and must be part of the company itself in order to generate positive performance. Properly deployed capabilities have a positive influence on performance (eg, Teece, 2007; Zott, 2002). This is particularly true when the capability combines a strategic orientation with innovativeness (Menguc & Auh, 2006). (Gabler., 2015).

Summary table of the factors determining the relationship between organizational eco-innovation and company performance:

Table 22

Type of determining factor	Factor	
<b>Factors influencing the relationship between organizational eco-innovation and company performance</b>	Organizational innovation	number of innovations, Technological innovation
	Product innovation Process innovation	Radical product innovation activity, Incremental product innovation activity, Process innovation activity.
	Innovation capability	technological innovation capacity, Personal capability: human resources with eco-organizational innovation, employee qualifications, mental elasticity, risk propensity and future and eco-innovative vision.
	marketing innovation	Market research on green products. Inform clients about the ecological practices implemented.

#### 4.2.3 Barriers to eco-innovativeness

the barriers to eco-innovation which can be mainly classified into three groups such as: external, internal and international factors. The main barriers to the development of innovative activities have been identified as the lack of internal funds for companies, lack of external financing, high risk due to novelty, useless regulations, lack of knowledge. The study carried out shows that eco-innovativeness increases the activities of companies of all sizes, but large companies are the most eco-innovative ones. This paragraph undertakes to establish some possible reasons why some companies of different sizes are unable to innovate or derive competitive or financial performance advantages.

Despite such importance of environmental sustainability, many firms are still hesitant to invest in the development of eco-friendly products for a number of reasons (Jaffe et al. 1995). These reasons include: a difficulty in assessing the extent of impact of green consumerism on product sales or brand recognition; organizational resistance to managerial changes required by eco-friendly product development and marketing; and added investment or expenses needed for eco-friendly business practices (Greenstone, List, and Syverson 2012). (Joo, 2018).

### 4.3 Theoretical framework

We used a theoretical framework identifying the main concepts and variables underlying our analysis on *organizational eco-innovation*. From the study carried out to introduce organizational eco-innovativeness within a company, it is necessary that first of all an ecological strategic plan is implemented, which must concern every aspect of the company and not just some sectors taken individually of it, to do this there is a need for the company to commit itself to inserting the eco-friendly vision into its culture, however, in order to introduce innovations within it, companies must have an organization aimed at innovation so that it is able to support and manage new ideas, products, services and therefore requires the presence of a management with a high propensity to risk. This will allow the implementation of the organizational eco-innovativeness within the company which will have a short insertion time, thanks to the previous adoption of the elements described. It is also correct to highlight the importance that the horizontal organization, knowledge and financial resources of a company have, as if they are present within the company it will be much easier for the Top management to introduce an ecological vision and being able to implement the predefined strategic plan. Thanks to these factors, the company will be able to carry out more eco-innovations and to invest more in R&D and / or to innovate thanks to the creativity of human resources. Asset that will contribute to the development and creation of new ecological products / services. In case the company succeeds in this intent.

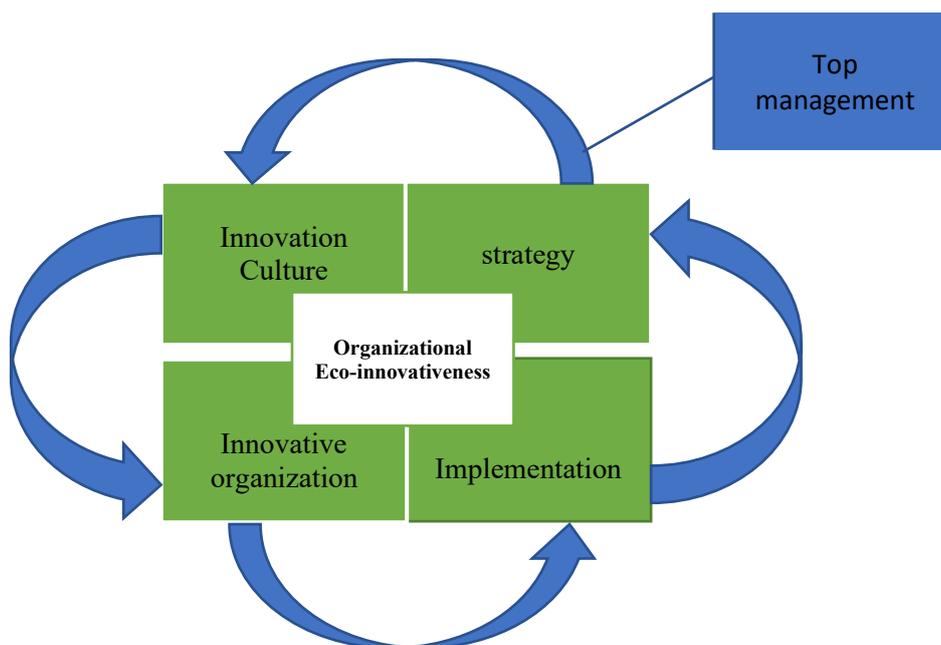


Figure 3

The theoretical framework described above led to the definition of two research questions:

What are **fundamental determinants** organizational eco-innovation

Like organizational eco-innovation influences company performance.

This framework allows companies to understand which the essential drivers and assets are to

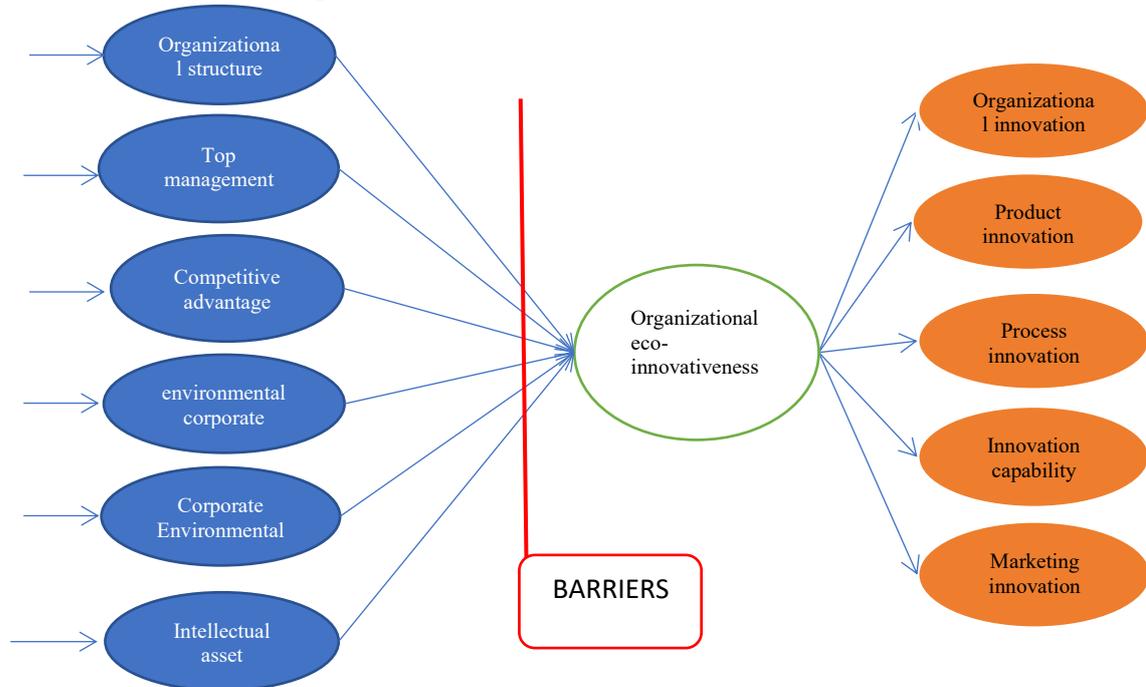


Figure 4 Conceptual model input and output organizational eco-innovativeness

introduce an organizational eco-innovativeness in their company at any time and regardless of the current situation of the organizations and the market. For example, if an organization is growing, then that organization can use it to further enhance its organizational eco-innovation capability. And if an organization is in a stagnant or declining situation, then that organization can use it to identify the source of the problem within an organization and develop improvement plans by introducing organizational eco-innovativeness.

## **Chapter 5**

### **Discussion and implications**

In this chapter they have been compared research results with existing literature to determine the theoretical contributions of this study and its management implications for companies that have or want to introduce green innovation within their business organization. In other words, the researcher identifies where the findings support, extend, or contradict previous studies on similar topics. A comparison of the sampling framework between this study and the previous work was made in order to note the main characteristics of the context in the present research and subsequently the specific relationships between fundamental determinants of the adoption of eco-innovation in environments in which is in force an organizational innovation.

In the light of the research results, the study served to broaden the understanding of the critical role that organizational innovativeness has in introducing eco-innovation within companies. Consequently, the management implications and recommendations based on the research findings are presented at the end of the chapter.

#### **5.1. Theoretical contributions**

This study provides theoretical and methodological contributions in the field of eco-innovation research, explaining what the determinants of eco-innovation within companies are that have an innovative organization.

The first theoretical contribution concerns the review of the literature, which offers a summary of the definitions of eco-innovation, the main dimensions of eco-innovation, the characteristics of eco-innovation, the drivers of eco-innovation and the results of eco-innovation. The literature review carried out was then modified based on the qualitative results of the interviews carried out through an additional construct. From the study carried out, it was necessary, in order to achieve eco-innovation, that the company has an eco-capacity in its baggage that fully exploits human, financial, corporate and technological resources. Without it it is not possible for companies to make good eco-innovations and therefore take advantage of them. This result is in line with the empirical studies of (Gabler., 2015).

Regarding the company structure, we observed that it is not necessary to eco-innovation (as stated in the previous literature) that the company structure is decentralized with a horizontal organization, in fact many of the companies examined did not have this requirement, but despite being companies with a hierarchical structure and with a vertical organization, they managed to innovate and become eco-innovative, what allowed were the internal motivations and bonuses granted by the top management to the underlying managers, certainly guaranteeing greater freedom of choice to their underlying managers once achieved certain objectives.

The innovation-approach is not possible if not starting from a radical cultural change on the part of both the individual subjects present in the company and the entire "organizational body" as a whole. From the study carried out it is therefore necessary to introduce the idea and the concept of eco-friendly in the corporate culture thus embracing all areas within it. It has been observed that companies that respect the environment only to have a competitive advantage and an economic return do not benefit from eco-innovation or this does not last over time. Organizational eco-innovation is that type of business organization that involves the introduction of completely new and revolutionary methods or a significant innovation in the organization in ecological terms. In other words, when a company decides to introduce ecological innovations within it, it cannot introduce them with the sole purpose of making profits, because it would not create a competitive advantage that will last over time, but instead must also change its vision. company and introduce the eco-sustainability in its culture by involving each company area in such a way that change is perceived in each of them. To confirm this model there is the study carried out on companies that have decreed their strategy only on the brand and that in fact have not been able to obtain a competitive advantage for various reasons, by way of example, the stakeholders who could make themselves . realizing that the company is not doing it with the intention of being truly eco-friendly and for social responsibility, but only to get more customers. is the study carried out on companies that have decreed their strategy only on the brand and that in fact have not been able to obtain a competitive advantage for various reasons, by way of example, the stakeholders who could make themselves. realizing that the company is not doing it with the intention of being truly eco-friendly and for social responsibility, but only to get more customers. is the study carried out on companies that have decreed their strategy only on the brand and that in fact have not been able to obtain a competitive advantage for various reasons, by way of example, the stakeholders who could make themselves. realizing that the company is not doing it with the intention of being truly eco-friendly and for social responsibility, but only to get more customers.

The second contribution of this study concerns the conceptual proposal and empirical verification of an integrative model of eco-innovation, which makes explicit the interaction of eco-innovation with its main dimensions, its drivers, and its consequences for Introduction of eco-innovation in enterprises. with organizational innovation. On the basis of a sample of companies, a model was formed that integrates the current literature, in which some elements have been preserved while others have been eliminated, due to the non-validation found through the qualitative study and through exploratory and confirmatory analysis carried out for each. element. At the end of this study, it was found that the fundamental role for the realization of eco-innovation in enterprises, it is made up of two fundamental components which are competitive pressure and high market demand. The combination of competitive pressure and high market demand appears to be the reason that pushes companies to adopt eco-innovation internally. In conclusion, we can say that companies that operate in highly competitive environments and where the market demand of ecological companies is high, guides companies towards the implementation of production processes and ecological products and to develop an organizational eco-innovation in order to obtain a competitive advantage and to satisfy the demands of its stakeholders. The combination of competitive pressure and high market demand appears to be the reason that pushes companies to adopt eco-innovation internally. In conclusion, we can affirm that companies that operate in highly competitive environments and where the market demand of ecological companies is high, directs companies towards the implementation of production processes and ecological products and to develop an organizational eco-innovation in order to obtain a competitive advantage and to satisfy the demands of its stakeholders. The combination of competitive pressure and high market demand appears to be the reason that pushes companies to adopt eco-innovation internally. In conclusion, we can say that companies that operate in highly competitive environments and where the market demand of ecological companies is high, guides companies towards the implementation of production processes and ecological products and to develop an organizational eco-innovation in order to obtain a competitive advantage and to satisfy the demands of its stakeholders.

## **5.2. Managerial implications**

From a managerial point of view, the study produces valuable information on the methodology for introducing eco-innovation into the business organization. First of all, being the key figure in the introduction of eco-innovation and eco-sustainability, the first contribution was made in

the strategic planning methodology, as it must concern all company areas and above all the corporate organizational culture, structure and eco-capacity of resources. Beyond an overall framework for introducing eco-innovation, some possible errors have been highlighted in terms of incorrect adoption of eco-innovation, which can lead to negative consequences for companies, such as brand-only strategy, introduction of as regards the managerial implications with respect to the analysis carried out, it can be said that it is important that managers choose the organizational structure very carefully, as the correct choice of this is one of the fundamental characteristics for innovation. The attention of managers must be directed above all to the choice of the organizational structure as it requires an in-depth study of the company, because there is no precise rule for choosing an organizational structure aimed at pushing the company to innovate but every company must find a logic adaptable to one's own. From the study carried out as previously explained, the organizational structure does not need to be hierarchical, as many of the eco-innovative companies analysed had a vertical hierarchical organizational structure. Therefore, the important thing in the choice of the organizational structure is the choice of an organization in which it is possible to favour the flow of ideas and therefore must be flexible from the point of view of the circulation of ideas, to do this it is necessary to be given a lot of autonomy. resources and that they have the time and opportunity to do research. It is important that the organization is in any case controlled and in some companies it is also correct to insert a hierarchical structure if necessary without compromising innovative development. Therefore, the important thing in the choice of the organizational structure is the choice of an organization in which it is possible to favour the flow of ideas and therefore must be flexible from the point of view of the circulation of ideas, to do this it is necessary that a lot of autonomy is given. resources and that they have the time and opportunity to do research. It is important that the organization is in any case controlled and in some companies it is also correct to insert a hierarchical structure in case it is necessary without compromising the innovative development. Therefore, the important thing in the choice of the organizational structure is the choice of an organization in which it is possible to favour the flow of ideas and therefore must be flexible from the point of view of the circulation of ideas, to do this it is necessary to be given a lot of autonomy. resources and that they have the time and opportunity to do research. It is important that the organization is in any case controlled and in some companies, it is also correct to insert a hierarchical structure in case it is necessary without compromising the innovative development.

The organization must give the opportunity for innovation to flow, but this must connect with the chosen business strategy such as the ecological strategy.

Another important aspect that management must take into consideration is the corporate culture, this must be present in every area of the company for it to have a return in innovative terms, to do this the managers must ensure that the resources identify themselves with the type of culture chosen for the company, this is because the corporate culture is what defines the public image of the company. It is important from this point of view not to aim only at the ecological image that you want to give to the company as it is easy for you not to have returns if the ecological culture is not included in the heart of the company. In order for managers to give value to the company by giving a truly ecological image by involving human and non-human resources, they can organize updates for employees, ecological policies, organize workshops, laboratories and seminars and at the same time focus on the product process and / or services to which it refers, also could activate collaborations with research institutes, universities or other companies. Furthermore, to accelerate the corporate organizational culture, it is important that managers take care of raising awareness of resources in ecological terms, stimulating them to create new ideas, encouraging and motivating them in research and innovative development. laboratories and seminars and at the same time concentrate on the process of the products and / or services to which it refers, also could activate collaborations with research institutes, universities or other companies. Furthermore, to accelerate the corporate organizational culture, it is important that managers take care of raising awareness of resources in ecological terms, stimulating them to create new ideas, encouraging and motivating them in research and innovative development. laboratories and seminars and at the same time concentrate on the process of the products and / or services to which it refers, also could activate collaborations with research institutes, universities or other companies. Furthermore, to accelerate the corporate organizational culture, it is important that managers take care of raising awareness of resources in ecological terms, stimulating them to create new ideas, encouraging and motivating them in research and innovative development.

Finally, it is important to underline that managers must carefully observe the internal and external business environment, in particular it is important to keep external competitiveness and the level of market demand under control, through suitable KPIs. If the values of the indices are both positive, it represents the main reason why companies decide to innovate and for this reason managers must carry out constant and careful observation.

The results obtained show that in order to initiate ecological innovation, companies must monitor the entire life cycle of the products and services offered, being able to do so while respecting the environment. In fact, for product companies it is first of all necessary to convert the raw

materials used for production, for example by progressively eliminating plastic, or by studying innovative methods such as green packaging for different types of products. Transforming waste into biodegradable products, reducing pollution due to this process, reduce waste, pay attention to energy saving by focusing on renewable sources. At the end of the product life cycle, it is also important to make a careful choice of packaging that can be more ecological and to give importance to the optimization of transport, in order to also obtain ISO-14001 certificates. For service companies, it is possible to commit to reducing energy consumption, minimizing transport or opting to use less polluting fossil fuels such as liquefied natural gas.

## **Chapter 6 Limitations and further research**

### **6.1. Limitations**

In this study it should be considered in light of some limitations. Firstly, the results were based on a small sample of nine companies, therefore, future research could be expanded thanks to a greater number of respondents, using a questionnaire to be able to expand the number of respondents. Secondly, key variable measurements are based on subjective judgments provided by a single interviewee rather than by multiple respondents from participating companies. Although we have conducted an appropriate analysis to assess the validity of these measurements, it would be useful to develop objective measures and use more participants in future research to further improve the validity of the measurement.

### **6.2. Further research directions**

For some companies we have found that the relationships between eco-innovations and business performance are low despite having applied the correct fundamental statements, this can be explained by the fact that eco-innovations generally pay off after several years of delay; that is, the ratios of the profitability indicator are initially negative if the investments made have been substantial and have not yet shown returns. Therefore, further research on this topic is needed for the association between eco-innovations and business performance (when using the profitability indicator ratios) to be fully understood.

Another research that could be expanded is that in the pharmaceutical sector, as the study carried out has shown that companies in this sector do not intend to eco-innovate as the market demand for ecological products is not high and furthermore, although the level of pollution is high, it seems that there are no environmental rules that limit the production of waste.

## **Chapter 7 Conclusion**

The aim of this research was to explore the extent to which internal and external factors influence the adoption of eco-innovations within business organizations.

The result of this research indicates that both internal and external factors are important for the introduction of eco-innovativeness, but those that give greater impetus for the introduction of this innovation are external ones and above all the market demand for ecological products / services and the level of competitive intensity of the sector in which the companies operate. It is certain that internal factors have a more important influence in terms of successful implementation of eco-innovation in the organization and, above all, they are fundamental to obtain positive performance and a competitive advantage that lasts over time.

The analysis also highlighted a progressive adoption of green logics by companies of different sizes. Although medium-large enterprises generally have a greater contribution of eco-innovations, micro and small enterprises also demonstrate that they have seized the opportunities that these strategic paths can offer, above all to remain competitive on the market. In fact, it is correct to state that organizational eco-innovation is the engine that allows us to obtain a long-term competitive advantage. The introduction of eco-innovative strategies within business organizations entails the need to redefine many corporate assets but we must keep in mind the main purpose of the company which is the creation of value.

For companies it is important and almost fundamental to introduce ecological strategies since, after the analysis carried out, it emerged that the benefits brought by eco-innovation are manifold. In fact, we can observe how ecological social responsibility improves the corporate organizational climate, increasing the company's ability to attract qualified and productive personnel, also bearing in mind that the employee who works in a stable cultural context and with a concrete and social vision works better. Thus, increasing the company's turnover. Companies should introduce ecological innovations also in order to improve the relationships with the external context, since a business culture oriented towards sustainability is presented in a more optimal way in the eyes of its customers, stakeholders and shareholders, thus facilitating the creation of relationships based on trust and the satisfaction of the needs of its stakeholders; companies must also introduce the concept of eco-innovation into their culture as this allows them to develop a stable and lasting relationship with customers, based on trust in the product / service and in the company that offers it, also improving the image and reputation of the company. Finally, it is important to underline the economic returns that could come from

sources of financing, since ecological companies are perceived as responsible and environmentally conscious companies. However, it is very important that all the benefits that companies can derive from eco-innovation must be guided by a strategy aimed at improving that specific company asset. To do this, it has been shown that companies must introduce eco-innovation into their organizations by first developing a strategic plan through which eco-innovation can become a source of success and lasting competitive advantage. It is also important to understand that in order for eco-innovation to return a performance in economic, value and image terms, it must be the guiding principle of all the company's activities and therefore must be rooted in the corporate culture and consequently reflected in every single area.

We can conclude by saying that eco-innovation exerts a very positive influence for the company in terms of economic and competitive advantage, bringing greater visibility of the brand and profitability of companies. Furthermore, it is important to underline the contribution that eco-organizational innovation has in increasing the degrees of internationalization of the various companies.

## Bibliografía

- Fores. (2016). Does incremental and radical innovation performance depend on different types of knowledge accumulation capabilities and organizational size? *Journal of Business Research*.
- Gabler. (2015). Developing an eco-capability through environmental orientation and organizational innovativeness *Industrial Marketing Management*.
- Granero. (2020). Measuring eco-innovation dimensions: The role of environmental corporate. *Research Policy*.
- Aboutpharma. (2019).
- Ali. (2016). Direct and configurational paths of absorptive capacity and organizational innovation to successful organizational performance. *Journal of Business Research*.
- Azar. (2017). Organizational innovation, technological innovation, and export. *International Business Review*.
- Bell, B. a. (2015).
- Beltrán-Esteve. (2017). Assessing environmental performance in the European Union: Eco innovation versus catching-up. *Energy Policy*.
- Bobillo. (2017). Corporate governance drivers of firm innovation. *SPECIAL ISSUE PAPER*.
- Bryman, B. (2015).
- Chang. (2011). The Influence of Corporate Environmental Ethics on Competitive Advantage: The Mediation Role of Green Innovation. *J Bus Ethics* .
- Corbin, S. (1990).
- Costantini. (2015). Demand-pull and technology-push public support for eco-innovation: The case of the biofuels sector. *Research Policy*.
- Denscombe. (2016).
- Dziallas. (2019). Innovation indicators throughout the innovation process: An extensive literature analysis. *Technovation*.
- Fores. (2016). Does incremental and radical innovation performance depend on different types of knowledge accumulation capabilities and organizational size? *Journal of Business Research*.
- Gabler, (2015). Developing an eco-capability through environmental orientation and organizational innovativeness. *Industrial Marketing Management*.
- Granero. (2018). Eco-innovation measurement: A review of firm performance Indicators *Journal of Cleaner Production*.

- He, W. (2011). Linking market orientation to international market selection and international performance. *International Business Review*.
- Janger. (2017). The EU 2020 innovation indicator: a step forward in Measuring Innovation Outputs and Outcomes? *Research Policy*.
- Joo. (2018). Examining the effects of government intervention on the firm's environmental and technological innovation capabilities and export performance. *International Journal of Production Research*.
- Jordan. (2005).
- Jugend. (2017). Green Product Development and Product Portfolio Management: Empirical Evidence from an Emerging Economy. *Business Strategy and the Environment*.
- Kawakami. (2015). Information Technology Tools in New Product Development:. *J PROD INNOV MANAG*.
- Lee. (2019). Synergy effects of innovation on firm performance. *Journal of Business Research*.
- Ma, H. (2016). Opportunity-Based Strategic Orientation,. *Journal of Small Business Management*.
- Mohan. (2017). Managerial disposition and front-end innovation success. *Journal of Business Research*.
- Ndubisi. (2019). The effects of complementarity of knowledge and capabilities on joint innovation capabilities and service innovation: The role of competitive intensity and demand uncertainty intensity and demand uncertainty. *Industrial Marketing Management*.
- Prange. (2017). How personal and organizational drivers impact on SME international performance: The mediating role of organizational innovation. *International Business Review*.
- Rönnlund. (2016). Eco-efficiency indicator framework implemented in the metallurgical industry: part 1—a comprehensive view and benchmark. *The International Journal of Life Cycle Assessment*.
- Saunders. (Copenhagen Business School 2013). *Sustainability Initiatives in the Healthcare Sector, Challenges and Opportunities for Businesses and Support Agencies*.
- Snyder. (2013).
- Tarozzi, T. (2008). “*Che cos'è la Grounded Theory*”, Carocci, Roma.
- Tavani. (2018). How collaborative innovation networks affect new product performance: Product innovation capability, process innovation capability, and absorptive capacity. *Industrial Marketing Management*

- Reynolds and Uygun, a. (2016). Strengthening advanced manufacturing innovation ecosystems: The case of Massachusetts. *Technological Forecasting & Social Change*.
- Vasconcellos. (2019). Organizational creativity as a crucial resource for building international business competence. *International Business Review*.
- Wang, D. (2018). Building innovation capability: The role of top management innovativeness and relative-exploration orientation. *Journal of Business Research*.
- Xavier. (2016). Eco-Innovation Maturity Model: A Framework to Support the Evolution of Eco-Innovation Integration in Companies. *Revista de Administração*.
- Ali et al (2016), Direct and configurational paths of absorptive capacity and organizational innovation to successful organizational performance, *Journal of Business Research*.
- Azar et al (2017), Organizational innovation, technological innovation, and export performance: The effects of innovation radicalness and extensiveness, *International Business Review*.
- Forés et al 2016, Does incremental and radical innovation performance depend on different types of knowledge accumulation capabilities and organizational size? , *Journal of Business Research*
- Gabler et al. 2015, Developing an eco-capability through environmental orientation and organizational innovativeness, *Industrial Marketing Management*
- Kawakami et al 2015, Information Technology Tools in New Product Development: The Impact of Complementary Resources, *Journal of Product Innovation Management*
- Kim et al 2015, The impacts of external network and business group on innovation: Do the types of innovation matter? , *Journal of Business Research*.
- Lee et al 2019, Synergy effects of innovation on firm performance, *Journal of Business Research*
- Lema et al 2015, Reorganising global value chains and building innovation capabilities in Brazil and India, *Research Policy*
- Ma et al 2016, Opportunity-Based Strategic Orientation, Knowledge Acquisition, and Entrepreneurial Alertness: The Perspective of the Global Sourcing Suppliers in China\*, *Journal of Small Business Management*
- Ndubisi et al 2019 , The effects of complementarity of knowledge and capabilities on joint innovation capabilities and service innovation: The role of competitive intensity and demand uncertainty, *Industrial Marketing Management*

Oliver et al 2017, Asymmetric modeling of organizational innovation, *Journal of Business Research*

Prange et al 2017, How personal and organizational drivers impact on SME international performance: The mediating role of organizational innovation, *International Business Review*

Tavani et al 2018, Building innovation capability: The role of top management innovativeness and relative-exploration orientation, *Industrial Marketing Management*

Wang et al 2017, Building innovation capability: The role of top management innovativeness and relative-exploration orientation, *Journal of Business Research*

Arundel et al 2015, How European public sector agencies innovate: The use of bottom-up, policy-dependent and knowledge-scanning innovation methods, *Research Policy*

Bobillo et al 2017, Corporate governance drivers of firm innovation capacity, *review of international economics*

De Vasconcellos et al 2019, Organizational creativity as a crucial resource for building international business competence, *International Business Review*.

Geldes et al 2017, Technological and non-technological innovations, performance and propensity to innovate across industries: The case of an emerging economy, *Industrial Marketing Management*

Huang et al 2015, Absorptive capacity and autonomous R&D climate roles in firm innovation, *Journal of Business Research*

Keasey et al 2015, Young family firms: Financing decisions and the willingness to dilute control, *Journal of Corporate Finance*

Mohan et al 2017, Managerial disposition and front-end innovation success, *Journal of Business Research*.

Nieto et al 2015, Understanding the Innovation Behavior of Family Firms, *Journal of Small Business Management*

Oura et al 2016, Innovation capacity, international experience and export performance of SMEs in Brazil, *International Business Review*

Reynolds et al 2018, Strengthening advanced manufacturing innovation ecosystems: The case of Massachusetts, *Technological Forecasting & Social Change*

Santos et al 2018, The trajectory of the ability to innovate and the financial performance of the Brazilian industry, *Technological Forecasting & Social Change*

## Interview question

- 1) Could you tell me something about your main responsibilities in your company?
- 2) What are the strengths or competitive advantages of your companies?

### PART 1

- 1) What efforts has your company made to develop or to orient its customers to the development of new eco-compatible products / services in recent years?
- 2) How do you assess your company's ability to develop or propose the development of new eco-compatible products / services?
- 3) What eco-friendly practices are applied in your office? (for example: ecological glasses)
- 4) What eco-friendly practices are applied in your company? (for example: electric cars)
- 5) What are your company's motivations in developing new eco-compatible products / services?
- 6) What are the actions of your top managers to support the development or to guide your customers towards the development of new eco-compatible products / services?
- 7) How much did your company invest in developing new eco-friendly products / services last year (as a percentage of sales revenues)? In your opinion, is it enough? Should the company have invested more?
- 8) Which types of intellectual assets of the staff do you think are the most important in the development of new eco-compatible products / services?
- 9) What are the market-related factors that influence the development of new eco-compatible products / services in your company?
- 10) What are the factors related to industry that influence the development of new eco-compatible products / services in your company?
- 11) How do you evaluate the effect of new eco-compatible products / services in your company on the performance of your company (in terms of financial performance, market performance, cost savings)?
- 12) What do you think of the relationship between the organizational structure and the innovation of your company in the development of new eco-compatible products / services?
- 13) What do you think of the relationship between organizational culture and innovation of your company in the development of new eco-compatible products / services?
- 14) How do you assess your organization's level of innovation in terms of environmental protection?

## PART 2

- 1) What is the level of change of your business organization?
- 2) Your business organization is evolving according to external and internal stresses?
- 3) What is the reason for the absence (if not present) of innovation in the organization of work in your company? Ex: (not necessary to meet the needs of our customers, there is no pressure to change the way we work, we do not have enough qualified resources, the costs of change exceed the benefits, are not used by our competitors)
- 4)
- 5) What types of skills do you believe the staff must have in order to stimulate the innovation of the business organization?
- 6) In recent years has there been the adoption of new methods of organizational innovations within your company in terms of personnel management? If so, what practices has your company adopted? (technical training, variable or collective remuneration)
- 7) In the last years has there been the adoption of new ways of organizing operational activities? (for example: autonomous work groups, rotation on multiple mansions)
- 8) Has the way of coordinating work in the organization changed in recent years? (for example: decision-making decentralization, involvement, information sharing)
- 9) In your opinion, what solutions does the market offer to innovate the company organization?
- 10) What motivations led your company to adopt new work practices? (for example: company productivity, improvement of staff skills, / involvement of workers) and why? What is your level of satisfaction with the results achieved?