SO SMART

Socially sustainable manufacturing for the Factories of the Future

Project

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Content

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Summary

The notion of social sustainability has been developed aiming at global growth. Policy makers have elaborated on this concept at regional and country level. Institutions and associations representing the scientific and technological environment have proposed their visions. Enterprises have adopted Corporate Social Responsibility practices. In this context, the role of manufacturing may have appeared so far limited to the specific aspects related to the workplaces. However, a broader perspective can lead to an extended awareness on how manufacturing can contribute to the social sustainability.

In this document an analysis of the state-of-the-art in social sustainability will be performed to identify the definition of social sustainability in manufacturing, corporate culture, business approaches, management strategies, organizational models.

In order to gather a picture of the current practices of social sustainability used in manufacturing, we performed explorative studies using also surveys to companies, interviews to other stakeholders and online researches.

The report highlights wide recognition of the relevance of the economic, environmental and social dimensions of sustainability, with the emphasis on social aspects decreasing as the topics appear less closely connected to the business.

Employees, customers and supply chain are the main target of social sustainability practices, well integrated in the companies' systems and processes, regularly monitored through KPIs and reported.

Social sustainability culture appears quite well grounded in manufacturing companies, however some weakness may be detected in reactive rather than proactive attitudes, and low compliance controls with social sustainability strategy.

Interesting areas not fully investigated under the perspective of social sustainability are related to initiatives to create and sustain virtuous behavior with the involvement and advantage of several actors in the factories' ecosystems and to practices to anticipate and address crises management.

1 INTRODUCTION

In a changing world, the EU wants to become a smart, sustainable and inclusive economy. Factories will play a relevant role in pursuing this goal. Actually, talented workforce and a powerful technological and industrial base have been recognized by European leaders among the main strengths to overcome the economic crisis and address the challenges ahead.

The SO SMART project is developing a new vision for factories to flourish together with their social environment.

Our objective is to create and validate scenarios and solutions for future ecosystems in which manufacturing enterprises, employees and society enact new ways of interaction, socially and economically sustainable in the medium and long term.

Other challenges concern gaps between:

- employee well-being and the imperative to carry out economically sustainable business,
- future competence requirements and the available workforce's knowledge
- the need to retain experienced employees longer and the need to attract a new generation of workers

We are also concerned for the need to find the most appropriate balance between objectives, resources, capabilities made available by society and by the industrial/economic system:

- to develop competences and skills along the life of people;
- to include everyone at different levels of society from local to global communities;
- to pursue people health and safety
- to improve local/regional security, traffic, etc.;
- to care for babies, elderly and disabled people;
- etc.

1.1 Scope of document

The first work-package of SO-SMART aims at preparing the work on social sustainability for the Factories of the Future (FoF). The clear aim of this work package is to develop the concept of the socially sustainable ecosystem.

This will be done through the identification of international and European practices on social sustainability and socially sustainable corporate culture, by developing a comprehensive repository of key indicators of social sustainability and developing the appropriate assessment framework for current practices. This framework will help to derive the relevant conclusion and findings in order to proceed with the development of the new SO-SMART models in the next work packages. Finally, WP1 will also elaborate on the SO-SMART case for socially sustainable ecosystem, as described in the ecosystem concept, already developed from the proposal phase. It will serve as a basis for the development of the vision and pilot and pilot scenarios of the socially sustainable model of the FoF.

The scope of this document, deliverable D 1.1 (*Report on practices for socially sustainable corporate culture*), is the identification of international and European practices on social sustainability and social sustainability corporate culture. D 1.1 aims at analysing the state-of-the-art in social sustainability with the identification of corporate culture, business approach, management strategies and organizational model. This research will be pursued trough review of scientific papers, relevant explorative studies, project reports, survey and interviews.

1.2 Connection to other WPs and Tasks

This deliverable, named *Report on practices for socially sustainable corporate culture* D 1.1, is the output concerning task 1.1 within the Work Package 1 (WP1).

In particular WP1: *SO SMART social sustainability concept for FoFs* has the following tasks structure with the correspondent deliverables:

TASK	TASK TITLE	DELIV.	DELIVERABLE TITLE
Task 1.1	Practices for social sustainable culture	D 1.1	Report on practices for socially sustainable corporate culture
Task 1.2	Key indicators of social sustainability	D 1.2	Report on key indicators of social sustainability
Task 1.3	Assessment framework for current practices	D 1.3	Assessment framework for current practices and future scenarios
Task 1.4	The scenario case for the socially sustainable ecosystem	D 1.4	The SO-SMART case for the socially sustainable ecosystem

All the outputs of D 1.1 constitute the starting point to define a comprehensive set of indicator of social sustainability in D 1.2 and an appropriate assessment framework for current practices in D 1.3. Finally D 1.4 focuses on the SO SMART case for the socially sustainable ecosystem.

The development of all deliverables in WP1 has not been done simply in a sequential process, in which only at the end of D 1.1 it is possible to start the D 1.2 and so on. All the four deliverables constituting WP1 has been started in a parallel way for two main reasons:

- Time efficiency: performing the activity parallel bring results in a shorter time than following a pure sequential process. Another consideration lies on the fact that all partners involved in the project can review deliverables, providing corrections and improvements with fewer less time and effort.
- Gathering information efficiency/effectiveness: with this method D 1.1 can provide some inputs to D 1.2, D 1.3 but at the same time can receive useful inputs and insights from the other deliverables in charge of other partners to improve or correct some parts. This process can be represented someway with a running cycle where D 1.1 provides at the same time inputs to the subsequent deliverables (D 1.2, D 1.3, D 1.4) and it receives insights and other inputs from the other deliverables many times during the development process. This running cycle is also open to external contributions of some stakeholders and experts that can contribute to improve and drive the development of the process.

The graphic of the process can be synthetized as follow:

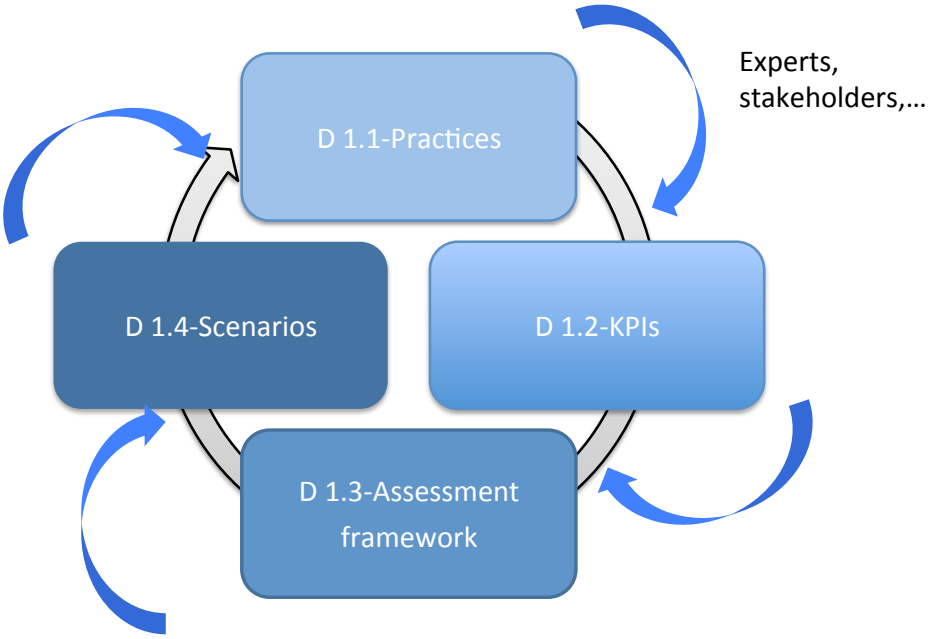


Figure 1.1-Deliverables_connections

The ability to work of the running cycle lies on the efficiency of the process of sharing of information between the partners involved in the development of WP1.

This sharing information process is enabled through the use of Basecamp, a project management web-platform where it possible to open discussions on specific topics, upload files, set the agenda, define and define the to-do priorities. In addition to the use of this tool the consortium used some web conferences to check the work progress, to discuss more in depth about specific topics of the project and to deal with some organizational issues.

1.3 Methodology

In order to develop the D 1.1 the following methodology has been used:

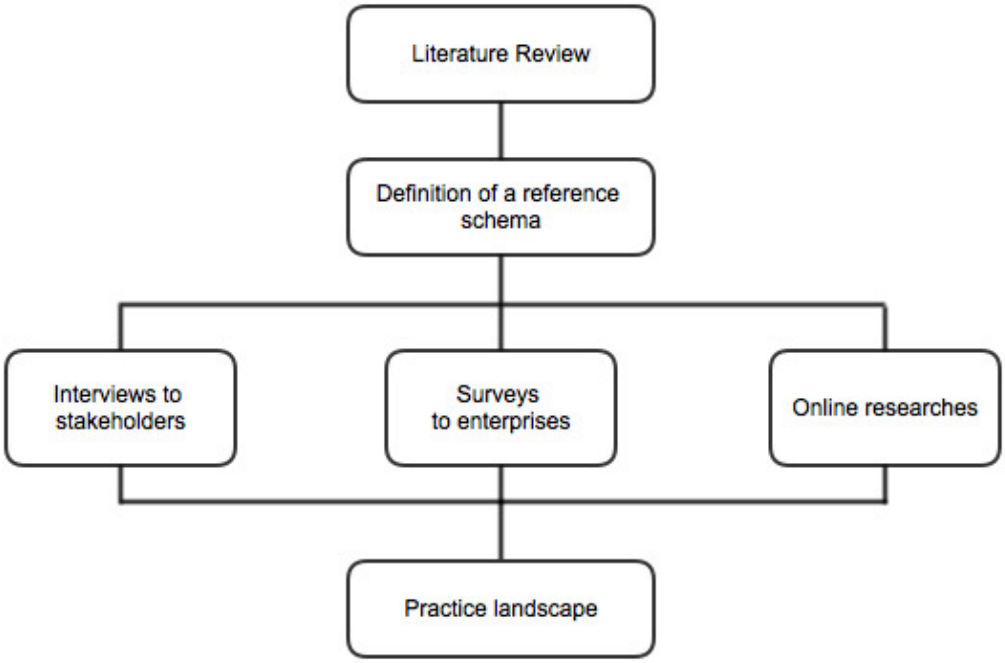


Figure 1.2-Methodology_D 1.1

From the graphic of the methodology it is possible to identify four main steps:

1. Literature review: this part is dedicated to the analysis of scientific papers and documents in order to assess how social *sustainability in manufacturing* has been handled in literature until now.
2. Reference schema: this chapter is dedicated to the definition of a model able to capture what is in general terms *social sustainability in manufacturing.* The definition of the general model is useful to define the main the stakeholders' categories involved in the social ecosystem of the factory.
3. Methods to gather social practices: this part aims at gathering practices of *social sustainability in manufacturing*. Three different methods were used to have a broader and more complete picture about social practices. The methods used are the following:
    - Surveys: provided only to manufacturing companies in order to obtain their perspective about social sustainability.
    - Interviews: used only with some stakeholders of general model in order to capture their perspectives about practices of social sustainability that can be put in place together with factories.
    - Online research: we complemented findings with cases and examples of social sustainability taken from other sources such as companies' websites, report or external sources like ranking of the best companies to work in. This method was used to have a broader perspective considering also some point of views and aspects not touched in the surveys and interviews.
    -
4. Practices' landscape: in this chapter we organize all the results and we provide a unified model containing all the areas of the practices of social sustainability.

2 LITERATURE REVIEW

As described in chapter 1.3 on Methodology, we started from the analysis of the literature review in order to figure out how the concept of social sustainability in reference to the manufacturing was studied and analysed in the past.

The output of this step is useful to give a general picture of social sustainability in manufacturing in order to define the perimeter of analysis of the project.

In this preliminary search we started to search scientific papers about *social sustainability in manufacturing* using the following keywords:

- *Social + Sustainability + Manufacturing*

We searched many resources at the same time using the library services of Politecnico di Milano (Books and journals, Theses, Articles from journals, E-books and e-journals, Databases, As well as a selection of Other articles of Architecture and Engineering).

http://www.primo.polimi.it/primo_library/libweb/action/search.do?dscnt=0&fromLogin=true&dstmp=1392901176570&vid=base&vid=base&backFromPreferences=true

All the results didn't provide a match between the two keywords *social sustainability* and *manufacturing* thus, we didn't find papers that perfectly fit our starting research.

For this reason we enlarged the field of analysis of our research, starting from the concept of *sustainability* and *social sustainability*. In this sense we performed some researches with the following keywords:

- *Sustainability*
- *Social + sustainability*

Once enlarged the field of analysis, we organized and classified the topics in a funnel modality:

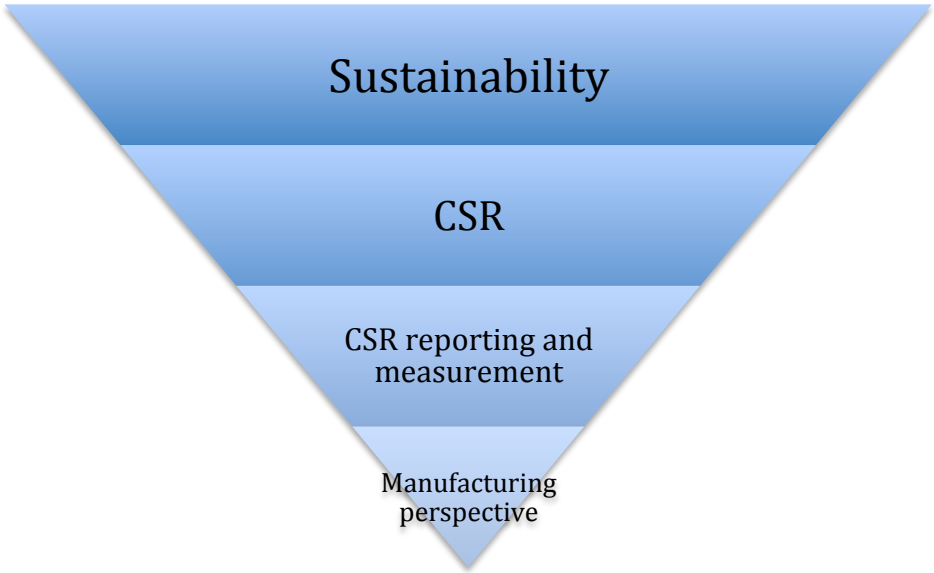


Figure 2.1- Literature review

2.1 Sustainability

The concept of sustainability emerged at the end of the eighties in the World Commission on Environment and Development report, which, instead of assessing the state of natural resources, highlighted possible ways to combine economic growth with environmental and societal issues. In particular, the following definition of sustainable development was provided: '*Development that meets the needs of the present without compromising the ability of future generations to meet their own needs*' (World Commission on Environment and Development (WCED), 1983).

In the last years there is an increasing pressure and interest on the themes of sustainability on the business, declined under different perspectives by the different stakeholders involved in the network.

In order to provide a clear picture of what sustainability is, it should be useful introduce the concept of *triple bottom line.*

The phrase "the triple bottom line" was first coined in 1997 (Elkington, 1997), the founder of a British consultancy called SustainAbility. His argument was that companies should be preparing three different (and quite separate) bottom lines. One is the traditional measure of corporate profit—the "bottom line" of the profit and loss account. The second is the bottom line of a company's "people account"—a measure in some shape or form of how socially responsible an organisation has been throughout its operations. The third is the bottom line of the company's "planet" account—a measure of how environmentally responsible it has been. The triple bottom line (TBL) thus consists of three Ps: profit, people and planet. It aims to measure the financial, social and environmental performance of the corporation over a period of time. Only a company that produces a TBL is taking account of the full cost involved in doing business.

These three perspectives: economical, environmental and social should be considered at the same time by a company, in order to be able create value not only in the short term but also in the long run with a sustainable business.

As a general definition we can consider as sustainability the intersection area of the economical, environmental and social perspectives. The following figure provide under a visual point of view what is the concept of *triple bottom line* and *sustainability* in general:

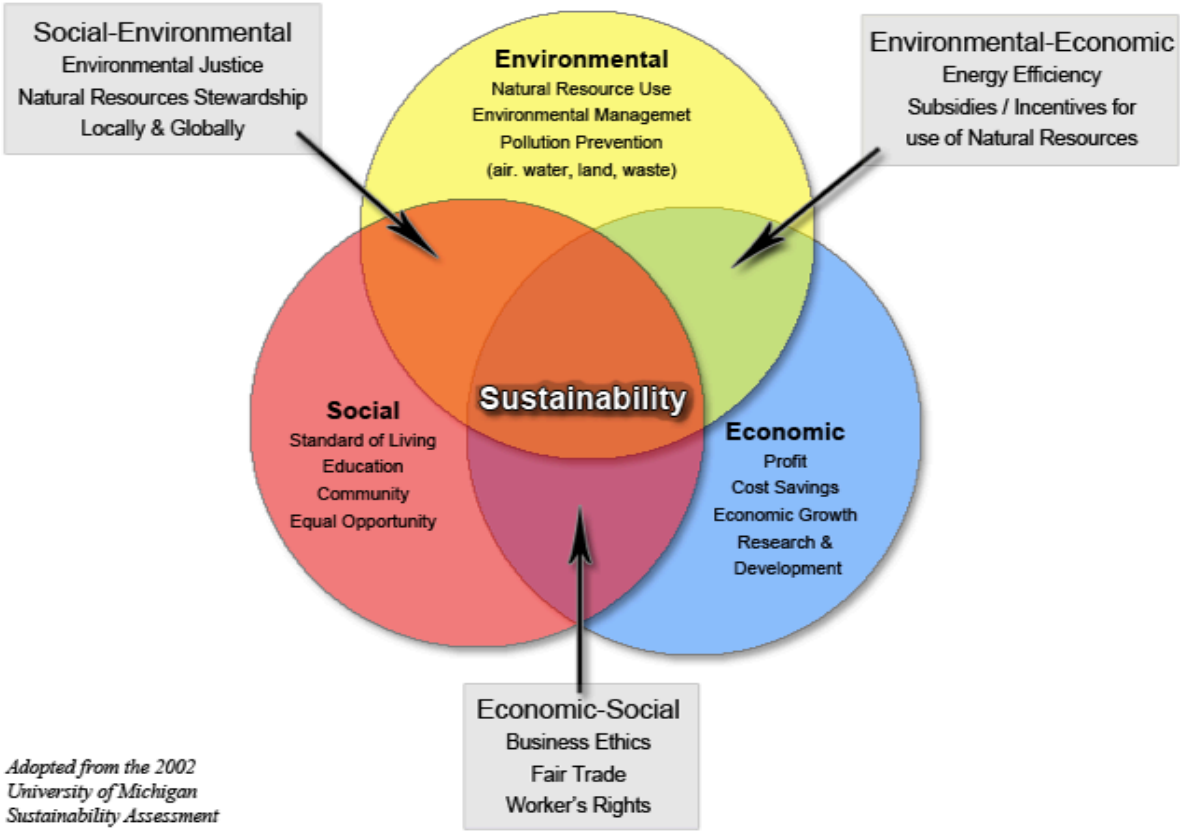


Figure 2.2- Triple bottom lines (TBL)

Nowadays companies cannot pursue anymore their profit maximization neglecting their sustainability toward society and environment. This is due by the fact that companies operate in more complex and larger interconnected environments, characterized by the presence of multi-stakeholders that have different objectives and priorities that must be taken into account at the same time.

In such context companies should aim at stakeholder satisfaction, which is not always equal to the net present value maximization. This brings to a net present value sustainable preservation over the time.

In the SO SMART project we have to take into account the perspective of social and economical sustainability trying to decline it for the manufacturing.

2.2 Corporate social responsibility (CSR)

In literature we found several papers and documents dealing with the macro-area of Corporate Social Responsibility (CSR). The concept of CSR refers to companies in general and, thus, it is suitable also for manufacturing companies.

The CSR construct describes the relationship between business and the larger society. Actually in literature it doesn't exist an exact definition of CSR, but it has been interpreted in different ways over the time and occasionally in opposite ways.

There is an impressive history associated with the evolution of the concept and definitions of CSR. (Carroll, 1999) traces the evolution of the of the CSR construct from the late 1950s till the 1990s. The 1950s marks the modern era of CSR, while its definition expanded during the 1960s and proliferated during the 1970s. In the 1980s, there were fewer definitions, more empirical research, and alternative themes began to mature. In the 1980s there were fewer new definitions, more empirical research, and alternative themes began to mature. These alternative themes include corporate social performance (CSP), stakeholder theory and business ethics theory. In the 1990s, CSR continues to serve as a core construct but yields to or is transformed into alternative thematic frameworks.

Nevertheless it makes sense to focus our attention only on the most relevant and most recent contributions in terms of definitions and models that are suitable our research.

The economist Milton Friedman contributed to the creation of a general CSR theory by asking questions such as "*Should companies take responsibility for social issues?*" (Kok, Weile, McKenna, & Brown, 2001). He argued that the only social responsibility of business is to increase profits by legal means. Consequently, the use of organizational resources for the larger good, such as donating to charities, is detrimental to firms since it may decrease profitability or increase product prices or both (Carroll, 1999).

Critics of this perspective argue that business exists to serve the greater community as well as direct beneficiaries of the company's operations. Accordingly, CSR may be defined in general terms as "*the obligation of the firm to use its resources in ways to benefit society, through committed participation as a member of society, taking into account the society at large and improving welfare of society at large independent of direct gains of the company*" (Kok, Weile, McKenna, & Brown, 2001). Consistent with this approach, (Carroll, 1999)identified four components of CSR: economic, legal, ethical, and discretionary or philanthropic. The economic component is business's fundamental responsibility to make a profit and grow. The legal component is their duty to obey the law and to play by "the rules of the game." The ethical component is their responsibility to respect the rights of others and to meet the obligations placed on them by society that ensures these rights. Finally, the discretionary component involves philanthropic activities that support the broader community.

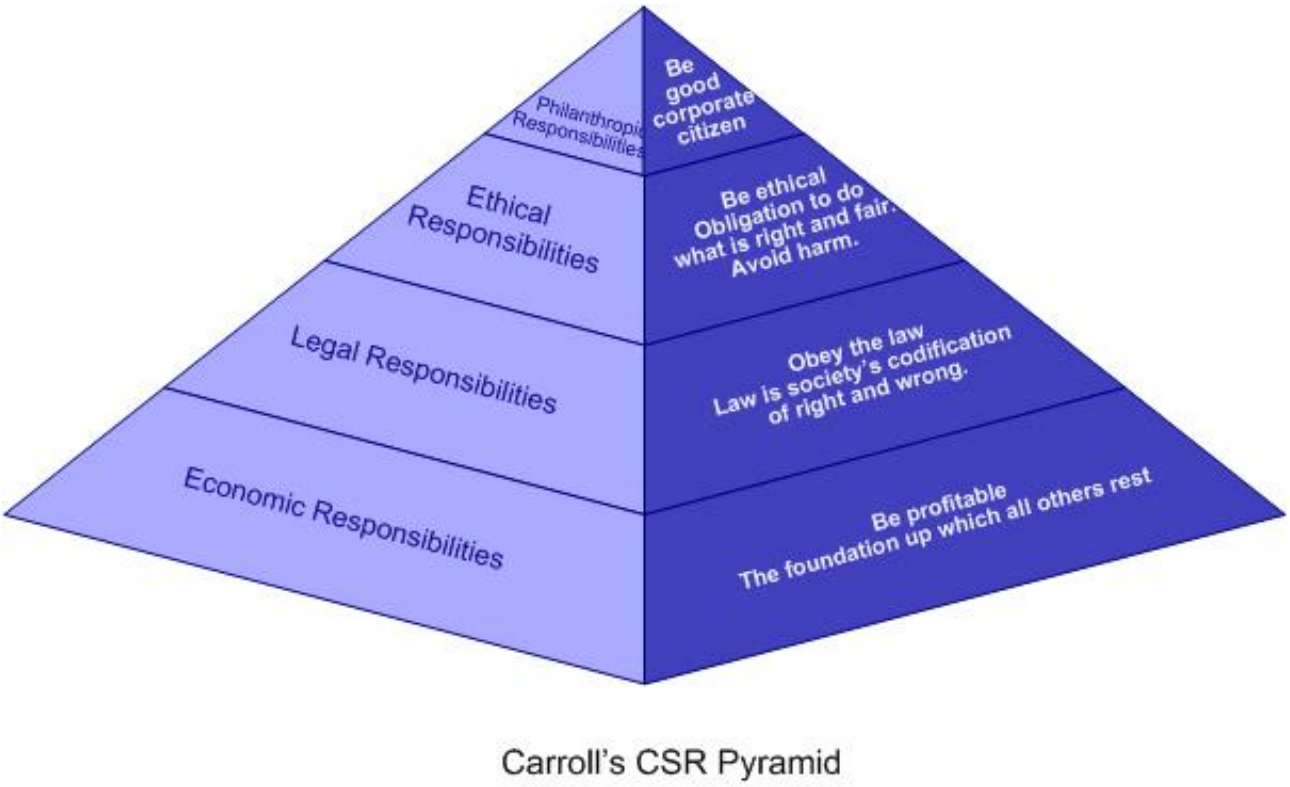


Figure 2.3- Carroll's CSR Pyramid

Unsurprisingly, if as (Carroll, 1979) seems to suggest there is a motivational element embedded within these dimensions, he also suggests that traditionally the legal and economic dimensions have stood to the fore, rather than the ethical and discretionary.

In this respect, the explanation of CSR as a concept points to what seems to be at the core of most of its definitions, the recognition that businesses, in counterpoint to Friedman's dictum (Friedman, 1970), have responsibilities that go beyond the legal and economic.

This further points to an alternative approach to defining CSR which is more closely aligned with the notion of sustainability through the concept of the triple bottom line. Here then, CSR relates to a firm's responsibilities that extend beyond the purely legal and economic, but also encompass responsibilities to a wider range of stakeholders (social responsibilities) and the environment (environmental responsibilities). In this sense we may also speak of triple bottom line reporting, and the analogy to the triple bottom line also holds when we look at the arguably most widely adopted CSR reporting standard, the Global Reporting Initiative (GRI). Here, (Nikolaeva & Bicho, 2010) explain that while GRI indicators initially focussed on environmental performance only, this was then extended to include social performance (e.g. labour conditions and human rights) and economic performance (e.g. economic impact on customers, suppliers, employees, capital providers and the public sector).

A research paradigm that parallels Friedman's and Carroll's perspectives is stakeholder theory, whereby business is considered responsible on such dimensions to specific stakeholder groupings (Maignan & Ralston, 2002). Stakeholders are identified and categorized by their "interest, right, claim or ownership in an organization" (Coombs, 1998). While there is some variance in the designation of appropriate clusters, customers, employees, suppliers, and the community are nearly always considered pertinent. Research, with U.S. corporations and U.K., firms reveals that companies often report socially

responsible behaviours in terms of such specific stakeholder groups (Robertson & Nicholsom, 1996). Hence, stakeholder theory provides a useful framework to evaluate corporate social responsibility through social reporting activities.

The stakeholder theory can also be applied to manufacturing world as a framework to define the social ecosystem with all the stakeholders involved, their relationships (See chapter 4) and it can be useful to identify and map the social practices put in place (See chapter 5-6).

Another interesting theme developed in the 1990s under the umbrella of CSR was the corporate social performance (CSP). CSP is broadly concerned with the effect of business behaviour on society. Organizations are recognized as having social responsibilities to multiple stakeholders in addition to the financial responsibilities to economic shareholders. Institutional theory holds that stakeholders have expectations for how organizations should behave and evaluate CSP against these standards. Failure to meet the standards results in an organization being viewed as illegitimate. Perceptions of illegitimacy precipitate social criticism and conflict with stakeholders. Such judgments do matter to an organization, because legitimacy has been linked to the successful operation of an organization. Institutional theory distils CSP down to legitimacy meeting the social rules or expectations of stakeholders (Robertson & Nicholsom, 1996).

2.3 CSR measurement and reporting

As sustainability has been recognized as a global challenge, public authorities, institutions and individuals representing the scientific, technological and industrial environment have started discussing how they should contribute to address this issue. Corporations have become aware of their environmental and social responsibilities, encouraged by regulators and media. Corporate Social Responsibility (CSR) practices have become more and more common, although often fragmented and disconnected from the business strategy.

Corporate social reporting is a method of self-presentation and impression management conducted by companies to insure various stakeholders are satisfied with their public behaviours (Hooghiemstra, 2000). (Gray, Owen , & Adams, 1996) define corporate social reporting as “the process of communicating the social and environmental effects of organizations’ economic actions to particular interest groups within society and to society at large.”

Snider et all 2003 did a qualitative study examining the content of what firms are communicating to various stakeholders about their commitment to socially responsible behaviours; in terms of the legal, ethical, moral and social statements available on the websites of Forbes Magazine’s top 50 U.S. and top 50 multinational firms of non-U.S. All these statements were sorted and categorized by stakeholder using the stakeholder theory. In this sense findings of (Snider, Hill, & Martin, 2003) are useful to provide us the list of all stakeholders addressed usually by external reporting on CSR (Corporate social reporting).

The results of this investigation can be synthesized to provide a gestalt of the ways in which the most successful firms globally describe their corporate social responsibility on the World Wide Web. General value statements set the ethical tone for organizations’ relationships with internal and external stakeholders and influence the content of CSR messages. Broad environmental policies flow naturally from these statements, and they are designed to inform various constituencies of firms’ commitment to the larger ecology as it intersects with their operations or marketplace.

With regard to specific stakeholder groupings, three stand out as essential to the ultimate success of companies – customers, employees, and owners, with the broader concept of society as a background.

- **Customers:** current and prospective consumers receive messages that emphasize the value of goods and services. Such value creation is based upon a partnership that focuses on understanding and satisfying their perceived needs.
- **Employees:** CSR messages for employees concentrate on skill development and career enhancement for the betterment of workers as well as corporations. These statements direct attention to diverse employees and suppliers, highlighting issues of gender and race.
- **Shareholders:** stockholder messages discuss the importance of trust gained through the use of honest, inclusive, and timely communications. Advancing the net worth of ownership by marketing high-quality products also is stressed.
- **Society (local community, nation, world):** a final more expansive constituency is composed of society at large, and this stakeholder group is trisected into local, national, and worldwide communities. At the local level CSR messages espouse activities that are designed to improve the neighbourhoods in which employees work and live. At the nation-state level organizations use statements describing their attempts to advance important national interests of particular countries, especially during times of great urgency or need. Finally, at the worldwide level firms present their concerns about and efforts to enhance the quality of life of citizens using the opportunities inherent in their product offerings.

Measuring CSR performance remains still a challenging task (Morimoto, Ash, & Hope, 2005). CSR performance is a social construct and not some physical property where access to its true state may be relatively straightforward. Any assessment of a company or companies' CSR performance will therefore depend on how CSR is measured. (Ullmann, 1985) for example discerned two categories of CSR measures: social disclosure (including voluntary corporate social reporting and mandatory pollution reporting) and social performance, which might ideally use a reputational index or some other form of third party ranking/rating system. However, (Ullmann, 1985) concedes that often social disclosure is used as a surrogate for actual CSR performance. A similar issue arises in (Wood, 2010). Here she provides examples of numerous corporate social performance (CSP) variables according to principles, processes and outcomes. Many of these variables are subsequently measured in company and stakeholder self-reports, i.e. self-disclosure (e.g. existence of environmental scanning, charitable giving, and employee perceptions of company CSP). These distinctions between CSR performance and its measurement and its reporting are important to bear in mind. Ideally there will be a great degree of congruence between them, but this cannot be taken for granted.

Awareness and uptake of sustainability reporting their CSR activities (KPMG International , 2008) has increased dramatically in recent years. Many organizations consider sustainability reporting to be necessary and beneficial. For these reasons nowadays there are prevalent standards for sustainability measuring and reporting, and aim at making sustainability reporting standard practice for all organizations.

(Global Reporting Initiative GRI) is a non-profit organization that promotes economic sustainability. It produces one of the world's most prevalent standards for sustainability reporting, and it seeks to make sustainability reporting by all organizations as routine as, and comparable to, financial reporting.

Considering the focus of our project, GRI points out four aspects of Social Sustainability:

- Labour Practices and Decent Work
- Human Rights
- Society
- Product Responsibility

According to the Dow Jones Sustainability World Index Guide (Dow Jones, 2013) " *The integration of sustainability criteria into traditional financial analysis helps [...] to evaluate companies' quality of management and future performance potential. This in turn enables [...] to identify attractive investment opportunities that can generate long lasting value for our clients.*
This definition highlights the interesting concepts of future performance potential and "long lasting value". Established in 1999, as the first ever family of global sustainability benchmarks, the Dow Jones Sustainability Indices (DJSI) have become a reference point in Sustainability Investing. Launched jointly between S&P Dow Jones Indices and RobecoSAM, the DJSI combine the experience of an established index provider with the expertise of a specialist in Sustainability Investing to provide investors with objective benchmarks for managing their sustainability investment portfolios.

The problem of assessing social progress has been addressed also in the Stiglitz's report (Stiglitz, Sen, & Fitoussi, 2009): novel approaches have been proposed for measuring quality of life from an objective perspective, considering health, education, personal activities, political voice and governance, social connection, environmental conditions, personal insecurity, economic insecurity, but also from a subjective perspective and including a comprehensive assessment of inequalities.

The concept of social sustainability is embedded in the concept of sustainability. According to Stiglitz's report "*sustainability poses the challenge of determining whether we can hope to see the current level of well-being at least maintained for future periods or future generations, or whether the most likely scenario is that it will decline*."

2.4 Social sustainability in manufacturing

As already said in literature we didn't find a clear match between the two keywords *social sustainability* and *manufacturing.* This because the notion of social sustainability has been developed aiming at global growth. Policy makers have elaborated on this concept at regional and country level, institutions and associations representing the scientific and technological environment have proposed their visions. Enterprises have adopted Corporate Social Responsibility practices. In this context, the role of manufacturing may have appeared so far limited to the specific aspects related to the workplaces. However, a broader perspective can lead to an extended awareness on how manufacturing can contribute to the social sustainability.

At the macro level, the main stakeholders further elaborate on the themes of research, innovation and education as the key enablers for shaping the future, frequently adopting a participative approach, based on discussion and public consultations. The European Factory of the Future Research Association (EFFRA, 2012) has undertaken an open consultation on the proposed research roadmap, which includes several topics tightly related with social sustainability, increasing human achievements in future European manufacturing systems, creating sustainable, safe and attractive workplaces for Europe, creating sustainable care and responsibility for employees and citizens in global supply chains.

On different levels, scientists are developing new theories in order to better support from a theoretical viewpoint the integration of social sustainability in the disciplines and practices of manufacturing. A framework for increasing and assessing sustainability awareness among scientists has been developed as a contribution to better integrate sustainability concepts in production research activities (Johansson, et al., 2012). In recent years, following to the well-known trends of globalization, transformation from vertical value chains to open value networks, web 2.0, crowdsourcing, dematerialization, virtualization and so on, management theory has developed new approaches which are more coherent with the emergent business and social landscape, leveraging the human factor along with technology enablers. Some researchers have recommended that management should evolve to foster trust and teamwork; to create a fluid, flexible, customized work community environment; to decompose vertical organizational structures towards inter-intra organizational networks with emergent new roles for facilitators and brokers; to create new exciting, entertaining and challenging workplaces for young people (McDonald, 2011). Others promote a cultural change as the solution to reinforce the companies' commitment towards more innovative ways to manage workforce, in a work-life integrated perspective (Harrington & Ladge, 2009). Relations between organizational factors, individual psychological status and eventually behaviour have been studied for many years under different perspectives and facets. Although the picture is really complex and often fragmented, evidence of relations between contextual factors and individuals empowerment have been demonstrated (Siegall & Gardner, 200).

In recent years, analysis on employees wellbeing highlights that more than in the past, individual have to deal with different objectives, desires, expectations and responsibilities, which can be clustered in two main categories of work and life. According to (Bourne , Wilson, Lester, & Kickul, 2009), "dual-centric experience" provides "more overall satisfaction, greater work-life balance, and less emotional exhaustion", that organization should take care of employees as whole individuals in order to enhance their wellbeing. Companies that implement policies in this sense, giving support for family responsibilities, improving employee health, leaving more time away from work, pursuing education and training, and supporting voluntarism appear to better perform on the financial side as well. Better performance can be related to the capability to attract and retain employees, to more effective behaviour of more satisfied employees, but also to better reputation of the company. Further studies (Baptiste, 2008) confirmed that line management support and trust is of the utmost importance to establish good relations with employees and thus subsequently favouring employee wellbeing at work.

In (Lages, 2012), the survey's results suggest that company should *"create a workplace environment in which workgroup support takes place on a continuous basis. Moreover, managers should place greater relative emphasis on promoting and developing employees' organizational commitment given its high impact on favourable external representation behaviour. These actions will, ultimately, improve the company's performance."*

With the increase of complexity and dynamicity of the business and manufacturing environment, and with automation and information technologies becoming more and more pervasive in the factory and in the supply chain, human intelligence knowledge and expertise is highly appreciated. The human-centricity has become a goal for the design and innovation as "the development of a product requires that always be taken into account the perspective of the people who build, maintain and operate it" (Mavrikios, Karabatsou , Pappas, & Chryssolouris, 2007). "Meta-design theory emphasizes that future use can never be entirely anticipated at design time, as users shape their environments in response to emerging needs; systems should therefore be designed to adapt to future conditions in the hands of end users", as stated by (Maceli & Atwood, 2011). This concept stands for end-users in domestic environments as well as for employees in a working environment, where co-designing and

”human centeredness” are applied in organizational development settings (Kronqvist & Salmi, 2012). According to (EFFRA, 2012) manufacturing is evolving from being perceived as a production-centric operation to a human-centric business with greater emphasis on workers, suppliers and customers in-the-loop”. Manufacturing 2.0 (Majumdar & Szigeti, 2011) envisions “workers and managers alike given more opportunity for continuous development of skills and competences through novel knowledge-delivery mechanisms”. The human centricity paradigms involves inclusion for young and elderly people: “Future enterprises will not only be better equipped for transferring skills to a new generation of workers but also proficient in assisting older workers with better user interfaces, intuitive user-experience-driven workflows and other aids, such as mobile and service robots. Furthermore, Manufacturing 2.0 enterprises would be equipped with interactive e-learning tools to facilitate students, apprentices and new workers gaining understanding of advanced manufacturing operations involving new ICT paradigms” (Majumdar & Szigeti, 2011).

2.5 Dimensions of social sustainability

Defining social sustainability objectives and their corresponding indicators is a challenging task a) due to the multilevel, multi-stakeholder and multifaceted nature of the addressed themes, b) due to the interaction with environmental, economic and institutional aspects, and, finally c) due to the uncertainty about the beliefs and models to be used as a reference. However, the need to monitor and steer sustainable development has challenged policy makers and the scientific and technological community to develop studies for the definition of applicable assessment methods and tools.

Papers, reports and literature reviews on social sustainability assessment, such as (United Nations, 2007),(Paju, Heilala, Hentula, Heikkila, & Joahansson, 2010),(Feng & Joung, 2009),(Omann & Spangenberg, 2022),(Joung, Carrell, Sarkar, & Feng, 2012),(Hutchins & Sutherland, 2008),(Benoit, Vickery, & Niederman, 2011), clearly show that priority is given to the definition of appropriate set of indicators as practical means to evaluate and compare performances either at macro and at micro level. However, there is a great fragmentation in the conceptual frameworks, so that different dimensions appear in alternative or intermingled lists, used to collect and group indicators. In general, the following limitations can be observed:

- lack of conceptual clarity in the definition of the dimensions to be assessed, with frequent confusion between impact categories (i.e. child labour, consume privacy), objectives (i.e. equal opportunities), subjects’ implementation of policies (i.e. labour practices, respect of indigenous rights) stakeholders groups (i.e. workers, consumers);
- shortfall in the identification of the stakeholders;
- poor awareness and representation of the relationships and inter-linkage among and within the dimensions and the indicators.

In the available schemas indicators have been set in relationship with each of the different dimensions, relevant for manufacturing social sustainability, as illustrated in Figure 3.3, but the interdependencies among these dimensions have not been explicated.

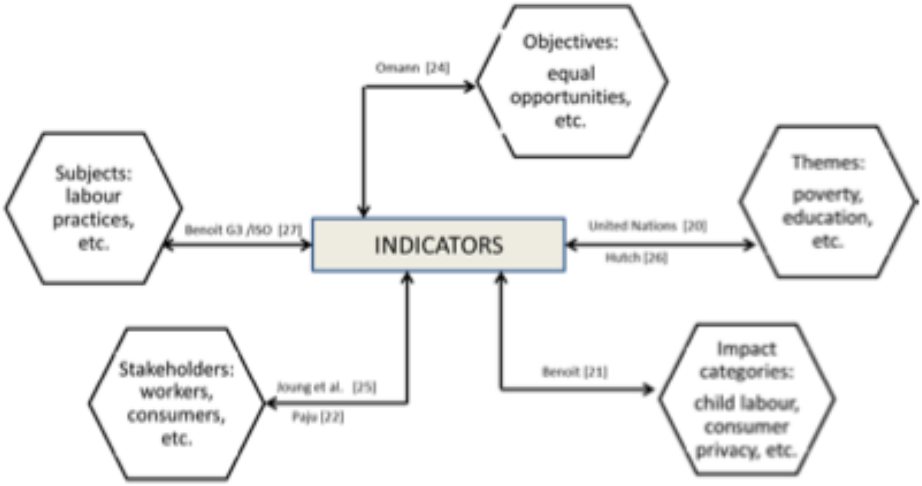


Figure 2.4- Dimension of social sustainability in relationship with indicator (P. Fantini, M. Taisch, C. Palasciano)

3 SOCIAL SUSTAINABILITY: REFERENCE SCHEMA

From the analysis of the literature we didn't find specific definitions or schema/model on what is *social sustainability in manufacturing*.

Anyhow this preliminary analysis has been useful to identify the ground of analysis and to help in developing a general framework to analyse the social sustainability in manufacturing.

Nowadays companies in general and also manufacturing companies operate in interconnected environments with:

- Multi-stakeholder
- Multi-objectives

This consideration leads to develop a framework of analysis that is based on the definition and classification of the main stakeholders' categories involved in the *manufacturing social system* and their relationships with the factory.

Before starting to present the model of the manufacturing social system it is important trying to define the concept of stakeholder. Stakeholders are broadly defined as any persons or group that can affect or be affected by an organization.

Stakeholders can be classified in different ways according to different perspectives and goals.

According to (Clarkson, Donaldson, & Preston, 1995) stakeholders are more precisely conceptualized as two distinct variants: primary and secondary. *Primary stakeholders* are those whose actions can be harmful or beneficial to an organization. Without the continued interaction of primary stakeholders, an organization would cease to exist. Common primary stakeholders include employees, investors, customers, suppliers, government, and the community. *Secondary stakeholders*, or influencers, are those who can affect or be affected by the actions of an organization. Common influencers include the media, activists, and competitors.

It is deceptive to assume that an organization can always meet the demands of all of its stakeholders all of the time. Stakeholder demands are often contradictory and organizations must choose whose needs will be met and whose will go unfulfilled.

Organizations must be able to decide which stakeholders count in a given situation. The relative importance of stakeholders can and does shift according to the situation. For instance, local voters in the community are salient when a local referendum essential to business interests is on the ballot but of little concern when an organization faces a massive recall over a defective product. Part of understanding which stakeholders are the most important in a given situation is an analysis of the organization-stakeholder power dynamic. The greater the power of an organization to resist a stakeholder, the less the organization has to worry about or concede to that stakeholder's demands. Conversely, the more powerful the stakeholder, the less an organization is able to resist its demands (Clarkson, Donaldson, & Preston, 1995).

In the chapter 3.1 we will outline two significant methods of evaluating stakeholder importance: the tri-dimensional and the network approaches.

3.1 Importance of stakeholders: tri-dimensional approach

(Mitchell, Agle, & Woo, 1997) explain stakeholder salience in terms of three dimensions: power, legitimacy, and urgency. *Power* is the ability to get an actor to do something the actor would not do otherwise. X has power over Y when X can get Y to do something Y would no ordinarily do. *Legitimacy* refers to actions being defined as desirable, proper, or appropriate according to some belief system. Urgency is a call for immediate action, the issue is time sensitive and/or of critical importance to the stakeholder. The more attributes a stakeholder group has, the greater the salience that group has for management. However, attributes are variable because a stakeholder can possess different attributes at different times. (Mitchell, Agle, & Woo, 1997) offer a system for categorizing stakeholders that is based on the three attributes.

The classification system is composed of three basic classes. A class is a function of how many attributes a stakeholder has. A latent stakeholder has only one attribute, an expectant stakeholder has two attributes, and a definitive stakeholder possesses all three attributes. The latent and expectant classes each have three sub-classes. Latent stakeholders can be dormant (power only), discretionary (legitimacy only), or demanding (urgency only). Expectant stakeholders can be dominant (power and legitimacy), dependent (legitimacy and urgency), or dangerous (urgency and power). The specific sub-classes help to determine the salience of a stakeholder. The various sub-classes create different types/magnitudes of stakeholder salience. For example, a dominant stakeholder is assured influence in an organization since all that is required is urgency. A dangerous stakeholder, on the other hand, is a threat to become coercive because of its illegitimate status, it has only power and urgency (Mitchell, Agle, & Woo, 1997).

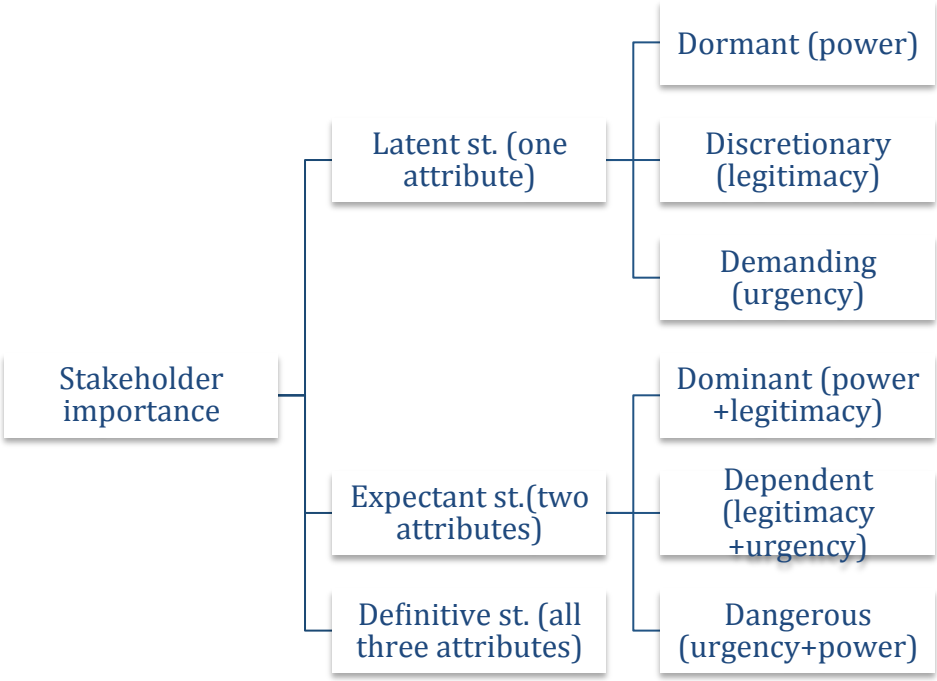


Figure 3.1- Stakeholder_Tri-dimensional classification

3.2 Importance of stakeholders: network approaches

Rowley argues that it is misleading to examine the stakeholder-organization relationship in isolation. Because, organizations simultaneously have relationships with many stakeholders, these other relationships must be taken in to consideration when examining any one relationship. A given stake- holder relationship exists within a network of other organization-stakeholder relationships. A stakeholder's importance to management becomes a function of the stakeholder's position within the network. The greater the density and centrality of a stakeholder in the network, the more power that stakeholder has in the relationship. Density refers to the number of links a stakeholder has with other members of the network. High density means that the stakeholder can communicate widely across the network. Density increases power for two reasons. First, density makes it easier to monitor organizational actions because information is being collected from multiple sources. Second, as stakeholders become interconnected, they will come to share similar behavioural expectations for the organization. Regular communication with one another facilitates the sharing of standards for corporate social performance.

Centrality has three, interrelated parts: (1) closeness, (2) degree, and (3) betweenness. Closeness is the extent to which a stakeholder can access all other members of the network whereas weak closeness means the stakeholder has limited access to others in the network. Strong closeness means a stakeholder has independent access to others in the network. Degree refers to the total number of ties to other stakeholders. Strong degree means a stakeholder is well connected in the network, has a large number of connections to other stakeholders. Betweenness is the ability to control access to other members of the network. High betweenness indicates that a stakeholder acts as a gatekeeper for one or more stakeholders (Rowley, 1997).

3.3 Social sustainability: Reference schema

Once clarified the concept that manufacturing companies operate in multi-stakeholders and multi-objectives environment, and once identified the main theories able to describe the importance of each stakeholder; it is fundamental proceeding with the identification and classification of the stakeholders categories involved in the *manufacturing social system*.

Focusing on the *primary stakeholders* it is possible applying a further classification:

a) Internal stakeholders: all the stakeholders that are internal respect to the factory entity. Employees in general (white or blue collars) belong to this category.

b) External stakeholders: all the stakeholders that are influenced by the decisions and practices of the factory concerning social sustainability. In some cases they can collaborate or they can actively put in place actions and practices with the factory that can lead to a better socially sustainability of the entire ecosystem.

Once identified the two main classes of stakeholders (internal, external) we proceeded with the definition of the main stakeholders' categories involved in the *factory social system.*

Internal stakeholders	External stakeholders
• Employees (white and blue collars)	• Shareholders • Customers • Society (local level, nation, world) • Suppliers (suppliers, business partners) • Associations (union trade, companies associations…)

A picture of the *Reference schema* follows:

Figure 3.2-Reference schema

With this schema it is possible to underline that not only a company can put in place strategies, and practices of social sustainability. In fact there are multi-directional flows between factory and every stakeholder, overcoming the idea of social sustainability as "impacts".

The arrows between stakeholders and the manufacturing company are multi-directional because a company can put in place specific practices that address a particular or a set of stakeholders, it can collaborate with stakeholders or it can be addressed by the actions of stakeholders. Furthermore stakeholders can have interactions among themselves and with the manufacturing company.

From the factory's perspective it is possible classify three different kinds of relationship:

a) Active: all the practices and actions of social sustainability adopted by the manufacturing company. These actions cause different impacts on some stakeholders' categories.
b) Passive: all the practices/actions of social sustainability addressed by a stakeholder or a set of stakeholders towards the manufacturing company. These actions produce effect on the company.
c) Collaboration: in this case the company and a stakeholder collaborate together with joined actions to reach the social sustainability of the entire system. An example of these collaborations could be the collaboration between factory and for example universities to develop specific program to train students and successively attract and hire them.

The reference schema wants to present the ecosystem that imply also active an involvement of the "social system" together with the company; in that sense this schema is able to show a kind of "coevolution" rather than pure effects or impacts.

The identified categories included in the external stakeholders are the following:

Shareholders	It is one of the most important stakeholders' categories since it embeds also the economical perspective that company should always take into consideration. There are some studies that show in some cases that corporate social performances (CSP) are positively related to corporate financial performances (CFP) (L. Barnett 2012). The shareholders' awareness on themes like environmental and social sustainability is becoming more and more important, because this aspects impact on the possibility of the company to generate value over the time. This situation is pushing the companies in general, and also the manufacturing ones to consider these aspects as fundamental aspects to be embedded in an integrated way within the vision and the strategy of the company. The external reporting about practices of social sustainability toward shareholder (Corporate social reporting) is becoming widespread across big companies.
Customers	The awareness of customers and potential customers for social themes is increasing and it can affect the choice to buy or not a specific product. For example if a manufacturing company doesn't respect practices on child labour the capability to sell to end customers these products could be irreversibly affected with permanent image damage. Social aspects emphasize the value of the goods.
Society	This stakeholder group is trisected into local, national, and worldwide communities. • At the local level social practices are designed to improve the neighbourhoods in which employees work and live. • At the nation-state level a social sustainability attempts to advance important national interests of particular countries. • At the worldwide level firms present their concerns about and efforts to enhance the quality of life of citizens using the opportunities inherent in their product offerings.

Supply chain/business partners	It is fundamental considering also the supply chain behaviours in terms of social sustainability. Many companies require also social standards certifications from their suppliers, because their behaviours affect the capability to create value trough final products under all perspectives. This stakeholder category is increasing its importance especially in the last decades where the model of hierarchical pure integration has been abandoned in favour of value chain model characterised by decomposition of vertical organizational structure and many actors involved. This category include all the business partners involved in the innovative business models characterized for examples by open innovations and crowdsourcing where the final customers can be at the same time investors and co-developer.
Associations	In this category there are a multitude of associations. There can be sub-categories: • Associations of firms: for example associations of SME to which the manufacturing company can belong, associations of a particular sector (automotive, appliances…) • Trade unions • Non-profit organization • ….

Table 3.1-General Schema_External Stakeholders

The identified categories in the internal stakeholders are the following:

Employees	This category includes one of the most important category to which the company addresses social practices. The capability to put in place effective social practices allow the company to increase the well-being of its employees, their happiness and consequently their productivity and proactivity. Inside this category there could be different perspectives of social sustainability according to white collars and blue collars given the differences in terms of needs, job characterization and so on. (For example telework can be suitable for white collars but not for blue collar working in a line). This can have good impacts also on potential employees; in fact a manufacturing with a recognized CSP toward employees can attract the best talents available in the markets. (i.e. total number of CVs received per years)

Table 3.2-General Schema_Internal Stakeholders

This structured model can be considered a useful framework of analysis to identify all the stakeholders involved in the manufacturing ecosystem. The general model can be used to define the state-of-the-art of social sustainability.
Considering the complexity of the subject, future researches will have to thoroughly investigate the complex network of cause-effect relationships and interactions, with the stakeholders involved, which connect manufacturing and its performances to the sustainability themes.

3.4 Social sustainability: corporate culture

Once identified the general schema with all its categories of stakeholder that are involved in the company's achievement of a social sustainable behaviour, it is import moving the analysis on the company.

Before starting gathering all the areas and practices of social sustainability this we need to define which are the elements of the corporate culture at the base of a manufacturing company that wants to be socially sustainable.

The starting point is the definition of the concept of corporate culture.

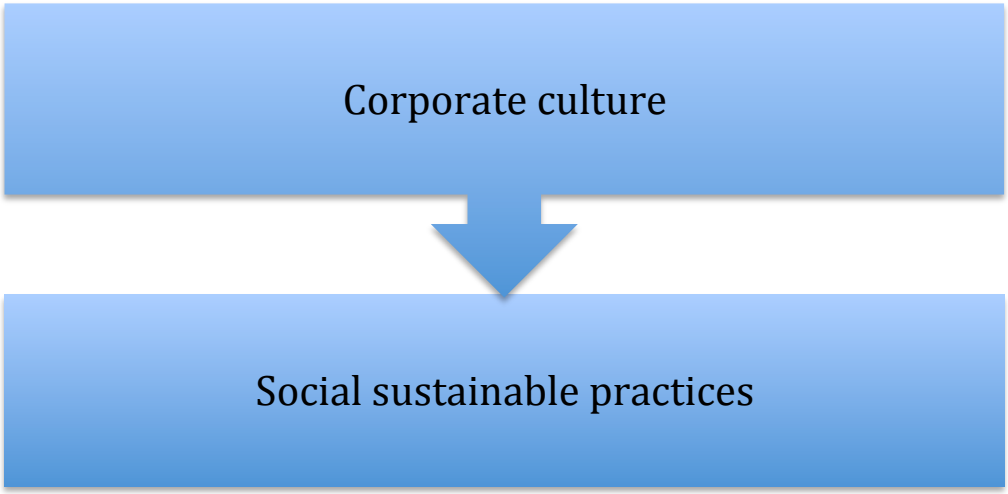


Figure 3.3-Corporate Culture_Social practices

Corporate culture is a complex and often undefined concept. Corporate culture may be defined as a shared history of experiences that gives rise to a pattern of basic assumptions reflecting the process of coping with the challenges the corporation has faced (Schein, 1990) (Schein , 2009).

These assumptions are backed by values and communicated to new members of the corporation (Schein, 1990) (Schein , 2009). Corporate culture includes workforce- and company- related aspects as well as aspects of external relations, and it is continuously shaped based on explicit and implicit value judgments, attitudes, norms, perceptions and ways of thinking that are embedded in a cultural context and expressed in organisational processes and communication patterns. With respect to the economic dimension, corporate culture may be considered intangible cultural assets that are the gateway for vision and strategies.

Schein (Schein , 2009) (Schein, 1990) identifies three distinct levels in organizational cultures: attitudes, values and artifacts.

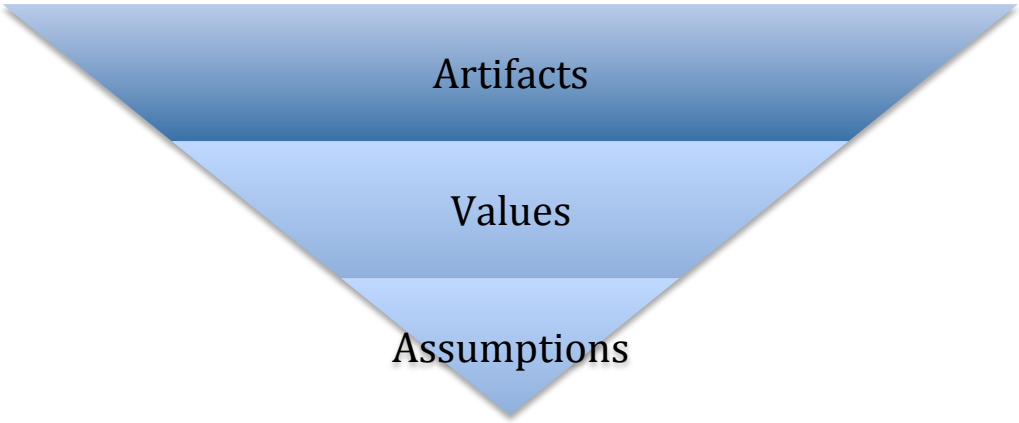


Figure 3.4-Schein_ Organizational Culture_ Three levels model

The three levels refer to the degree to which the different cultural phenomena are visible to the observer.

Artifacts are sensually perceivable and they include any tangible, overt or verbally identifiable elements in an organization. Some examples are architecture, furniture, dress code, etc. Artifacts are the visible elements in a culture and they can be recognized by people as part of the culture.

Values are the organization's stated values and rules of behavior. It is how the members represent the organization both to themselves and to others. This is often expressed in official philosophies and public statements of identity. It can sometimes often be a projection for the future, of what the members hope to become. Examples of this would be employee professionalism, or "family first" and “Personal values meet corporate values” mantra. Trouble may arise if espoused values by leaders are not in line with the general assumptions of the culture.

Assumptions are the deeply embedded, taken-for-granted behaviours, which is usually unconscious, but constitute the essence of culture. These assumptions are typically so well integrated in the office dynamic that they are hard to recognize from within.

(Schönborn, 2010) did an interesting study aiming at identifying variables of corporate culture determining corporate success or lack of success, based on the theoretical model of Schein (Schein, 1990). The results show that the profile of cultural variables of successful companies differs from the profile of cultural variables of unsuccessful companies in some central corporate aspects. According to study’s results, successful companies tend to value higher in corporate citizenship and responsibility, an explicit orientation towards competence, involvement, and job satisfaction of the employees, as compared to less successful companies. Employees tend to be more motivated and more satisfied, their personal limits are respected more clearly, and their health seems to be supported more actively. In contrast, less successful companies tend to value higher in formalisation of processes and diversity. The regression analyses strongly corroborate the evidence that corporate cultural factors in fact have an impact on corporate success in way that is of practical importance for managers (Schönborn, 2010).

Even though the analysis by itself will not allow for a causal interpretation, there are strong arguments for this, like a higher rate of information exchange and productivity when employees are motivated and satisfied and encouraged to generate ideas. Assuming anyhow a direction of causality, this paper provides some important directions for the manager in business practise:

- *Motivated, satisfied employees* have a strong impact on corporate success. The results suggest that it is important to *respect personal limits and to provide opportunities for further development* (e.g. opportunities for further education, advanced training or health promotion), and to create an *individual leeway* for personal development, which in turn requires tolerance and a culture of confidence.
- Another relevant factor is *a competence- providing* and *competence-oriented* climate that focuses on the development of strengths.
- The concept of corporate responsibility allows distinguishing between successful and non- successful companies. “*Lived” responsibility for social, ecological, and ethic targets might enhance identity formation.*

From this study it is possible to underline that the profile of cultural variables of successful companies embeds many factors related to different aspects of social sustainability.

4 METHODS TO GATHER SOCIAL PRACTICES

In the previous section, the ground for social sustainability in manufacturing has been set, the relevant dimensions have been identified and a general model has been proposed as a reference for collecting and analysing current practices.

Several techniques can be considered in order to gather information about current practices for social sustainability culture depending on the scope and objectives of the analyses to be performed.

In the context of this support action, the objective is to acquire knowledge about current practices across Europe. The aim is to explore the social sustainability landscape in European manufacturing, to understand if the dimensions and model defined through the previous research are coherent and consistent with the perspective of the industrial enterprises. Furthermore, to possibly capture some insights or acquire additional facets of the social sustainability that may have not emerged in the SO SMART project, but that are perceived by and significant to manufacturers.

These considerations led to the concept of a survey based on a questionnaire with close and open questions to be proposed to a small sample of companies of the most representative countries and sectors. The challenge being to obtain a significant picture of industrial companies' views and practices, while matching doesn't match the project constraints (time, effort, resources).

As already shown in chapter 1.3, additional techniques and tools have been planned in order to complement the state-of-the-art of practices of social sustainability collected from the companies with information coming from external sources.

We used the following approaches:

- Online surveys to companies
- Interviews to stakeholders
- Online research

There will be the possibility for willing manufacturing companies to fill in the survey even after the delivery of D 1.1 in order to have a more complete picture of the problem and refine the results. This is also valid for interviews to relevant stakeholders of the factory.

4.1 Online surveys

This online survey was sent to a sample of large companies and SMEs in different countries of the European community like Italy, Sweden, Germany, UK, …

The deployment of the survey was planned on the basis of the statistics on manufacturing elaborated by Eurostat and concerning the year 2010[1].

The number of enterprises to represent each European country was calculated according to three criteria: in proportion of the number of enterprise (one out of 50000); in proportion of the value added (one every 50.000.000 euro); in proportion to the number of persons employed (one out of 500.000 persons employed. An average of the values obtained for each criteria was calculated to define the target number of enterprise for each of the countries above the thresholds. The final target numbers of enterprises to be reached by the survey per country was checked for feasibility and refined by the Consortium and distributed among the partners.

[1] Appendix: Key indicators, manufacturing (NACE Section C), 2010

The aim of this survey is to explore how is conceived, interpreted and implemented and the practices of social sustainability put in place and which level of maturity of European manufacturing companies.

The general structure of the survey is the following:

1. General information
2. Sustainability profile
3. Practices for social sustainability focusing on factory and employees
4. Practices for social sustainability focusing on stakeholders and communities
5. Social sustainability maturity and measurement

Also in the survey we maintained the distinction between internal stakeholders at point 3 and external stakeholders at point 4 showed previously in the general model.

To see in detail the structure of the survey go to Appendix A-Survey.

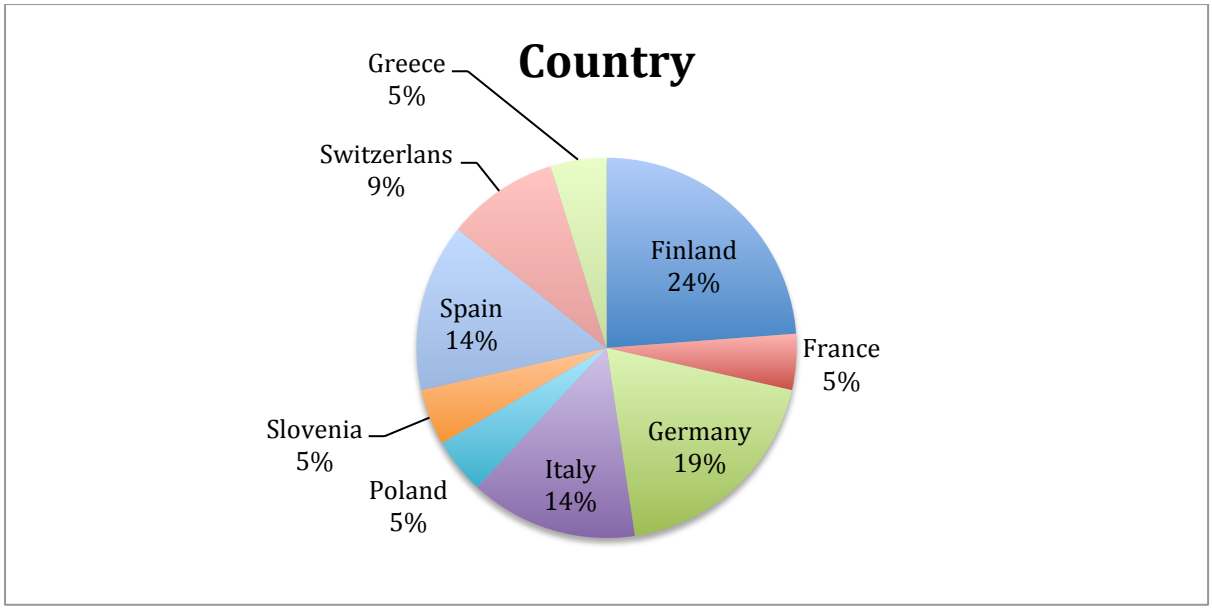
4.1.1 General information

The first part of the survey is dedicated to gather some general information about participating companies.

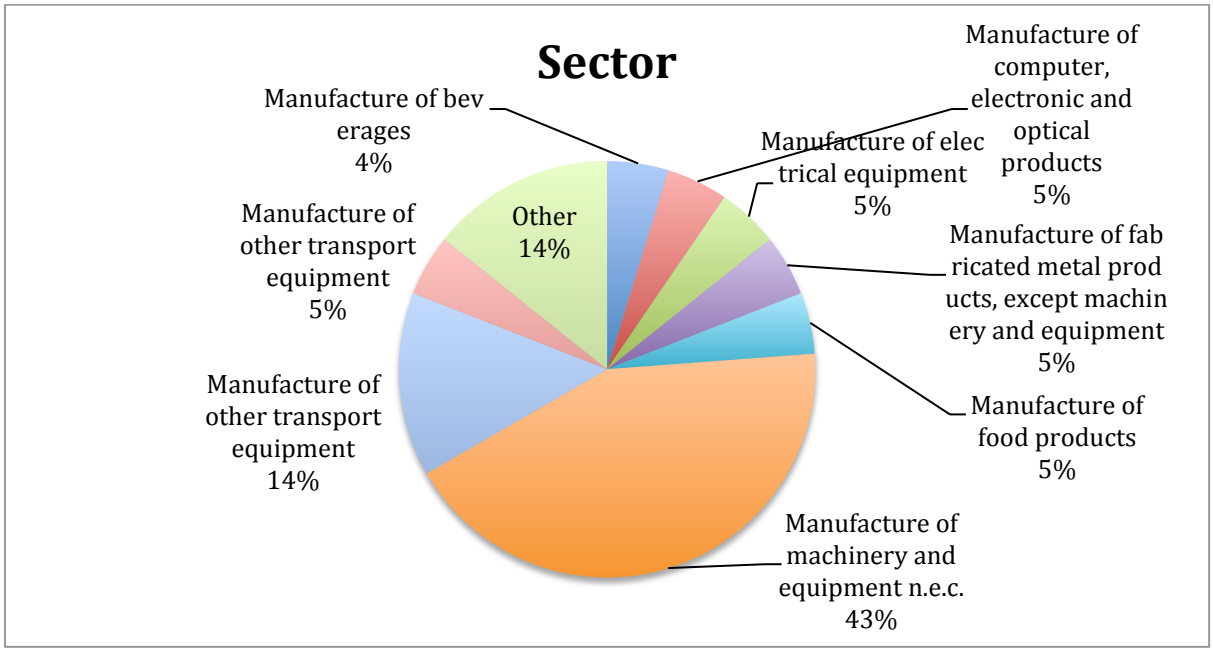
Only subjects with managerial roles participated, in order to reduce the internal variance within the participating corporations.

President
R&D project manager
Head of Corporate Communications, Investor Relation, Marketing & Brands
Researcher
Production Development
Director Environment
Technical manager
Business development director
Entrepreneur
Product Area Vice President
Project Secretary / Strategic Development
Supply chain manager
Head of Innovation
R&D Manager
Team leader SCM Consulting
R&D Project Manager Head of manufacturing third parties

The object of this explorative survey was covering at least some of the most important countries in terms of manufacturing relevance. We didn't focus on a specific manufacturing sector in order to obtain a general picture not necessarily related to a specific sector. Anyway the responding companies belong almost for the half of the sample (43%) to the manufacture of machinery and equipment.

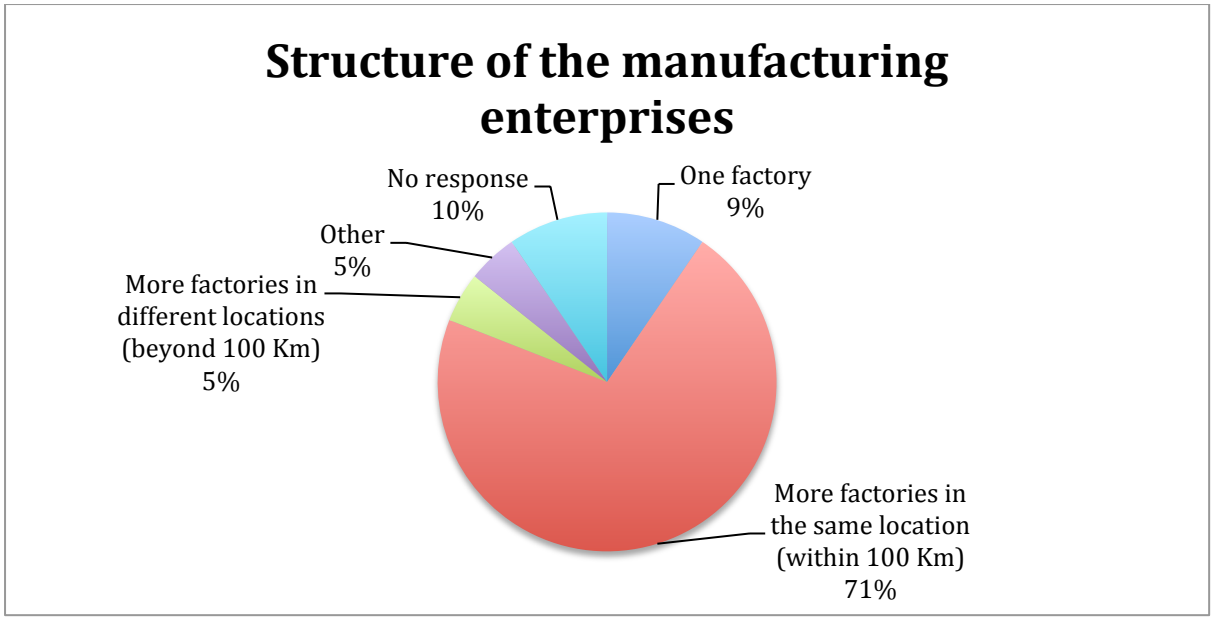


Graph 4.1-Survey_country

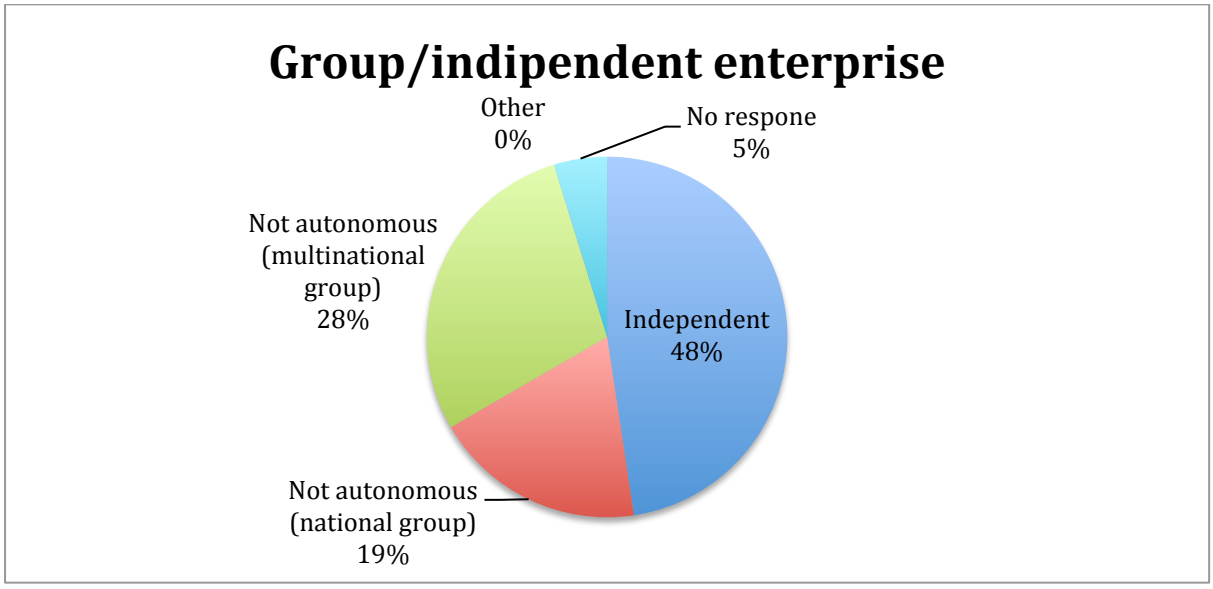


Graph 4.2-Survey_sector

The majority of the sample as the following profile: company composed by more factories in different locations beyond 100 km (71%) and a free standalone entity with autonomous decisions (48%).

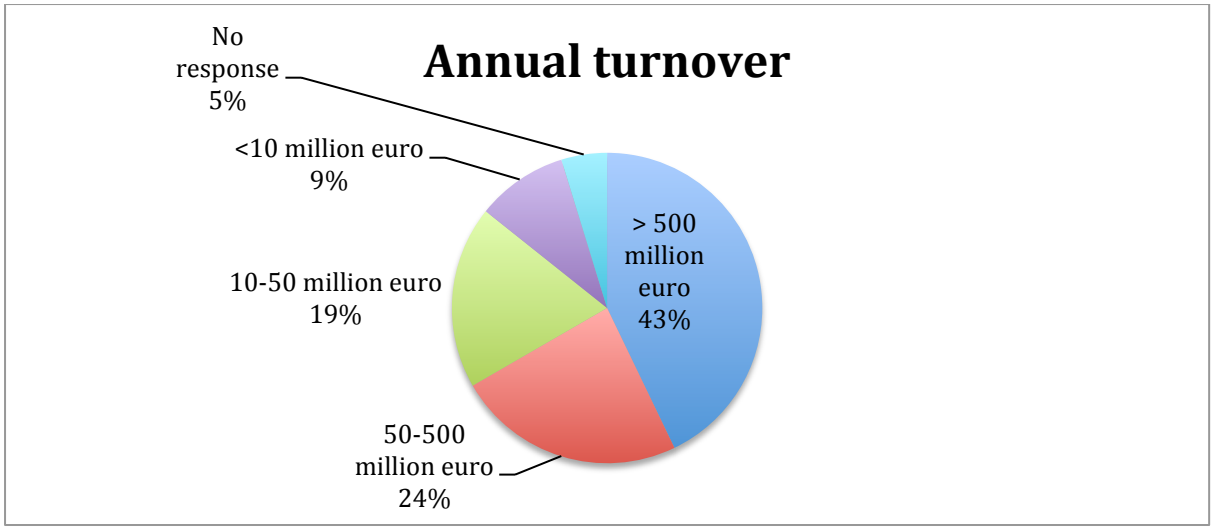


Graph 4.3-Survey_structure of manufacturing enterprises

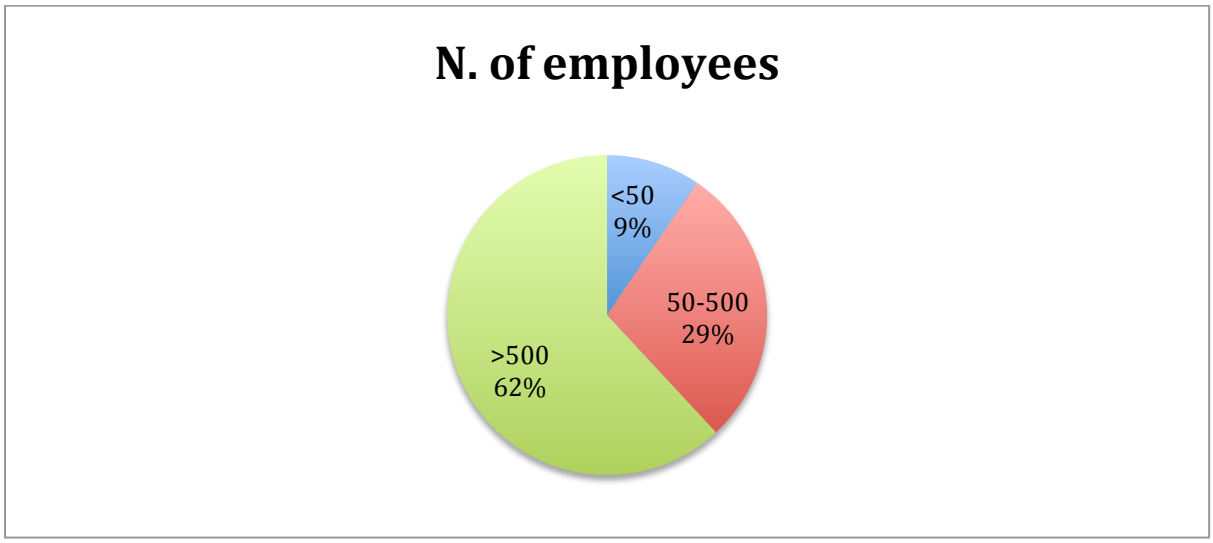


Graph 4.4-Survey_group/independent enterprises

Data on the last annual turnover and the number of employees in the manufacturing companies follows.



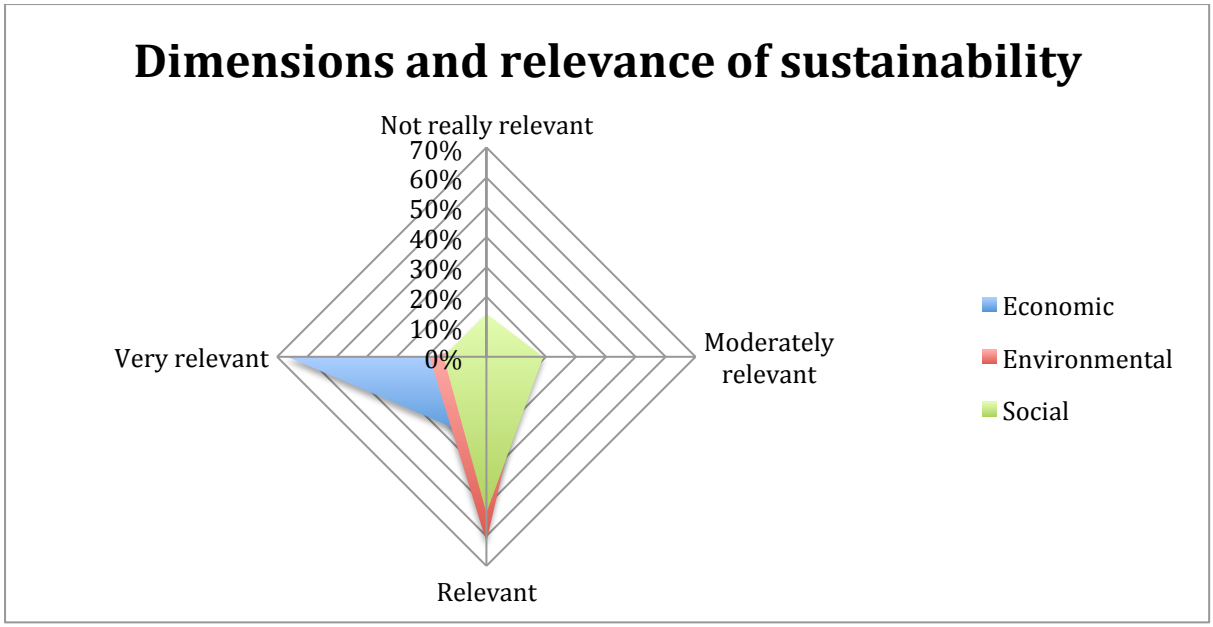
Graph 4.5-Survey_annual turnovers



Graph 4.6-Survey_n. of employees

4.1.2 Sustainable profile

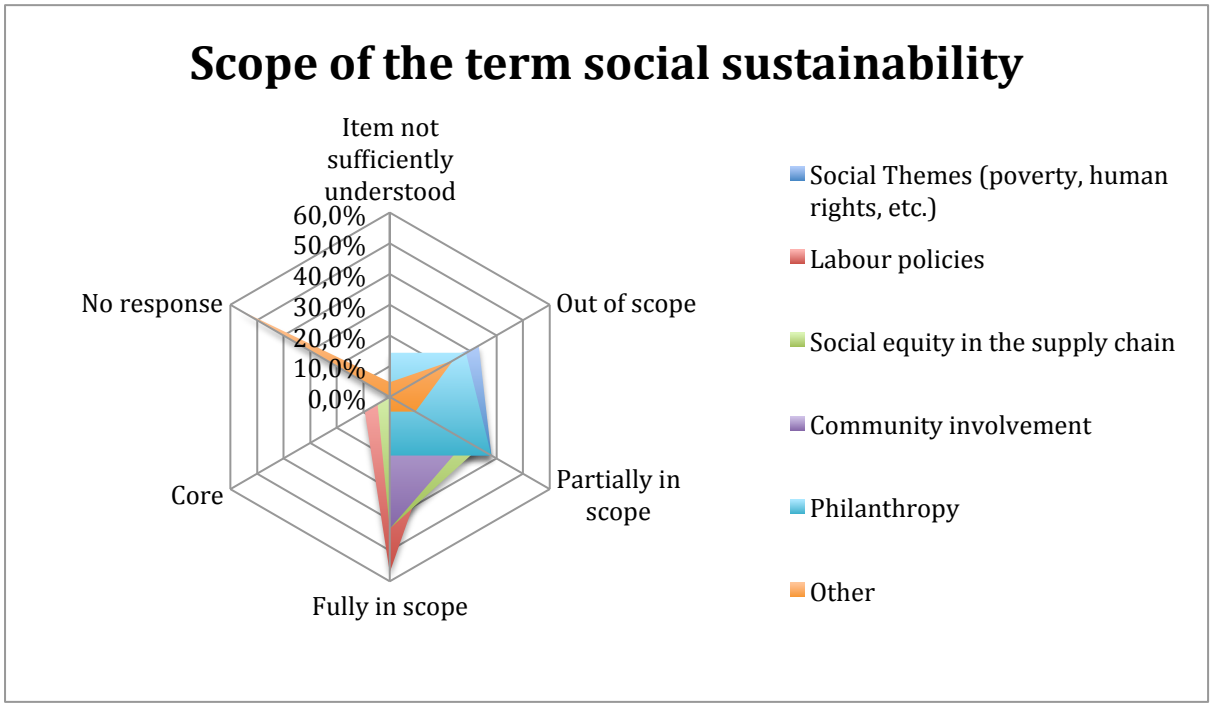
According to the triple bottom line we asked to interviewees to indicate the relevance of economical, environmental and social aspects in the company.



Graph 4.7-Survey_dimensions and relevance of sustainability

As the previous spider chart shows the 67% of the companies indicate the economic perspective as very relevant and 29% as relevant. The environmental and social perspectives are perceived as less relevant respect the economic dimension, but the awareness on these seems to be high. Interviewed companies gave a slightly higher relevance to the environmental dimension respect the social one, but the majority of responses fall in relevant (respectively 62% and 52%).

It is interesting analysing, once identified the relevance given to the three dimensions of sustainability, if and to which extent the areas are included in the scope of social sustainability as understood by interviewed enterprise. The following spider chart contains all the results.



Graph 4.8-Survey_scope of the term social sustainability

From this graphic seems that companies include in the scope of social sustainability some areas more than others. In fact the areas of labour policies, community involvement and community involvement are fully in scope with the social sustainability scope of interviewed companies.

While for the majority of respondents philanthropy and social themes are partially in scope.

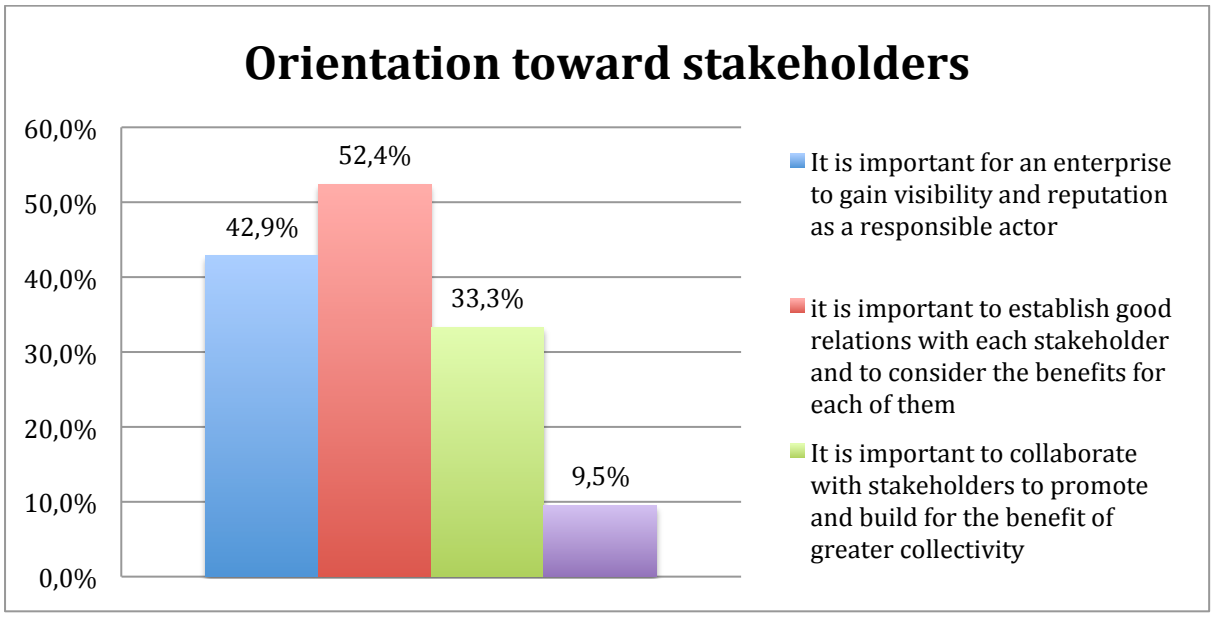
The idea behind this graph is that actually manufacturing companies are aware on the fact that a factory is not a stand-alone production site, but it is an entity interconnected with other stakeholders like community, suppliers and employees. In this sense by now it seems that there is a focus in terms of social sustainability toward these three stakeholders' categories.

The attitudes and beliefs behind the engagement of stakeholders can be different within the same company. The 43% of companies indicate that is important for an enterprise to gain visibility and reputation as a responsible actor; this could increase the awareness of the company and of its products in the final market. The increase of visibility and reputation can have a positive also for the shareholders.

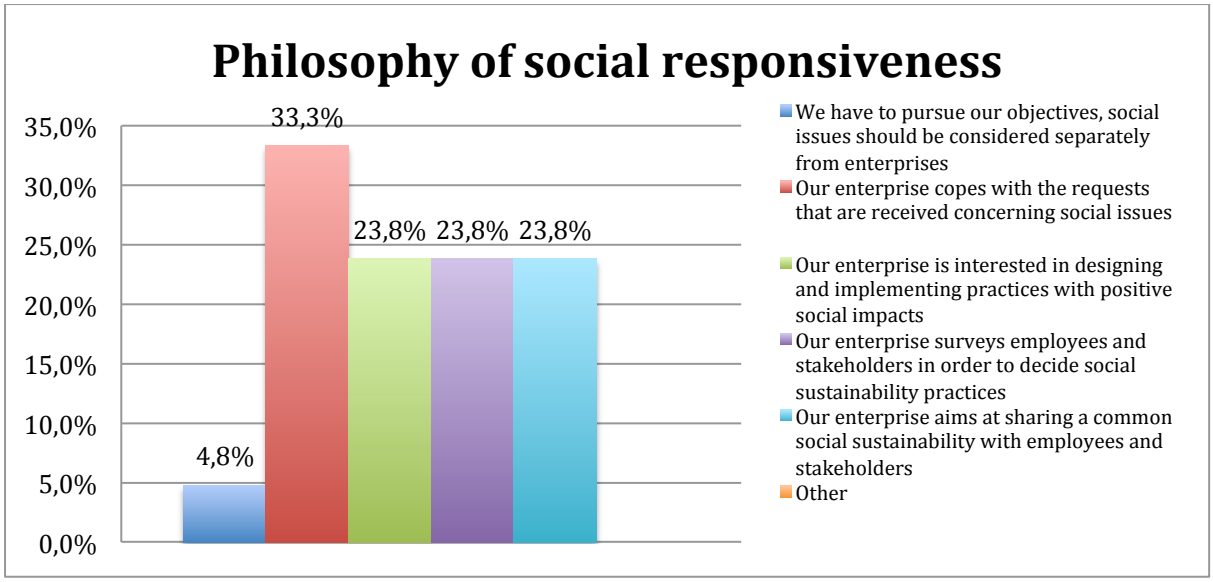
The 52% of companies indicate that the orientation to stakeholders it is important to establish good relationships with each stakeholder and to consider the benefits for each of them.

These two main orientations express the intent of a manufacturing company to focus on stakeholders to maximize its utility function trough the social sustainability.

Only the 33% of companies outline that it is important to collaborate with stakeholders to promote and build for the benefit of greater community. This statement has a slight different perspective in which a factory involves some stakeholders to reach the maximization of a common utility function.



Graph 4.9-Survey_orientation toward stakeholders



Graph 4.10-Survey_philosophy of social responsiveness

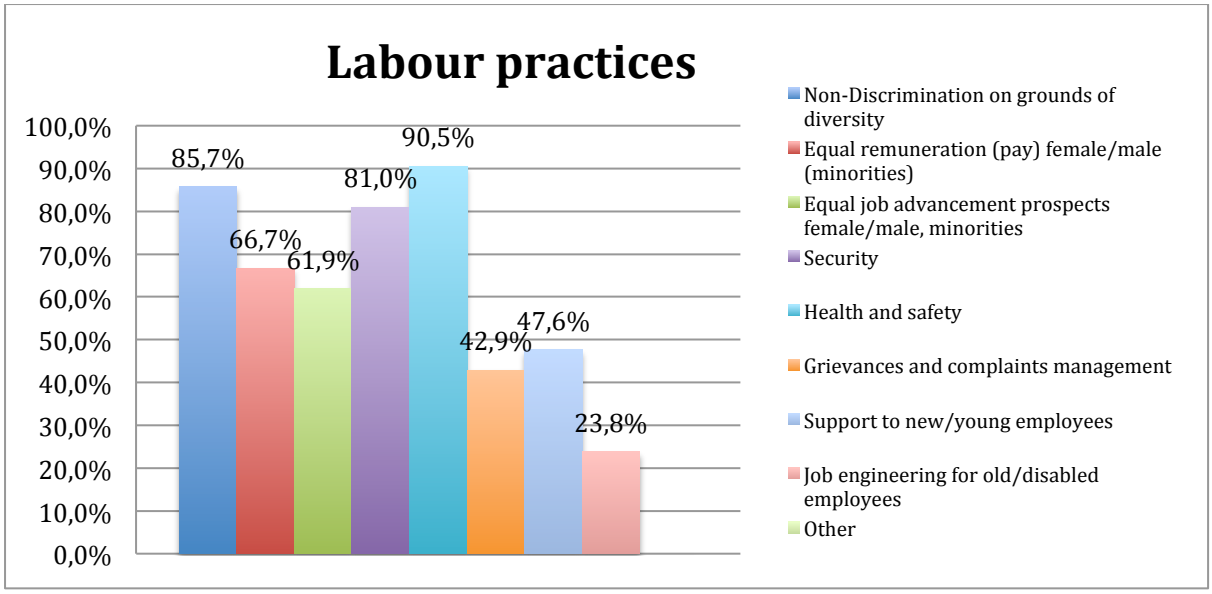
4.1.3 Practices for social sustainability focusing on factories and employees

This part of the survey was dedicated to gather the practices for social sustainability focusing on employees. In order to explore which are the areas on which companies focus on more, we identified the following practices' areas:

- Labour practices
- Work-life balance practices
- Personal and organization learning and development
- Talent attraction
- Talent management and retention
- Employees satisfaction
- Employees future employability

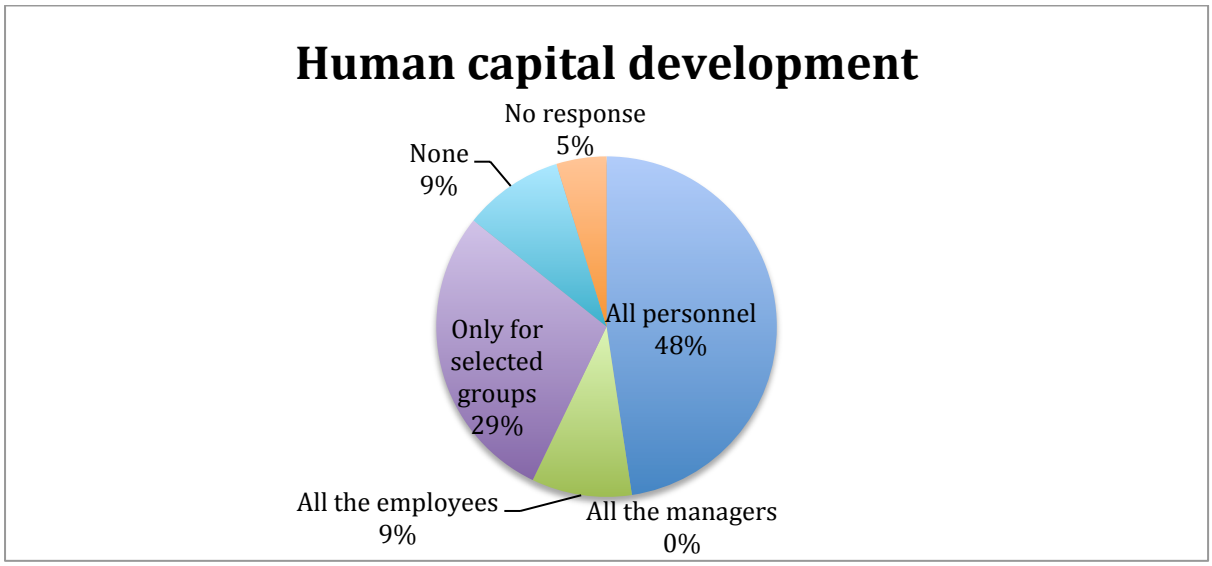
Health/safety (90%), non-discrimination on grounds of diversity (86%) and security (81%) of the employees appear the most diffused and common labour practices put in place.

From the results we can notice a discrete focus on policies of equal remuneration and equal job advancement female/male seem (61%), but we think that there could be several differences between countries that should be further analysed. Only 48% of interviewed companies have policies to support new/young employees.



Graph 4.11-Survey_labour practices

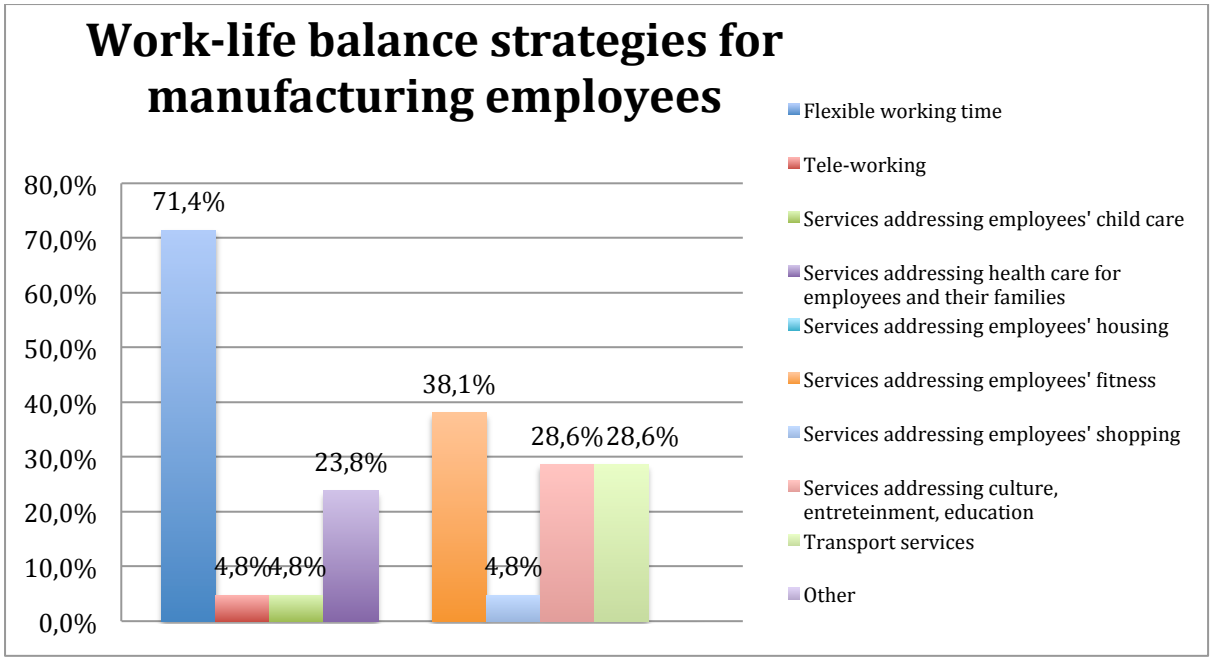
The 48% of companies the competence developments plans and skills mapping are performed for all the personnel; while for the 29% they are performed only for selected groups.



Graph 4.12-Survey_human capital development

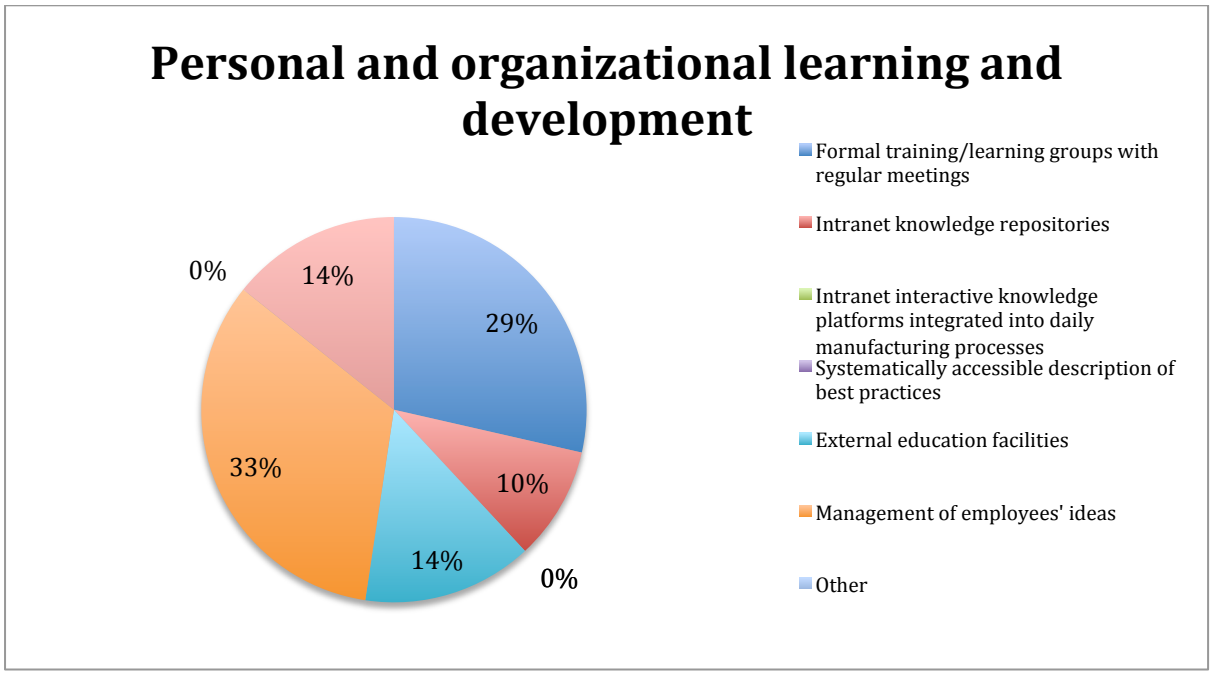
Concerning work-life balance the most applied social practices lie on the field of flexible working time (71%). Services addressing employees' fitness (38%), culture, entertainment, education (29%) are the next topic that manufacturing companies actually consider.

Some policies like teleworking also when present can be applied in some cases only to white collars and not to blue collars, which have constraints of time and place in order to perform the assigned tasks.



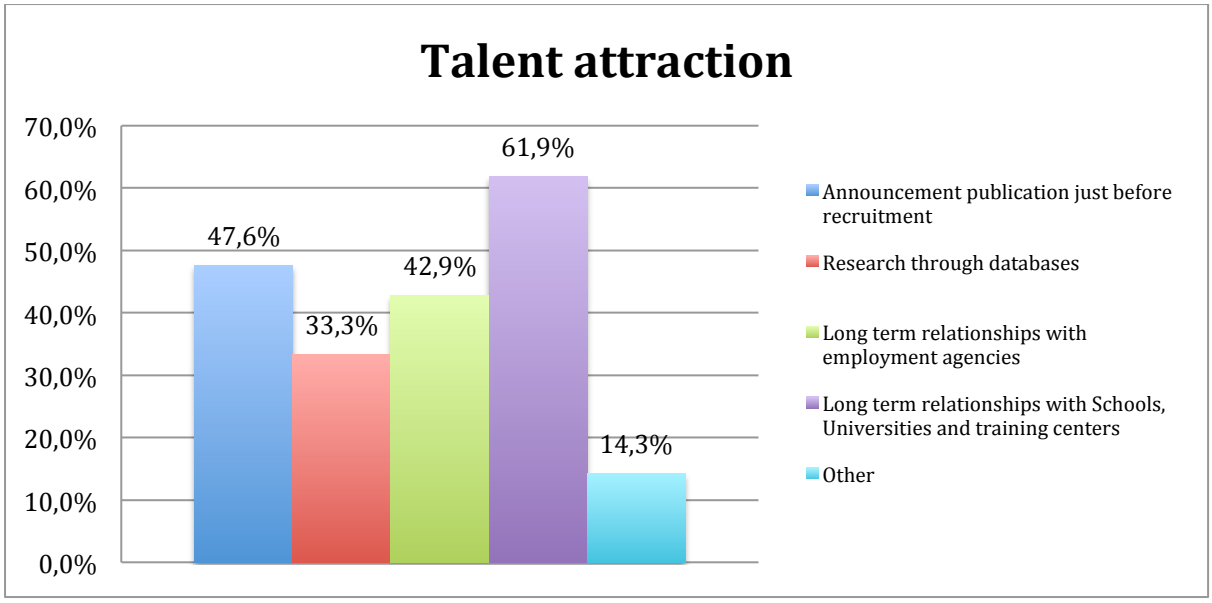
Graph 4.13-Survey_work-life balance strategies

The most diffused enterprise practices for employees' development seem to be the formal training/learning groups with regular meetings, management of employees' ideas and external education facilities.



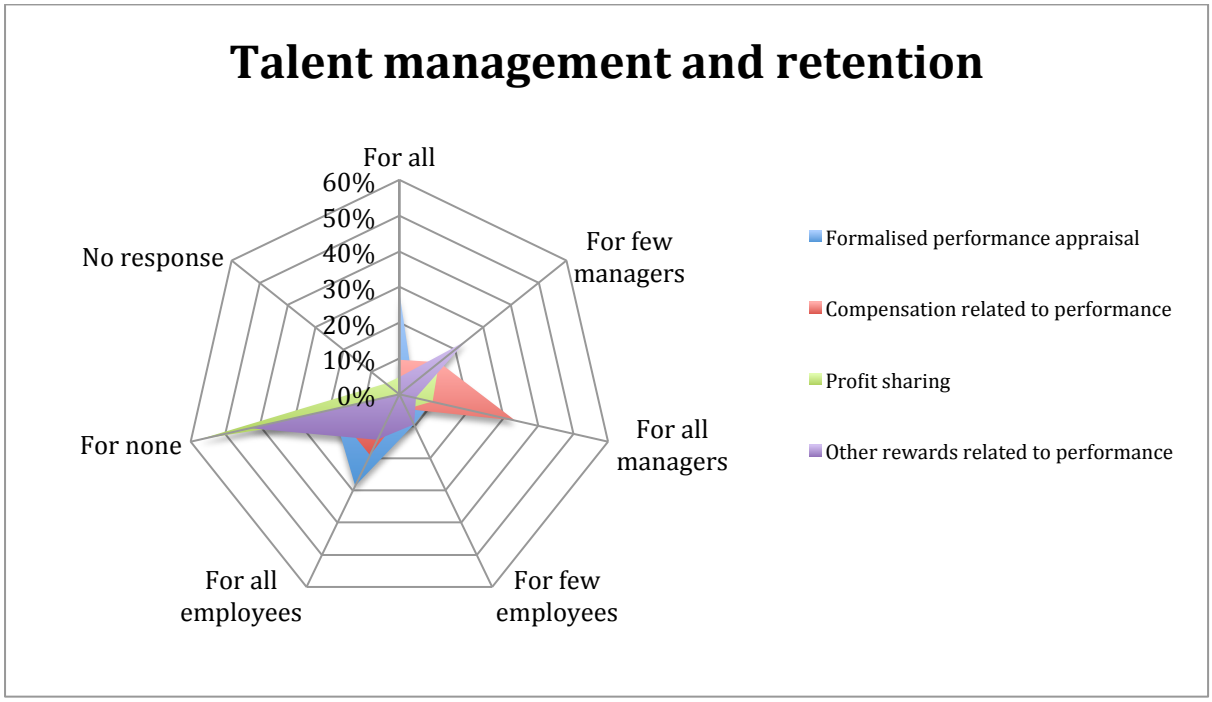
Graph 4.14-Survey_Personal and organizational learning and development

An aspect of social sustainability lies on the capability of a factory to attract the best talents able to match company's need. To pursue this manufacturing companies establish long-term relationships with schools, universities and training centres (62%). Other spread practices are the announcement publication just before recruitment and long-term relationships with employment agencies.



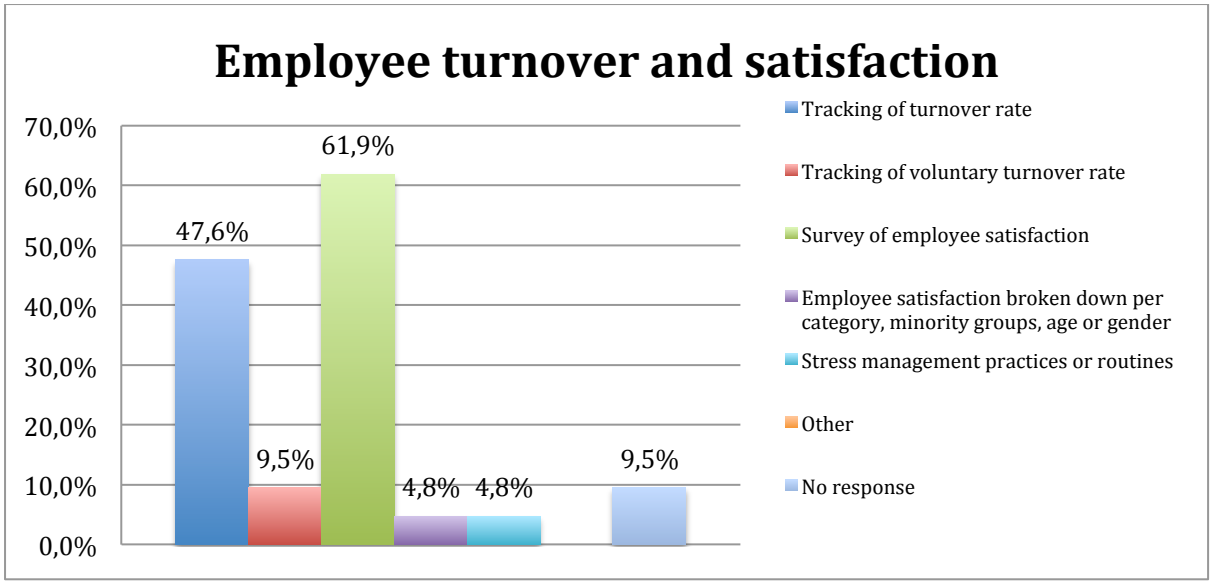
Graph 4.15-Survey_talent attraction

Concerning talent management and retention, in order manufacturing present a strong focus on managers, and less on employees. Since many companies affirm that market does not provide people with the desired skills, thus, they should enforce all those policies of talent retention toward the skilled people already employed, in order to avoid loss of competences.



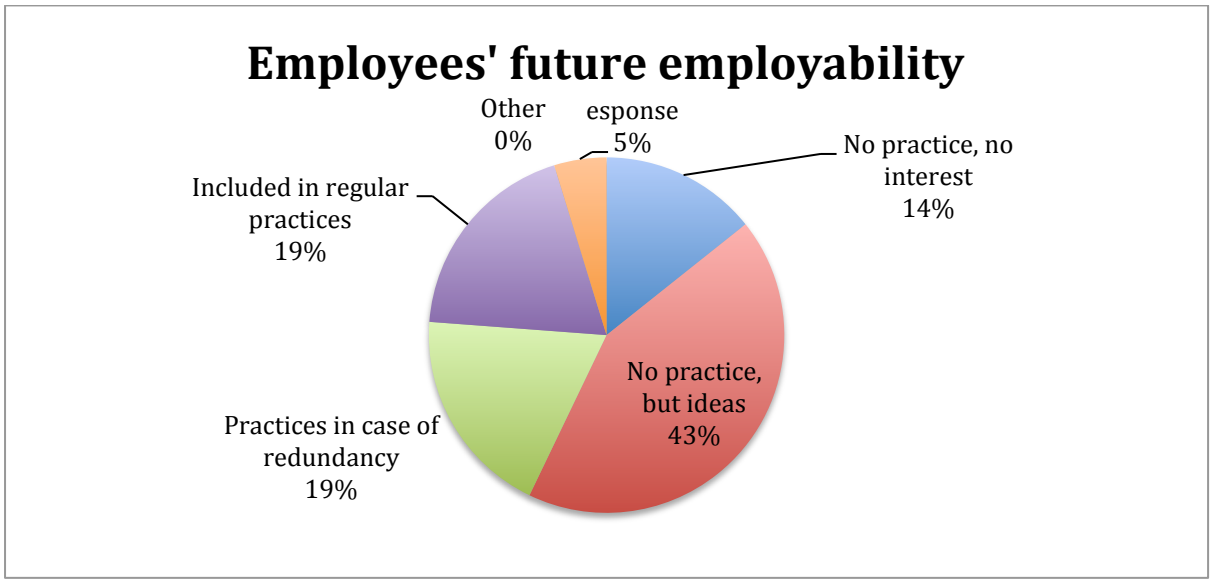
Graph 4.16-Survey_talent management and retention

Most of respondent companies consider important to monitor the employee satisfaction trough survey. (62% of total responses)



Graph 4.17-Survey_employee turnover and satisfaction

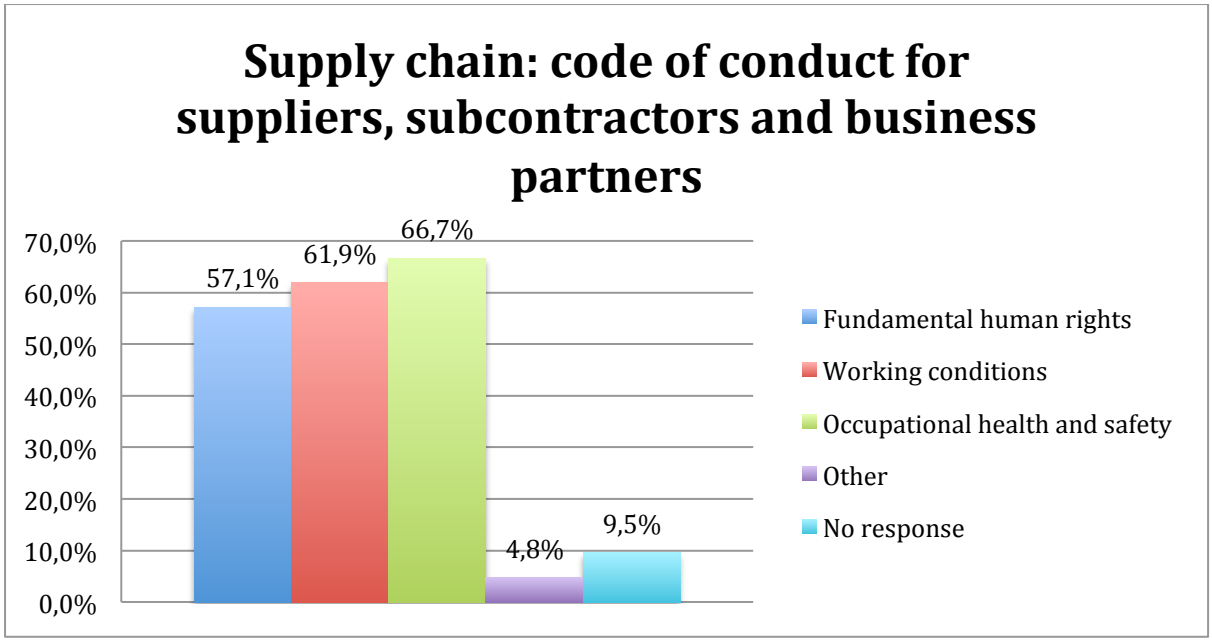
The field of employees' future employability appear underdeveloped, since 57% of companies don't have practices in this sense. Anyway only the 14% of companies that actually don't have these practices affirm not to be interested in implementing them. Thus there is a big room of improvements in the future in this area.



Graph 4.18-Survey_employees' future employability

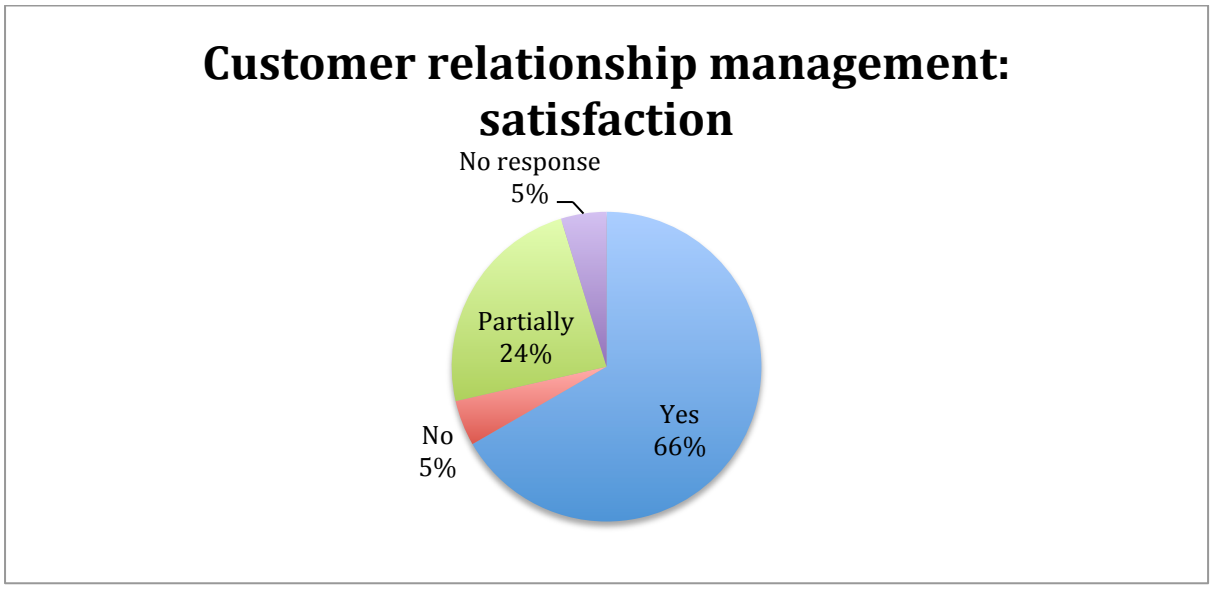
4.1.4 Practices for social sustainability focusing on stakeholders and communities

The most diffused practices of social sustainability toward suppliers and subcontractors deal with the respect of agreed codes of conduct with a higher focus respect of fundamental human rights and working conditions.

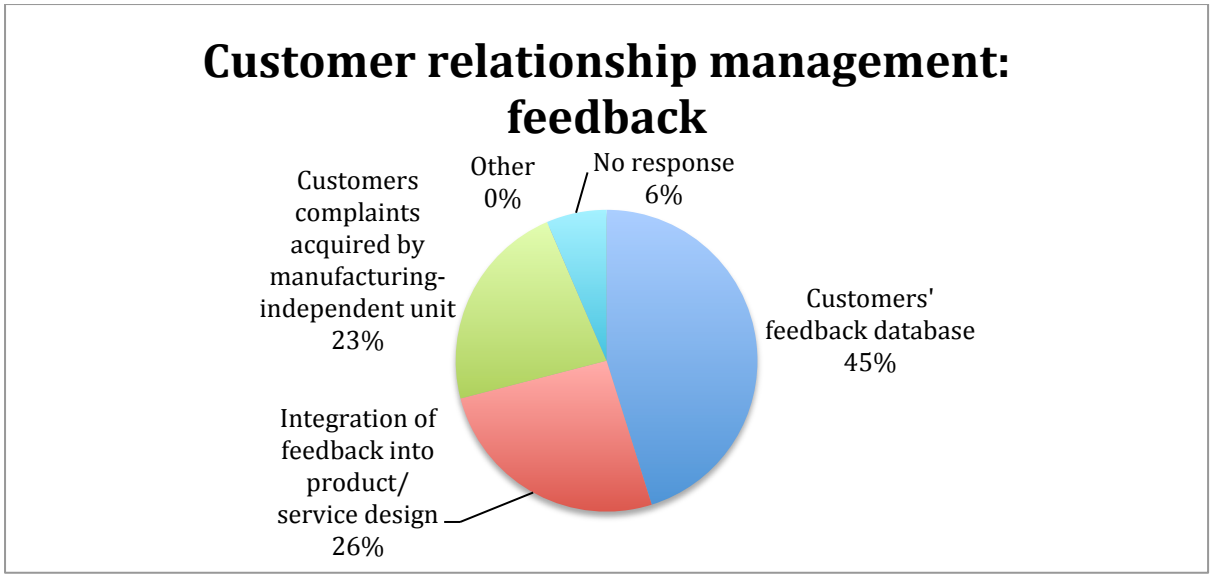


Graph 4.19-Survey_supply chain code of conduct

Customer relationship management in terms of gathering of customers' satisfaction and feedbacks seem to have a relevant focus.



Graph 4.20-Survey_customer relationship mgt: satisfaction

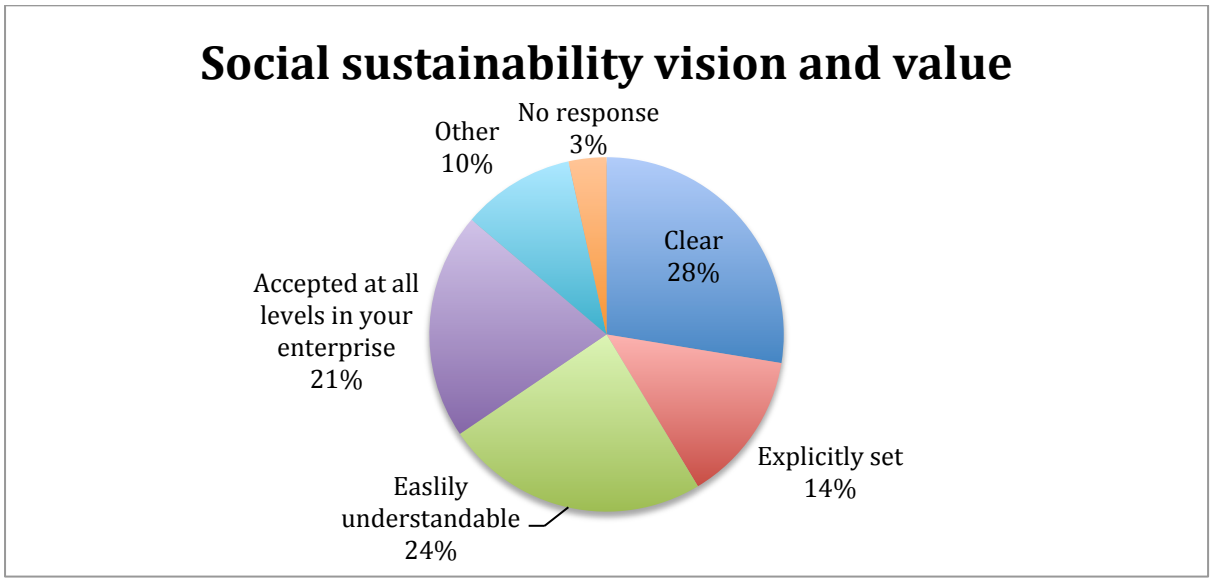


Graph 4.21-Survey_customer relationship mgt:feedback

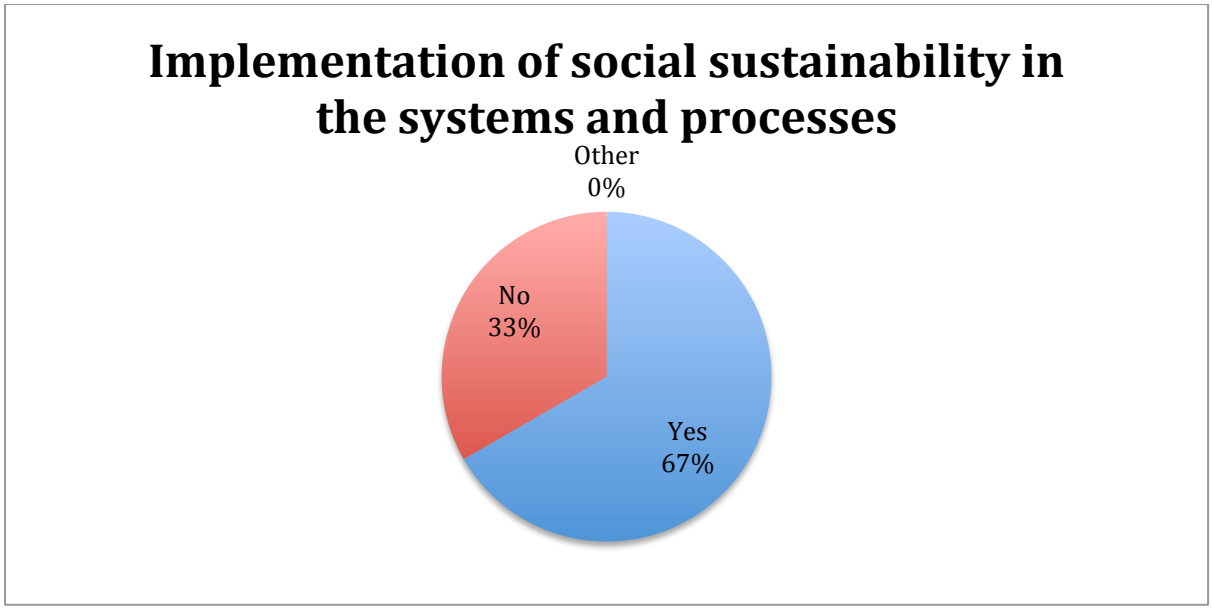
Although these findings do not exhaust the analysis on current sustainable practices in European manufacture, they provide a general picture of the current situation. It is important to underline that the interviewees mentioned no additional themes or practices, which most likely means that the main areas have been identified.

4.1.5 Social sustainability maturity and measurement

This chapter was dedicated to the exploration social maturity of manufacturing companies. The 67% of companies affirm that social sustainability is integrated into enterprise's practices as an operative goal.

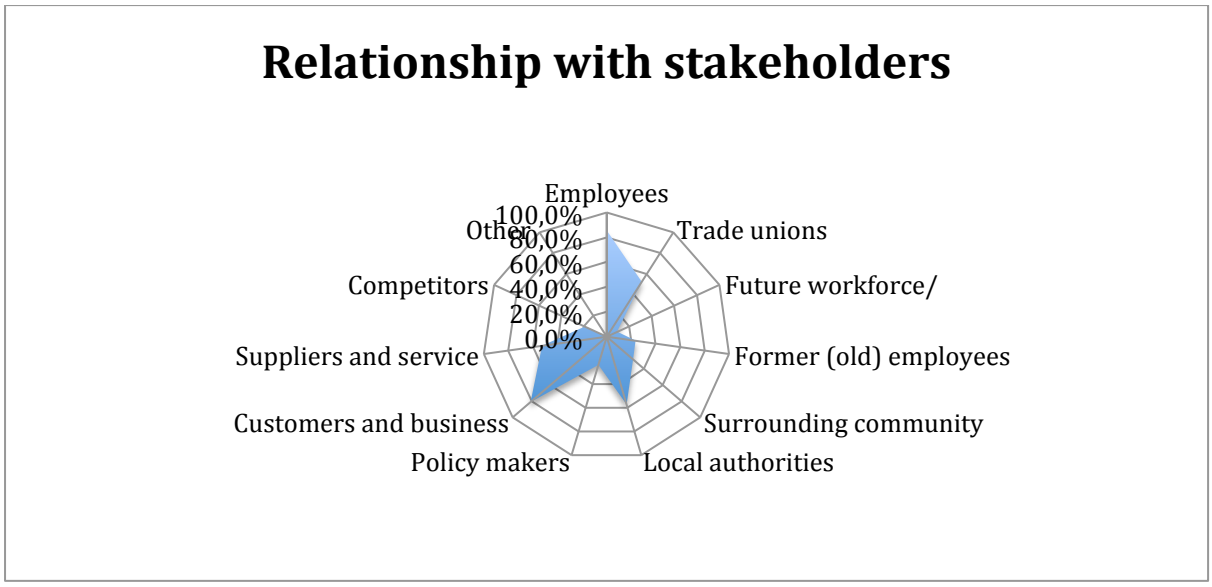


Graph 4.22-Survey_social sustainability vision and value



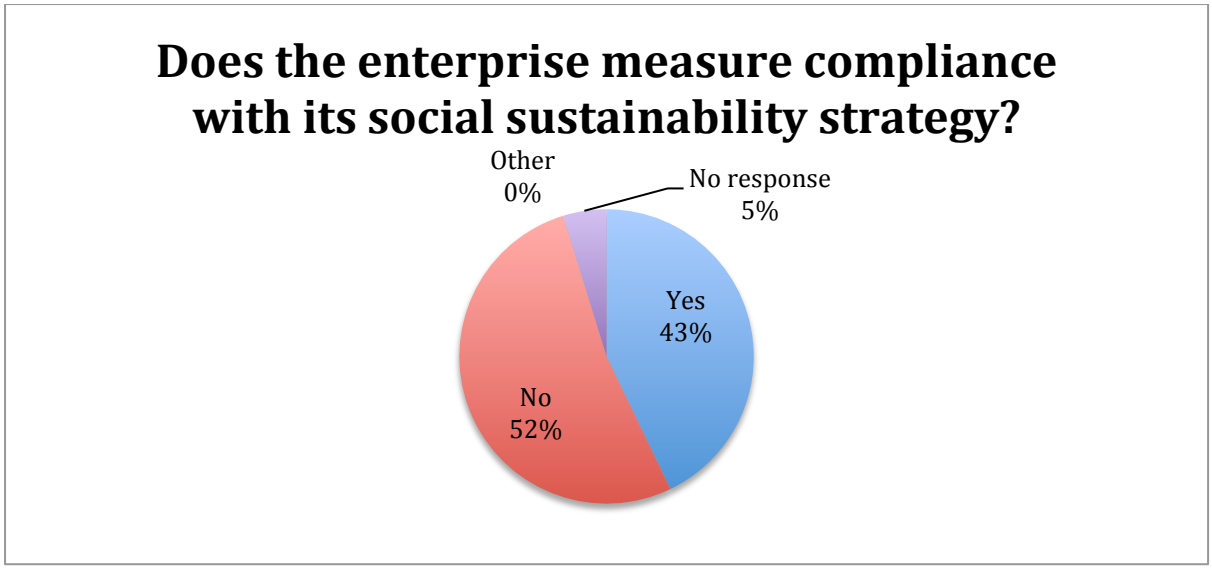
Graph 4.23-Survey_Implementation of social sustainability in the systems and processes

In addition, manufacturing companies affirmed to have established a true dialogue only with a limited set of stakeholders' categories. As the following spider chart outlines, employees and customers are the most relevant with respectively 84% and 79%. Below these there are local authorities approximately with a 52% and trade unions.



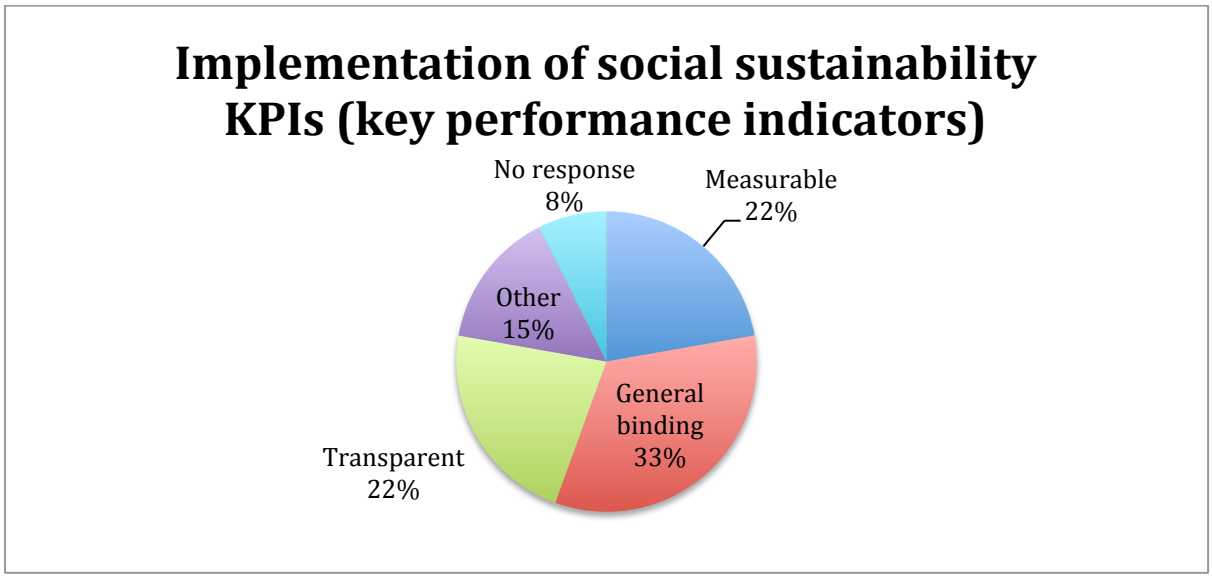
Graph 4.24-Survey_relationship with stakeholders

Concerning measurement of social sustainability the 43% of interviewed companies actually measure the compliance with its social sustainability strategy.



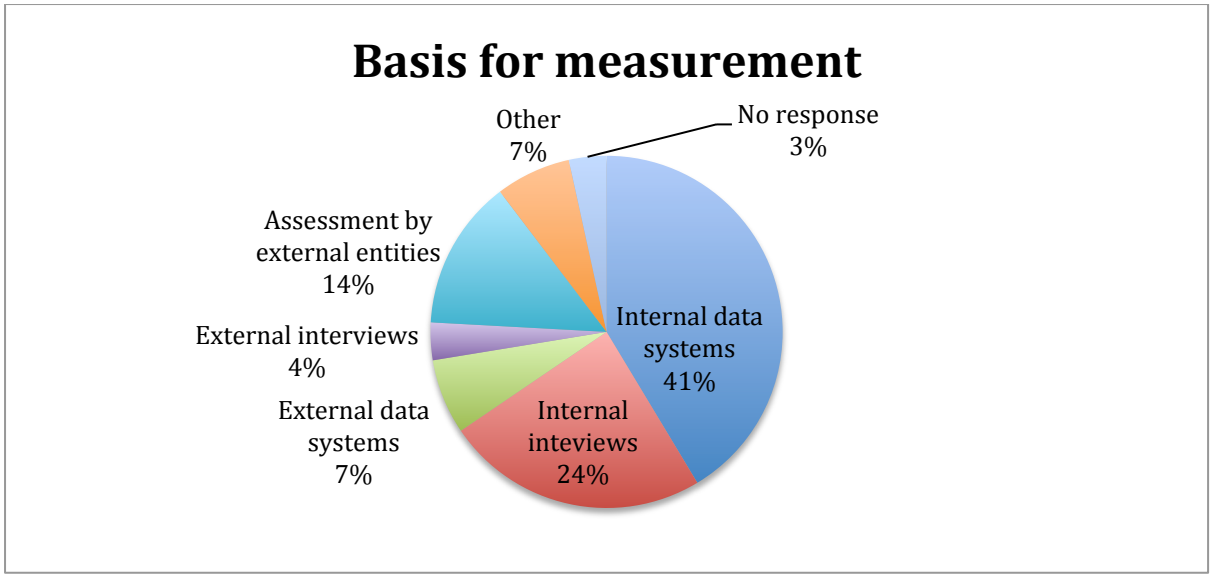
Graph 4.25-Survey_compliance with social sustainability

The 22% of the interviewed companies have implemented a measurable and transparent set of KPIs to monitor social sustainability. The 33% affirm that KPIs used in order to monitor the achievements with reference to social sustainability are general binding.



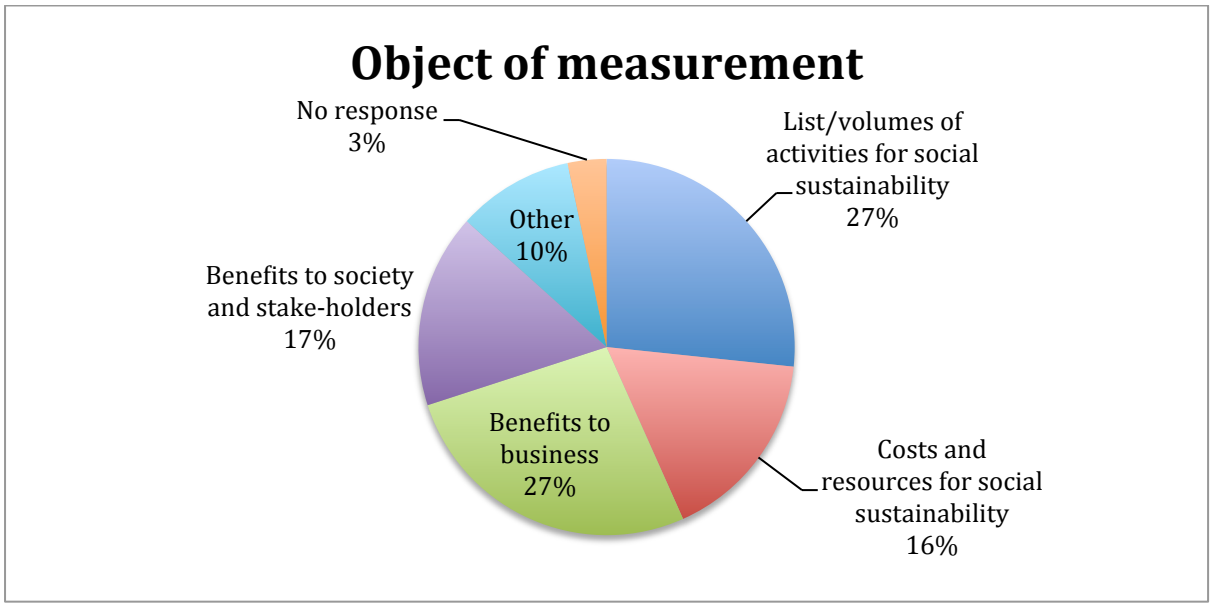
Graph 4.26-Survey_KPIs implementation

The majority of manufacturing companies describe in the survey that internal data systems (41%) and internal interviews (24%) are the most diffused means/sources used to perform the measurement.



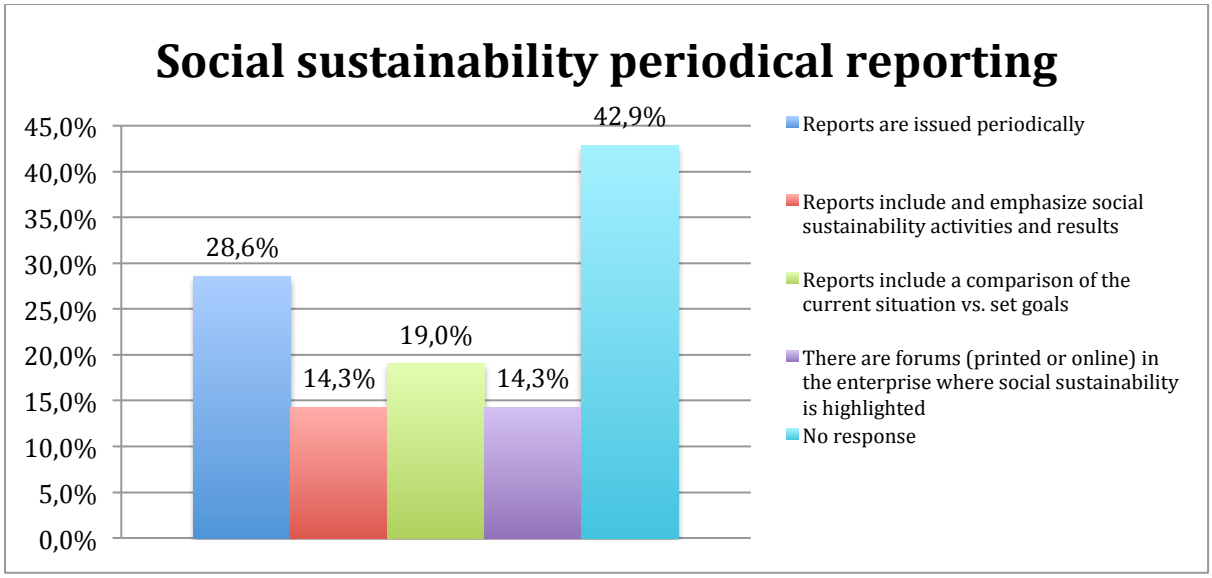
Graph 4.27-Survey_Object of measurement

The 27% of companies measure the benefits to business, the 26% measure the list/volumes of activities for social sustainability and the 17% all costs and resources for social sustainability.



Graph 4.28-Survey_Object of measurement

From the survey it is not possible to figure out which is the situation in terms of social sustainability periodical reporting, since the rate of no response was very high at 43%. The 29% assert that reports are issued periodically, and the 19% include in the reports a comparison between current situation and set goals.



Graph 4.29-Survey_Social sustainability periodical reporting

4.2 Interviews to stakeholders

The aim of this interview is to explore the concept of "social sustainability" in manufacturing from the perspective of some stakeholders involved in the *general schema* of the factory.

These interviews aim at figure out in particular how the concept of social sustainability is perceived by stakeholders of the manufacturing company, the social practices adopted in collaboration and all the benefits and the barriers to collaboration (to see the structure of the interview go to Appendix B-Interview).

The use of the interview wants to be explorative in order to have an idea of how social sustainability is seen outside factory; and to identify eventual areas and practices of social collaboration between company and stakeholders.

Representative of local or regional authorities, of trade unions, of enterprise associations have been interviewed as relevant stakeholders of the factory. All the interviews have been conducted physically or by phone to some stakeholders belonging to the main categories of the *general schema* (Figure 3.2).

The results of interviews (to see the results of the interview go to Appendix B-Interviews' results) are in line with the practices' areas and example of practices handled in the survey. It came out that the concept of social sustainability is perceived with a strong focus on certain areas like employees' **well-being**, **work-life balance** and **community protection/well-being**.

There are areas that sometime emerged explicitly during interviews but in majority of interviews they are not mentioned at all; in our opinion this happens because those practices are taken for granted. These areas aim at ensuring **employees' health and security**, for example the cleanness and tidiness of job floor.

Also the **investment in professional competences** of workers, in **personal development** (i.e. languages courses) and the transparency about **methods to evaluate** workers competences appear important to some stakeholders' category (employees, trade unions).

An area actually underdeveloped that companies should improve is related the **area of crisis management** with for example practices of coaching and training services to face outplacement. In a future social sustainable factory all the policies for **equal remuneration**

between men and women, and good organizational conditions to make women their own career should be considered as prerequisites.

Stakeholders declared as most relevant advantages from social sustainability the possibility for a company to be **more attractive toward potential talents** to be employed, to have **more productive and satisfied employees**, to have a **better company's reputation and image**, to establish a **trustful and transparent relationships** with relevant stakeholders.

Concerning declared barriers most of them belong to the economical impact of putting in place a social sustainable behaviour.

The basic problem is that in many cases **miss the measurable results of sustainability impact**, in other words the received benefits for companies are not easily measurable and quantifiable. Stakeholders affirm that companies have retention to be sustainable for the **cost of social practices** and for **lack of resources**. Future researches should aim at analysing not only how social behaviour impacts on the economical side, but also they should demonstrate in quantitative terms how social and economical perspectives are correlated.

Another barrier is that **norm and legislation** could results **too complex and fuzzy**.

Possible barriers could be linked to **cultural factors** that are different from country to country even in European Union; for example the presence of manager of entrepreneur with authoritarian style that often prevents professional recognition and growth for women as well as for young people.

The basic idea coming from the interviews is that actually there isn't a clear and unified idea about the concept of social sustainability between stakeholders. The scenario of unique social ecosystem characterized by different stakeholders that jointly collaborate together with the factory to maximize the economic, social and environmental aspect of the entire ecosystem is still far.

All the social practices put in place by the factory toward or in collaboration with some stakeholders result fragmented and not joined in the unique perspective of the social ecosystem. In fact in the majority of the cases we can affirm that there will be a higher attention and intention of a company to collaborate with a stakeholder trough social practices according to importance and influence of the latter. The importance and the influence of a stakeholder can be declined into the three dimensions of power, legitimacy and urgency described in the tri-dimensional approach (Coombs, 1998).

4.3 Online researches

The online research was based on the analysis of articles and proprietary websites of companies with the aim to gather some best practices.

Interesting insights concerning practices of social sustainability come from the ranking of great-place-to-work. (Great Place to Work® Conference, 2014)

Despite the ranking of Great-place-to-work it is focused on a small part of the social sustainability based on some specific aspects related to a "good" workplaces, it's been proved a useful tool to identify a set of practices used and area of social sustainability.

Once identified all the manufacturing companies inside the ranking, we started searching on company websites some documents dedicated to the external accountability containing examples of social sustainable practices.

In the next table we summarized the areas toward manufacturing companies address their practices concerning social sustainability and some related examples:

Macro area	Area	Practices	Employee		Society		Customers		Suppliers	
			Y/N	Notes	Y/N	Notes	Y/N	Notes	Y/N	Notes
Welfare	Work-life balance	telework	x	for white collar						
		time flexibility	x	for mothers						
		part-time	x	...						
		...	x							
	Economic benefits	medical insurance	x							
		pension fund	x							
		scolarships for employees' children	x							
		...								
	Other benefits	company's nursery school	x							
		laundry services	x							
		company's butler	x							
		...								
	Physchophysical well-being	relax areas	x							
		psycological support	x							
		gym	x							
		...								
Training	technical training	training	x							
		cross-functional projects	x							
		...								
	individual and relational	mediatation courses	x							
		music courses	x							
		stress mgt training	x							
		events	x							
		company's coach	x							
		...								
	...	...								
Human centered	....	ergonomic design of workspace	x	for blue collar						
		...								
		...								
philantrophy	social sustainability on local community	fund-raising initiative								
		voluntary work during work time	x		x					
		...								
...	...	...								

Table 4.1- Areas and practices of social Sustainability_greatplacetowork

5 PRACTICES LANDSCAPE: STAKEHOLDERS, PRACTICES' AREAS AND EXAMPLES OF PRACTICES

The aim of this chapter is trying to sum the outputs and contributions coming from the different methods used to gather all the areas and practices about social sustainability in a harmonized way. Once collected the results of the surveys and interviews we grouped all the examples of practices into 17 different areas of socially sustainable practices.

The nomenclature of the practices' areas is based on the one used commonly in literature, by companies and by stakeholders about social sustainable practices. Moreover each practices' area is linked to the most related stakeholder category among the ones proposed in the reference schema (Chapter 3.3).

In this chapter we want try to mix the general schema, based on the identification of stakeholders category of the social system, and the table of practices, which describe the possible areas of social practices between the factory and specific stakeholders.

The next table contains also the company's need in putting in place social practices toward or in collaboration with stakeholders' categories.

Stakeholder category	Practices' areas	Examples of practices	Company's need
Employees	**Employees economical benefits**	-Medical insurance -Pension funds -Scholarship for employees' children	-Increase capability to attract and retain employees -Increase effective behaviour of satisfied employees -Increase company reputation
	Employees other benefits	-Discount on nurseries -Holiday campus for employees' children -Laundry services -Discount and facilities on sports, cultural events, holiday trips	-Increase capability to attract and retain employees -Increase effective behaviour of satisfied employees -Increase company reputation

	Employees work-life balance	-Telework -Time flexibility -Part time -Work-life balance -Company's nursery -Company's butler	-Increase capability to attract and retain employees -Increase effective behaviour of satisfied employees -Increase company reputation -Decrease stress of employees
	Safety of workplace/ Occupational health	-Courses of security -Actions aimed at decreasing accident and injuries -Investment to improve the workers' security - Screening or caring services offered or incentivized for employees and their families -Company's medical centre - Health, postural, dietary, hygiene programs -Actions aimed to reduce monotony and alienation of workers -Psychological support	-Increase capability to attract and retain workers -Improve company image and reputation toward stakeholders categories -Frequent shop floor cleanliness
	Training and education	-Training on the job -Job rotation -Cross-functional project -Update training -Stress management courses -Languages courses -Music courses -Cultural events -Book discounts	-Increase capability to attract and retain employees -Increase effective behaviour of satisfied employees -Increase employees performances -Increase employees' involvement -Increase capability to attract and retain employees -Increase effective behaviour of satisfied employees -Improve cultural level of employees
	Respect of human rights	-No child labor -Freedom of association -Freedom of association -Indigenous rights	-Increase awareness and interest about the products and the company -Improve company image and reputation toward stakeholders categories -Communication with shareholders
	Diversity and equal opportunity	-Policies of equal remuneration for women and men -Policies toward indigenous rights	-Increase company image and reputation -Increase capability to attract and retain employees -Increase effective behaviour of satisfied employees -Improve company image and reputation toward stakeholders categories -Communication with shareholders
	Employees integration	-Team-building activities -Team work -Courses of language dedicated to foreign people and their families -Info support to foreign people	-Increase employees' collaborations -Increase well-being of employees -Support integration (employees coming from different countries and culture) -Capability to attract foreign talents

	Human-centricity of workplace	-Ergonomics of workplace -Smart technologies/tools to provide the right information -Product development based taking into account human centricity (workers and customers) -Projects aimed at involving workers in proposing new ideas and improvements in general (with recognition and remuneration) -Allocation /Reallocation of workers (physical problems, skills development,..) -Relax areas -Gym	-Increase employees performances and efficiency -Increase employees satisfaction -Increase capability to attract and retain workers
	Employees career development	-Job enrichment -Job enlargement -Competences mapping and career paths	-Increase capability to attract and retain employees -Increase effective behaviour of satisfied employees -Increase employees performances -Increase employees' involvement -Increase employees satisfaction
	Crisis management	-Coaching and training services to face outplacement	-Limit and manage the social impact of a crisis (unemployment) -Increase company image and reputation
	Employees voluntarism	-Initiative to support employees' voluntarism (i.e. blood donation, fund raising toward local community…)	-Increase awareness and interest about the products and the company -Improve company image toward stakeholders categories -Communication with shareholders -Increase sense of belonging of employees to company
Society	**Community protection/well-being**	-Environmental monitoring-system -Initiatives to increases security and safety of surrounding inhabitants -Event organizations -Anti-corruption policies	-Increase capability to attract and retain employees -Increase company reputation -Improve and maintain relationships with influential stakeholders (i.e. region authorities, politics) -Reduce risk of riots and pressure of local community on the factory -Possibility to hire healthy workers
	Philanthropy	-Fund raising -Philanthropic initiative in general	-Increase awareness and interest about the products and the company -Improve company image and reputation toward stakeholders categories -Communication with shareholders
	Partnerships/Collaborations with educational institutions	-Stages -Projects in collaboration with school and universities -Recruiting phase with university -Education programs -Research activities	-Capability to attract employees with right profile and with the required skills and know-how -Simplify recruiting process

Customers	**Responsibility toward customer**	-Customer health and safety -Marketing communication correctness -Service design -Customer involvement	-Increase awareness and interest about the products and the company -Improve company image and reputation toward customers -Lon-term value generation (increase customer fidelity)
Suppliers/Business partners	**Supplier evaluation**	-Agreements on requirements of social sustainability -Requirements/Evaluation of social standard -Supplier human rights assessment	-Increase company image and reputation -Increase awareness and interest about the products and the company -Improve company image and reputation toward stakeholders categories -Communication with shareholders
Shareholders	**External accountability**	-Provide transparent, clear and updated reports on performances of social sustainability toward stakeholders	-Increase company image and reputation -Increase awareness and interest about the products and the company -Improve company image and reputation toward stakeholders categories -Communication with shareholders

Table 5.1-Practices' areas and examples of practices of social sustainability

The next graphs want to show the results of the previous table, underling the specific interaction between company and the specific stakeholder category:

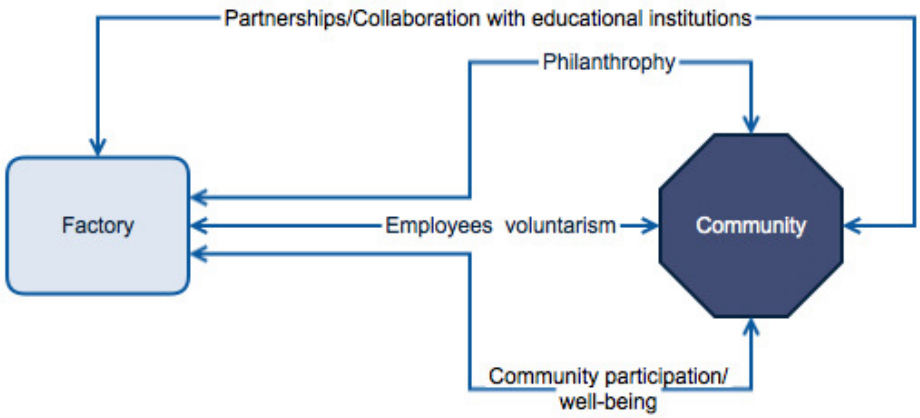


Figure 5.1- Social practices_Factory-Community

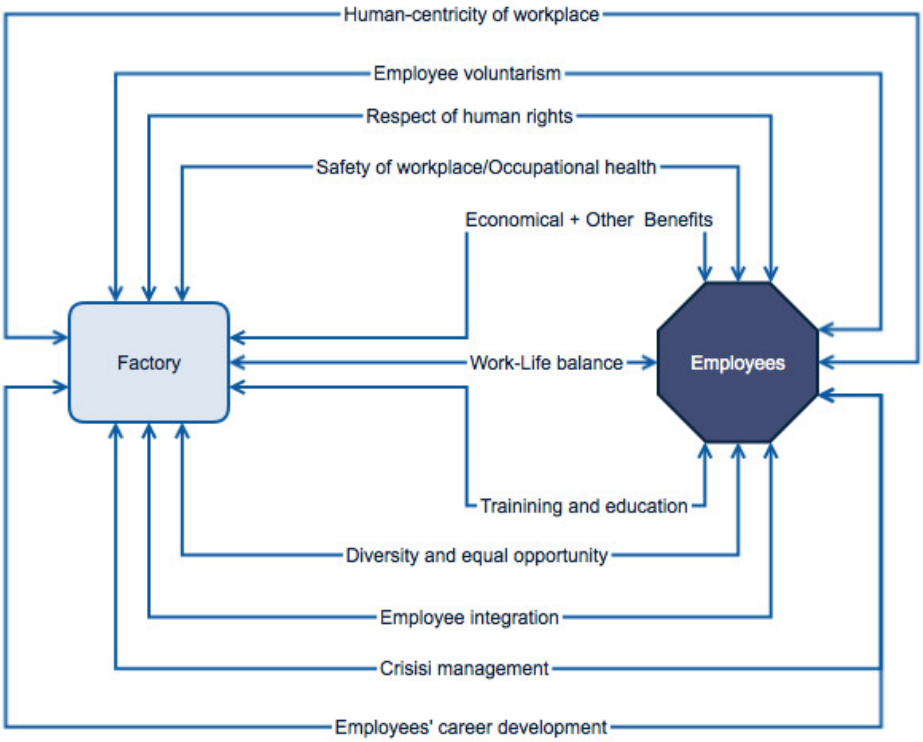


Figure 5.2-Social practices_Factory-Employees

Figure 5.3-Factory-Customer

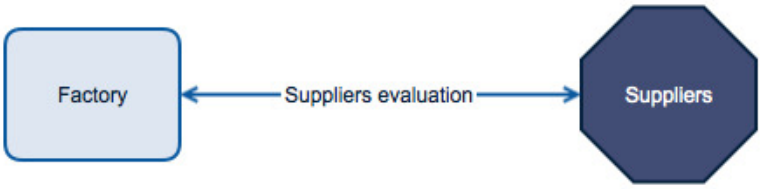


Figure 5.4-Factory-Suppliers/Business partners

All the arrows are double directional to show that in many cases the adoption of social practices and behaviour is a co-evolving process between manufacturing and a stakeholder or stakeholders' category.

These graphics don't investigate the complex network of cause-effect relationships and interactions that connect manufacturing and its performances to the sustainability practices toward a stakeholder. Future researches should aim at investigating it as well as they should try to better understand all the social implications of manufacturing-related processes, decision-making, behaviours and the interplay with business and economic results.
It is important to underline that the previous graphics aim at showing which are actually the most addressed stakeholders in terms of social practices actions and collaborations with firm (in other words the more arrows the more attention by the firm in terms of social sustainable practices). Another consideration that it is important doing is that it can happen that a specific area of social practices is dedicated to a specific stakeholder, but it affects at the same time the behaviour and decisions of another stakeholder. To make an example the respect of human rights is directed to the employees of the factory, but it affects heavily the relationships with final customers and shareholders in terms of company's image and reputation.

In this sense this network of actions and reactions between factory and stakeholders should be considered in future in an integrated way in the perspective of a common social eco-system.

From the previous graphics it appears clearly that at the current stage employees and community are considered very relevant stakeholders by factories, thus, companies try to be socially sustainable with them. This result is in line with the results coming from the survey.

6 CONCLUSIONS

The notion of social sustainability has been developed aiming at global growth: policy makers have elaborated on this concept at regional and country level, institutions and associations representing the scientific and technological environment have proposed their visions, enterprises have adopted Corporate Social Responsibility practices.

In this context, we didn't find relevant models or frameworks able to address and evaluate the social sustainability specifically to manufacturing world.

The survey and the interviews to manufacturing companies demonstrated a wide recognition of the relevance of the economic, environmental and social dimensions of sustainability, although the importance of the latter is slightly less perceived. The scope for social sustainability is seen as mainly addressing labor practices, followed by supply chain an community concerns; with emphasis decreasing as topics appear more detached from the business.

Ambiguous findings regard the fact that although the majority of manufacturing companies believe it is important to establish good relationship with the stakeholders and to consider the benefit for them, one third adopts a reactive rather than proactive policy on social issues.

Practices for human capital development are widespread and in almost 50% of the sample involve all the personnel, while supply chain code of conduct and customer relationship management practices are implemented by more than two thirds of the respondent companies.

We think that practices to anticipate and address crises management appear in our view as a relevant topic, but probably actually is not sufficiently addressed from the perspective of social sustainability.

Social sustainability practices result well integrated in systems and process together with KPIs; measurements are enacted and reported on regular basis, leveraging internal and external data sources. Surprisingly, less than half the companies perform compliance with social sustainability strategy.

The fact that actually there is a quite strong focus in terms of practices toward employees, customers and community reflects that companies are now trying to shift from a traditional approach characterized by profit maximization to *triple bottom-line* approach.

$$\max(F\ (E) \Longrightarrow I\ (E, S, E))$$

Manufacturing has traditionally pursued economic, quality, service and flexibility performances. Sustainability objectives have often been superimposed rather than integrated in the corpus of existing theories and practices.

Nowadays manufacturing companies operate in more complex and larger interconnected environments, characterized by the presence of multi-stakeholders that have different objectives and priorities that must be taken into account at the same time. In such context companies should aim at stakeholder satisfaction, which is not always equal to the net present value maximization. This brings to a net present value sustainable preservation over the time.

Initiatives to create and sustain virtuous behaviour with the involvement and advantage of several actors in the factories' ecosystems constitute success stories.

The knowledge about manufacturing specific current and potential role versus social sustainability is still limited to the main and most evident aspects. Further research is needed to extend the perspective and achieve greater awareness of the different ways in which social sustainability can be pursued through interactions with all the roles and stakeholders of the manufacturing ecosystem.

These future researches are necessary to better understand all the social implications of manufacturing-related processes, decision-making, behaviours and the interplay with business and economic results. A research roadmap should aim at the definition of a manufacturing sustainability reference model to be used for the analysis, evaluation and revision of the manufacturing theories and practices in order to better assess and improve social sustainability.

Future research will have to thoroughly investigate the complex network of cause-effect relationships and interactions that connect manufacturing and its performances to the sustainability themes.

7 APPENDIXES

7.1 Appendix A- Sample of survey (Geographical configuration)

	Number of enterprises	Number of persons employed	Value added
	(thousands)		(EUR million)
EU-27	2.130,0	30.000,0	1.590.000
Belgium	37,3	536,4	47.895,5
Bulgaria	30,7	536,8	4.123,5
Czech Republic	169,1	1.197,4	29.227,2
Denmark	15,7	294,4	26.197,1
Germany	209,4	6.923,5	455.788,2
Estonia	5,5	95,8	1.903,8
Ireland	4,2	165,4	29.610,8
Greece (1)	83,6	400,9	16.901,2
Spain	188,7	2.014,5	106.153,4
France	212,2	3.105,0	193.928,7
Italy	426,8	4.003,1	205.589,3
Cyprus	5,5	35,1	1.158,3
Latvia	7,9	108,7	1.540,2
Lithuania	12,5	179,3	2.507,4
Luxembourg	0,9	33,8	2.385,8
Hungary	52,2	656,1	17.495,5
Malta	:	:	:
Netherlands	50,7	697,1	57.593,0
Austria	25,3	597,8	45.139,5
Poland	176,4	2.404,5	49.480,3
Portugal	74,1	695,6	17.916,0
Romania	48,9	1.128,2	12.778,0
Slovenia	17,1	197,9	6.188,9
Slovakia	70,3	451,2	9.696,6
Finland	22,4	370,5	26.505,1
Sweden	54,5	656,1	50.798,6
United Kingdom	124,0	2.534,1	167.545,7
Norway	16,8	231,3	22.251,2
Switzerland	20,7	663,2	73.584,6
Croatia	23,8	281,2	4.951,1
Turkey (1)	320,8	2.584,8	39.173,2

(1) 2009. *Source*: Eurostat (online data code: sbs_na_ind_r2)

Table 7.1: Key Indicator, manufacturing (NACE section C), 2010

7.2 Appendix B- Online Survey

https://docs.google.com/forms/d/1myjbjs8ajfNnMSVOrfgB2yJFllShJcU9ibbz5RQ_eX0/viewform

Socially Sustainable Manufacturing - Survey Questionnaire

Social Sustainable Manufacturing - Survey Questionnaire v.E04

Socially Sustainable Manufacturing
in the Factories of the Future
SO SMART - CSA: NMP2-SA-2013-608734
SURVEY QUESTIONNAIRE

Introduction to the questionnaire

Dear Manufacturing Community Colleague,

we are very grateful that you have accepted to provide your contribution to this survey and will take care of sending you the report with the results.

We wish to confirm you that the information collected will remain strictly confidential within our team. Only aggregated results will be disclosed, in such a way that it will be impossible to track-back to the data of individual enterprises.

We are conducting this survey, in the framework of a project funded by the European Commission, with the purpose of exploring how social and economic sustainability is conceived, interpreted and deployed in European manufacturing Enterprises.

The questionnaire consists of the following sections:

1- General information
2- Sustainability profile
3- Practices for social sustainability focusing on factories and employees
4- Practics for social sustainability focusing on stakeholders and communities
5- Social sustainability maturity and measurement

Answering the questionnaire requires about 20 minutes. You do not have to do it one session: you can start interrupt and resume later on.

Thank you very much indeed for your valuable input to this work.

The SO SMART Team.

7.3 Appendix C- Interviews

Questionnaire

(Main points of the interview to catch specific stakeholders' perspectives)

Dear NN,

I'm approaching you from an European project "CSA for innovative methodologies addressing social sustainability in manufacturing -SoSmart" (FoF.NMP.2013-4, attached SoSmart leaflet).

In a changing world, the EU wants to become a smart, sustainable and inclusive economy.

Factories will play a relevant role in pursuing this goal. Actually, talented workforce and a powerful technological and industrial base have been recognized by European leaders among the main strengths to overcome the economic crisis and address the challenges ahead.

The SO SMART project is developing a new vision for factories to flourish together with their social environment.

Our objective is to create and validate scenarios and solutions for future ntems in which manufacturing enterprises, employees and society enact new ways of interaction, socially and economically sustainable in the medium and long term.

Other challenges concern gaps between:

- Employee well being and the imperative to carry out economically sustainable business,
- Future competence requirements and the available workforce's knowledge,
- Need to retain experienced employees longer and the need to attract a new generation of workers

We are also concerned for the need to find the most appropriate balance between objectives, resources, and capabilities made available by society and by the industrial/economic system:

- To develop competences and skills along the life of people;
- To include everyone at different levels of society from local to global communities;
- To pursue people health and safety
- To improve local/regional security, traffic, etc.;
- To care for babies, elderly and disabled people;
- Etc.

We are analyzing existing practices, industrial needs, stakeholders' expectations and experts' perspectives in order to acquire a comprehensive and deep understanding of the existing situations and dynamics.

In this phase we are conducting short interviews to relevant stakeholders with the purpose of exploring their perspectives, expectations, opinions about current, emerging or future models for sustainable manufacturing.

We would highly appreciate if you could provide your contribution by disclosing your thoughts in answering the following questions:

1. What are the most important practices/actions an industrial company should put in place in order to be socially sustainable and in particular bring benefits to the stakeholder you represent? (i.e. promote well-being of employees and their families, collaboration with training institutions, involvement in organization of local events…).
   (Max 250/300 words)

2. Are these practices of "social sustainability" put in place by factory relevant for your stakeholder? (Max 250/300 words)

3. Which are the main advantages coming from these practices/collaborations aiming at the social sustainability? (Max 250/300)

4. Which are the obstacles and barriers to put in place social practices between the stakeholder that you represent and the company?

7.4 Appendix D- Interview responses

Interviewed person 1

Stakeholder: Trade and industry chamber, Bonn (Industrie und Handelskammer Bonn)
Responsibility: Head of Communication / Coordinator of Corporate Responsibility

Note: the interview partner did not reflect the situation at the chamber organization but the situation in member companies. He is well knowing the practice of social sustainability in companies in Nordrhein Westfalen region, west Germany / northrhein westfalia

The interview was made in German language and transcribed afterword

1. In your organization's opinion, what are the most important practices/actions an industrial company should put in place to be socially sustainable, and which stakeholders within and around that company should be benefited by those practices? (i.e. promotion of well-being of employees and their families, collaboration with training institutions, involvement in organization of local events…). (Max 250/300 words)

To take responsibility for social aspects have a long tradition. A lot of issues are presupposed for being a relevant employer.

- Worker's rights
- Compliance rules

currently most important: the aspects of work-life balance. More and more companies do recognise that young generation realizes career as not most important goal of life. The well-being of employees (esp. woman) in good compensation of professional and private resources is considered in companies. Balance between work-time & leisure time is considered more and more

- Overtimes are no longer self-evident
- Companies offer sabbaticals
- Baby time-out: even young father can get time-out of three month in the first year after birth of baby

important:

- Gender equality, e.g. same reward for same work / this issue is improving, not fulfilled
- Ethical and moral principals to external stakeholders, communication with stakeholders
- Compliance aspects

becomes more important:

- Taken strategies and action plans of social sustainability, communicated to the audience
- Responsibility beyond business, companies take action in social hedging even stakeholder outside the company, e.g. in the commune, doing something for poverty groups

2. If so, how are these practices of "social sustainability" put in place by one or more of the factories in your community? (Max 250/300 words)

It is observed a movement all over the region to more action of social sustainability

The practices of social sustainability improved particular in middle-sized companies overall Germany, Big companies started social sustainability much earlier. Small companies have still room for improvement

3. What main advantages have resulted from these social sustainability practices/actions? (Max 250/300)

- Attractiveness as relevant employer for young professionals
- More, even better candidates for available jobs
- Identification with company
- Motivated, satisfied employees
- Company's better reputation

4. Which are the obstacles and barriers in your company/organization to introducing social sustainability practices?

- Rising social costs
- Received benefit for companies isn't describable sufficient, particularly quantified
- HR management not yet prepared good enough
- HR share of voice in company's management circle

Last but not least: at the end of the day sales is often more important than human aspects.

Interviewed person 2

Stakeholder: International producer of packaging material for food
Large international company, German division
Responsibility: Cluster Leader Communications & Environment

The interview was made in German language and transcribed afterword

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1. In your organization's opinion, what are the most important practices/actions an industrial company should put in place to be socially sustainable, and which stakeholders within and around that company should be benefited by those practices? (i.e. promotion of well-being of employees and their families, collaboration with training institutions, involvement in organization of local events…). (Max 250/300 words)

Most important:

- We work with a corporate responsibility with a clear statement for a minimization of the environmental impact, employees identify with this values
- We are committed to principals of good corporate governance including social aspects
- Traditionally we have aligned our core business on sustainable principles. We are improving our social sustainability on going.
- We motivates children and young people to a balanced diet with milk, there is an initiative participating > 2500 schools in program of healthy feed for children (note: the company does not produce or fill up milk-products, but packaging for milk)

career

- We make sure that everyone can find the corresponding position to his skills at the right time
- We are committed people, engaged in both our work and with the life around us
- We support work-life balance,
- A systematically competence development process is the link between the company and employees
- We verbalized human needs in accordance with our core values
- Superiors and staff respect each other and rely on each other,
- We are member of Global Compact Initiative since more than ten years, we act and communicate in accordance to this international standard
- We support engagement for safe and healthy food, milk providing for children in schools, environmental protection measures,

Stakeholders

- Focused on employees with some social aspects around the work-life
- Additionally on market of professional candidates
- Society; engaged in several initiatives for save food, against poverty

2. If so, how are these practices of "social sustainability" put in place by one or more of the factories in your community? (Max 250/300 words)

We are not alone with activities in social sustainability
A lot of our clients (business clients) are as well engaged, e.g. Nestle,

It is expected to a company to be a good citizen with values of responsibility

3. What main advantages have resulted from these social sustainability practices/actions? (Max 250/300)

- We get the best results with staff to make their various areas of life balanced
- Attractiveness as employer
- Reputation, image
- Employees with identification and willing to perform

4. Which are the obstacles and barriers in your company/organization to introducing social sustainability practices?

- We would enjoy to improve a little bit more in internal social sustainability, but support from CEO is somewhat week
- Missing measurable results of social sustainability impact
- We are strong marketing driven, economy is ultimately sometimes more important
- HR is not the driver of such programmatic

Interviewed person 3

Stakeholder: major of small city

Responsibility: major of Grosio

The interview was made in Italian language and transcribed afterword

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1. In your organization's opinion, what are the most important practices/actions an industrial company should put in place to be socially sustainable, and which stakeholders within and around that company should be benefited by those practices? (i.e. promotion of well-being of employees and their families, collaboration with training institutions, involvement in organization of local events…). (Max 250/300 words)

In our community, it would be beneficial if factories could associate and support nursery schools, or set up services for carers in order to foster women's work.

Companies can intervene on job satisfaction by ensuring fair salaries and working time.

They may involve employees in product development or specialized tasks.

There is a new trend: some employees have switched from white collars to blue collars. They have become lumberjacks: they work in the open air, take care of the woods and cut the trees to extract the wood for a power station. Although they have downshifted, their satisfaction has highly increased. This is a change in the paradigm: to be satisfied with less material things and more nature.

2. If so, how are these practices of "social sustainability" put in place by one or more of the factories in your community? (Max 250/300 words)

In our community, there are several practices in places, factories support the municipality in several ways:

- Make meeting rooms available
- Let employees participate in emergency teams together with the traffic officers, fire brigades, etc.
- Furthermore, the Municipality, the factories and the ANMIL Association (National Association of mutilated and disabled people on the job) http://www.anmil.it/) jointly organize safety courses which are given in schools, professional training, etc.

3. What main advantages have resulted from these social sustainability practices/actions? (Max 250/300)

A social sustainable factory establishes a good collaboration with the Municipality and with the local community.

As a result, environmental behavior improves.

4. Which are the obstacles and barriers in your company/organization to introducing social sustainability practices?

Social sustainability practices are usually associate with the following factors:

- high value added factories
- owners living in the factory's neighborhood and belong to the local community

The first factor is related with the creation of wealth, the second one deters the owners from extracting to much from the company.

From the viewpoint of the Municipality I represent, there is a type of barrier that makes factories less willing to collaborate: the Municipality has a role of law enforcement, I am the boss of all the traffic officers (in Italy they have more power than traffic supervision) and companies may have something to hide.

It is therefore very important to establish a trustful and transparent relationship from the very beginning, finding solutions for the main issues, such as waste, etc.

Interviewed person 4

Stakeholder: authorities of Milan district (NUTS 3)

Responsibility: Economic innovation, smart city and university

The interview was made in Italian language and transcribed afterword

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1. In your organization's opinion, what are the most important practices/actions an industrial company should put in place to be socially sustainable, and which stakeholders within and around that company should be benefited by those practices? (i.e. promotion of well-being of employees and their families, collaboration with training institutions, involvement in organization of local events…). (Max 250/300 words)

- Projects and initiatives concerning work-life balance both for Large Enterprises and for Small and Medium Enterprises.
- Joint-ventures with Universities and Post-graduated Schools in order to value the competences of new talents, in relation with projects development and product/process innovation.
- Promotion of events, seminars, workshops and conferences open to general public, in collaboration with local institutions and/or with associations representing companies, consumers and citizens.
- Creation of business incubators to train and support young entrepreneurs to launch and grow up innovative start-ups.

2. If so, how are these practices of "social sustainability" put in place by one or more of the factories in your community? (Max 250/300 words)

With reference to each topic, we would like to highlight the following cases:

- Alcatel Lucent and Piano C (start up located in Milan);
- Tenaris Dalmine collaboration with Politecnico di Milano;
- Companies from the Biotech Industry, who every year collaborate to local and national events;
- The Business Incubator of Vodafone Italia in Milan

3. What main advantages have resulted from these social sustainability practices/actions? (Max 250/300)

For a company the production of social value generates the conditions for economic value creation.

In substance, companies can take several opportunities:

- to better include employees and collaborators,
- to recognize and value the competences expressed by young talents
- to give a role to young talents in their organization and plans
- to gain visibility and reputation within the local communities.
- These represent an investment for the future:
- to develop in harmony with the region;
- to attract new talents and novel ideas, exploitable for product and process innovation;
- to establish relationships with institutions and associations, for increasing opportunities to access tangible and intangible assets in the region.

4. Which are the obstacles and barriers in your company/organization to introducing social sustainability practices?

- Norm and legislation too complex and layered;
- Decentralized bargaining ineffective or not existent [2];
- Lack of resources

Interviewed person 5

Stakeholder: authorities of Lombardy region (NUTS 2)

Responsibility: productive activities, research and innovation general director

The interview was made in Italian language and transcribed afterword

1. In your organization's opinion, what are the most important practices/actions an industrial company should put in place to be socially sustainable, and which stakeholders within and around that company should be benefited by those practices? (i.e. promotion of well-being of employees and their families, collaboration with training institutions, involvement in organization of local events…). (Max 250/300 words)

[2] In the Italian system, collective bargaining has two main foci. It takes place both at centralized level (national multi-industry bargaining , industry-wide bargaining) and at decentralized level.

The theme of CSR has acquired increasing relevance in these past few years both at National and European level. In this area, the Commitment of the Lombardy Region is to support and accompany companies along their path in CSR, valuing results and best practices.

We refer to the European Commission, to the OCSE and to the National Plan 2012-2014 to develop our vision on CSR. We see sustainability as a competitive factor for enterprises, as a managerial lever, which goes beyond the still widely spread concept of pure philanthropy.

We have liaised with public institutions, such as the Federation of Chambers in Lombardy, to promote the culture of social responsibility and the CSR guidelines, tailoring them on the characteristics of the SMEs in Lombardy, whenever necessary.

Our policy is not to steer specific practices but rather prefer a bottom up approach: leaving the enterprises to identify and implement the initiative that they find more appropriate.

We have launched a call to fund initiatives for best practices in CSR with a total budget 850.000 euro, addressing three main areas of People Care, Supply Chain and Enterprise Crisis Management.

More details about our vision and activity can be found on our website: http://www.industria.regione.lombardia.it/cs/Satellite?c=Page&childpagename=DG_Industria%2FDGLayout&cid=1213646917772&p=1213646917772&pagename=DG_INDWrapper

2. If so, how are these practices of "social sustainability" put in place by one or more of the factories in your community? (Max 250/300 words)

As mentioned before, we have launched a call, received 40 proposals and selected 10 projects in 2013. These projects have developed best practice within 2013 and results are under evaluation, so we can't provide final statements. However our feeling is that those projects have realized interesting experiences.

Concerning the theme of People Care, the most interesting practices concerned integrative health assistance and sustainable mobility.

In particular a project implemented gamification of mobility to foster the use of green vehicles (bikes) among employees. The game they developed included scores and prizes consisting in vouchers to be spent in local shops. This brought an additional contribution to social sustainability by support local small shops. Competition among different companies was an additional feature of the game.

With regard to the Supply Chain theme, best practices concerned initiatives to foster consumption of local products and provision of km 0 food to schools.

Finally, the theme of Enterprise crises management, we can mention an initiative to support managers' outplacement, by setting up competence evaluation mechanisms, by delivering coaching and training service and by identifying suitable jobs vacancies.

Additional best practices have been collected and are accessible at:

http://csr.unioncamerelombardia.it/index.phtml?Id_VMenu=241

3. What main advantages have resulted from these social sustainability practices/actions? (Max 250/300)

This is hard to assess and we are still in the evaluation process for the 2013 project.

In general, we believe to have achieved higher awareness and more diffused culture on CSR.

4. Which are the obstacles and barriers in your company/organization to introducing social sustainability practices?

Some topics are still perceived as too challenging.

Crisis management for example, in spite of the number of cases occurred in 2013, was addressed by only one project and with reference only to managers.

In addition, we think that lack of transparency and legal compliance might be among the barriers that hinder full deployment of social sustainability. That is why we are pondering about prioritizing this topic in our policy plans and possibly in future funding programs.

Interviewed person 6

Stakeholder: HR department Whirlpool

Responsibility: CSR, work-life balance programs, employees voluntarism

The interview was made in Italian language and transcribed afterword

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1. In your organization's opinion, what are the most important practices/actions an industrial company should put in place to be socially sustainable, and which stakeholders within and around that company should be benefited by those practices? (i.e. promotion of well-being of employees and their families, collaboration with training institutions, involvement in organization of local events…). (Max 250/300 words)

Social sustainability embraces different areas: CSR, work-life balance, and practices of welfare.

- CSR (Corporate Social Responsibility)
    - Philanthropy involving employees: "IO4 children program" distance child adopting trough no profit Onlus "Save the Children"
    - Collection of food, clothes to donate to local associations or national ones (Banco Alimentare)
    - http://www.whirlpoolcorp.com/responsibility/building_communities/habitat_for_humanity.aspx
    - Collection of funds for leukaemia studies
- Leisure time corporate committee (CRAL) http://www.cralwhirlpool.it/
    - Discounts and facilities in sports, cultural events, holiday trips
    - Events promotion
    - Zero Kilometres market to support local producers and to offer employees the opportunity to save time and money
- Flexibility on work
    - Time flexibility (only white collars)
- Work-life balance
    - "Whirlpool for families" three programs: 1) economic facilities for nursery (agreements with local communities), 2) holiday campus for employees' children, 3) welcome back training (work-life balance): training to people coming back to work after a long period (in the most cases dedicated to women after the period of maternity). Training to new competences, updating of old competences
    - Maternity Kit

- Employees' integration
    - "Global mobility" program: support to foreign employees and their families
    - Languages courses provided also to family
    - Support in other information (explain local laws and rules,…)
- Welfare
    - Promote healthy programs against smoke, gamble…(collaboration with local public healthcare system-ASL)
    - Medical center inside manufacturing plant
    - Medical check up and screening
- Training not considered in the field of social sustainability

2. If so, how are these practices of "social sustainability" put in place by one or more of the factories in your community? (Max 250/300 words)

Some of the described practices of social sustainability are put in place in collaborations with other stakeholders:

- Employees (employees voluntarism, leisure time committee)
- Local authorities/Community (for nursery services and discounts)
- Healthcare public system (promotion of healthy programs, and periodical medical check up)

3. What main advantages have resulted from these social sustainability practices/actions? (Max 250/300)

- More satisfied and productive employees
- Attract young talents
- Better companies' image and reputation toward external stakeholders
- Create and maintain good relationships with local communities (agreements on nurseries and asylum for workers' children)
- Teambuilding (sport activities, cultural events, holiday trips)
- Active role of workers in pursuing company's CSR (voluntarism activities during paid working time)
- Align workers to values and vision of the company
- Create a network with the company

4. Which are the obstacles and barriers in your company/organization to introducing social sustainability practices?

The main obstacles are related to the economic aspects:

- Rising social costs
- Received benefit for companies isn't describable sufficient, particularly quantified
- Difficulties in correlate economical results to social sustainability

Interviewed person 7

Stakeholder: trade unions
Responsibility: trade unions representative

The interview was made in Italian language and transcribed afterword

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1. In your organization's opinion, what are the most important practices/actions an industrial company should put in place to be socially sustainable, and which stakeholders within and around that company should be benefited by those practices? (i.e. promotion of well-being of employees and their families, collaboration with training institutions, involvement in organization of local events…). (Max 250/300 words)

In our vision the first indicator for assessing companies' social sustainability is the status of the industrial relationships. That is assessing if the prevailing attitude shows the entrepreneur, the managers and the workers struggling for diverging interests, or rather collaborating to pursue common goals and address common problems.

It is important to achieve active involvement of managers, workers representatives, unions' delegates, unions, and workers, with clear roles and responsibilities, and a common ground of knowledge. This enable joint evaluation of possible scenarios instead of having unilateral initiatives and conflicts.

Good practices include transparency about the market and economic situation. Transparency about methods adopted to evaluate workers competencies, which should be shared with the unions. Individual evaluations should be periodically discussed between the workers and their supervisors.

Investment in R&D and innovation, investment in professional competences of workers, welfare systems, and language courses are also good practices.

Create good organizational conditions for women to make their career.

Remove prejudices against part-time to foster work life balance.

Rather than abusing of social welfare funds, joint actions (companies and unions) to use available funds to re-orientate and strengthen workers competences both for internal or external job placement.

Care, cleanness and tidiness of the job floor.

2. If so, how are these practices of "social sustainability" put in place by one or more of the factories in your community? (Max 250/300 words)

We have supported workers and factories in a lot of situations and particularly in crises management.

There are several examples of solutions found together with the workers that lead benefits to the company as well as to the workers. In Luxottica, shifts were revised in order to synchronize delivery of final products with the pick-up time of the logistics company. Distribution of benefits between the company and the workers is subject to bargaining.

In one case, we supported an agreement between a manufacturing company and the workers to launch a project implying an investment for a new plant. The agreement was that if the investment has not achieved the expected return, the workers would have shared the investments costs. Each individual worker and manager would have contributed by 17 monthly deductions from their salary, with higher shares for higher salaries. Unfortunately the managers, who were to contribute more, terminated the contract after three months.

Some companies, i.e. BLM, have integrated social sustainability practices, covering the supply chain as well as the customers. In particular with the customers of their equipment (in Brazil), they have set up joint training activities so that operators can run the machines and do repair and maintenance activities (with tele-assistance from BLM technicians).

3. What main advantages have resulted from these social sustainability practices/actions? (Max 250/300)

Advantages of social sustainability practices are for the company as well as for the workers. A paradigmatic example comes from Alma###. The union delegate identified solutions for obtaining energy savings. These solutions were first applied to the company's equipment and technical building services, which entailed significant savings. Furthermore, these solutions were implemented in the company's products thus becoming a source of competitive advantage. Revenues increased as well as employment. The social environment within the company was very positive and the workers were involved in this innovation, proud and committed to this green approach.

Also the social environment related to the workers families can benefit from practices for work-life balance.

4. Which are the obstacles and barriers in your company/organization to introducing social sustainability practices?

With reference to manufacturing companies: there are several barriers. Cultural factors, old male chauvinist authoritarian style that often prevents professional recognition and growth for women as well as for young people.

The reiterative use of temporary contracts impacts negatively on young workers, who do not feel at their ease but dependent on the power of their supervisors. Their personal development is thus hindered.

A lot of companies have deficiencies as far as R&D and strategic planning are concerned and often believe that the only option is reducing the cost of labour.

External factors sometimes create additional obstacles: banks for example are reducing lines of credit.

I would like to highlight an additional issue, although not under the direct control of manufacturing companies: in Italy, young graduates and under-graduated have no working experience at all. They might know every theory about manufacturing systems and work organization but do not know how to tackle the social environment in the factory.

The whole political and economic system often does not incentive social sustainability (when companies and workers can demonstrate): credit should be given to companies' social sustainable and denied to tax evaders companies.

Interviewed person 8

Stakeholder: Local authorities

Responsibility: City Planner of Gothenburg

The interview was made in Swedish language and transcribed afterword

1. In your organization's opinion, what are the most important practices/actions an industrial company should put in place to be socially sustainable, and which stakeholders within and around that company should be benefited by those practices? (i.e. promotion of well-being of employees and their families, collaboration with training institutions, involvement in organization of local events…). (Max 250/300 words)

In my opinion, it is necessary for companies to have more than just a CSR box to tick off. In a previous program that I worked in, we explored when sustainable development happens, and discovered that when business development and entrepreneurship are prioritized, ecological concerns dropped in priority, and there was competition over the raw materials. So we had only seen how conflict arises, but there must be interest amongst all the involved parties to make sustainability a reality. There was a lot of talk about Nokia, and how they engage themselves in their local community.

I think the next paradigm needs to be that we look at collaboration forms and partnerships that cross the borders of companies and societal organizations - just keeping it within the walls of the factory will not increase the interest in sustainability. I think we all need to help each other think about the future of an entire city, not just well-being and individual cases at companies. I believe very much in open forums where different interests can be laid visible alongside each other. This communal visibility upgrades the common goal so that every company wants to be a good company and make an effort. I find social impact bonds very interesting; it's about attracting good investors.

2. If so, how are these practices of "social sustainability" put in place by one or more of the factories in your community? (Max 250/300 words)

In my work I am most familiar with the housing sector and similar companies; some of them carry themselves very proudly when it comes to social sustainability, for example [housing company]. Some architectural firms have made it their business idea to work towards their idea of social sustainability, without directly relating it to their projects and ambitions. Like I said, it needs to be bigger than just having a tick box for CSR, it needs to be part of your business model. On the lowest level, there is a bakery in [part of town] that has a very consistent sustainability business model both regarding ecological and social concerns. Quite frequently, I find that the market is demonized. There are smart and gifted people in every sector who follow through on making sustainability the only way to conduct business.

In my experience, the industrial side mostly considers social sustainability practice on a sponsoring level, which I find quite impossible to calculate the worth of. I feel critical toward sponsorship, but would perhaps like a longer conversation to develop that.

Again, I feel that someone needs to invite different parties to a dialogue, and have a forum with both business developers, people who live around them and people representing the city, and I would especially like to see them discuss ideas about a specific part of the city.

3. What main advantages have resulted from these social sustainability practices/actions? (Max 250/300)

To be worthwhile, I think there had to be synergies, and the transfer of competence and knowledge between people. There is a risk that social sustainability becomes isolated, so I believe that we must work on sustainability in all aspects in total; this is when we achieve social sustainability. Economic sustainability has received a lot of focus, but I think that the main idea is to get everyone interested in the whole, otherwise everyone starts to talk about well-being and comfort issues in society.

We need a forum where goals and conflicts of interests become visible. Quite frequently, we have missions that are in conflict with each other when developing the city, for example letting market agents into the housing market, while we have to build quickly and act constructively against housing segregation, etc. I think that from a social sustainability point of view, an open forum like the one I talked about would increase the public's confidence in city planning. Sustainable development is in conflict with a lot of things, for example there are conflicts about raw materials, ownership, subsidizing, competition etc. I don't think it's a good way to handle this complexity by separating and making the issues unique to specific sectors. A good planning instrument should expose goals and conflicts of interests, and become a mediating tool for discussing and talking with each other. At present, this is hard to find in the city's planning documents.

4. Which are the obstacles and barriers in your company/organization to introducing social sustainability practices?

I believe that social sustainability is very easy to give a political tent; in essence, it is politics. That is an eternal pedagogical dilemma because it's hard to keep on neutral ground, even though I believe that there are several political ways to achieve sustainability. In Sweden, you might say that social sustainability politics lean to the left, and another stereotype is that the market leans to the right. I interact with a lot of different stakeholders in my work; an interesting dilemma is that segregation has a background in class differences, but half of the stakeholders I interact with refuse to use or acknowledge the idea of class differences. What we need to talk about are what qualities we want from our society. There is a nice idea coming from the Sweden2020 initiative, along the lines of "what unites us is not an explicit ideology, but a common responsibility". I think it is a reasonable demand place on society, the public sector and the business industry to own that responsibility

together. This would be a prerequisite for the forum I spoke about, having a long-term perspective and trying to evade the political arguing.

We need these forums because there are tensions within organizations and between them, and because there is a difference between specialist competences and generalist ones. But as long as we choose to work in a sectorial, divided way, there will always be resistance and sluggishness towards making decisions, because each sector has its own preferred path. One shouldn't underestimate the sluggishness and how we usually do things. We need to open up a dialogue that is less threatening and focused on exchange and compromising towards common ownership of our responsibility. For example, the stakeholders could be asked to change some of their demands or to delay the gratification of some benefits for the common good. I don't mean it to be philanthropy, but a means to find business models.

8 REFERENCES

Baptiste, N. (2008). Tightening the Link between Employee Wellbeing at Work and Performance: a New Dimension for HRM. *Management Decision* , 284-309.

Benoit, C., Vickery, G., & Niederman. (2011). *Social Sustainability Assessment Literature Review.* The Sustainability Consortium . Arizona State University, University of Arkansas.

Benoit-Dorris, C. (s.d.). Developing Social Sustainability Metrics. Berkeley.

Bourne , K., Wilson, F., Lester, S., & Kickul, J. (2009). Embracing the Whole Individual: Adavantages of a Dual-Centric Perspective of Work and Life. *Business Horizons* , 387-398.

Carroll, A. (1979). A Three-Dimensional Conceptual Model of Corporate Social Performance. *Academy of Management Review , 4*, 497-505.

Carroll, A. (1999). Corporate Social Responsibility. Evolution of a Definitional Construct. *Business and Society , 31* (4), 268.

Carroll, A., & Pinkston, T. (1996). A Retrospective Examination of CSR Orientations: Have they Changed? *Journal of Business Ethics , 15* (2), 199-206.

Clarkson, M., Donaldson, T., & Preston, L. (1995). The Stakeholder Theory of the Corporation: Concepts, Evidence, and Implications. *Academy of Management Review , 20*, 65-91.

Conference, G. P. (2014). Tratto da http://www.greatplacetowork.com/

Coombs, T. (1998). The Internet as a Potential Equalizer:New Leverage for Confronting Social Irresponsibility. *Public relations Review , 24* (3), 289-303.

Dow Jones. (2013). *Dow Jones Sustainability WorldIndex Guide.* Dow Jones.

EFFRA. (2012). *Factories of the Future PPP-FoF20220 Roadmap-Consultation document.* Bruxelles.

Elkington, J. (1997). *Cannibals with Forks: The Triple Bottom Line of 21st Century Business.* Oxford: Capstone Publishing.

Feng, S., & Joung, B. (2009). An Overview of a Proposed Measurment Infrastracture for Sustainable Manufacturing Metrics. *The 7th Global Conference on Sustainable Manufacturing.*

Friedman, M. (1970). The Social Responsibility of Business is to Increase its Profits. *The New York Times Magazine* .

Global Reporting Initiative GRI. (s.d.). *Reporting Principles and Standard Disclosures*. Tratto da httpps://www.globalreporting.org/resourcelibrary/GRIG4-Part1-Reporting-Principles-and-Standard-Disclosures.pdf

Gray, R., Owen , D., & Adams, C. (1996). Accounting and Accountability: Changes and Challenges in Corporate Social and Environmental Reporting. *Prentice Hall* .

Great Place to Work® Conference. (2014). *100 Best Companies to work for*. Tratto da http://www.greatplacetowork.com/

Harrington, B., & Ladge, J. (2009). Present Dynamics and Future Durections for Organizations . *Organizational Dynamics* , 148-157.

Hooghiemstra, R. (2000). Corporate Communication and Impression Management-New Perspectives Why Companies Engage in Corporate Social Reporting. *Journal Business Ethics , 27* (1/2), 55-68.

Hutchins, M., & Sutherland, J. (2008). An Exploration of Measures of Social Sustainability and their Application to Supply Chain Decisions. *Journal of Cleaner Production* .

Johansson, B., Dagman, A., Rex, E., Nystrom, T., Wedel, M., Stahre, J., et al. (2012). Sustainable Production Research: Awareness, Measures and Development. *Journal of Sustainable Development* .

Joung, C., Carrell, J., Sarkar, P., & Feng, S. (2012). Categorization of Indicators for Sustainable Manufacturing. *Ecological Indicators* .

Kok, P., Weile, T., McKenna, R., & Brown, A. (2001). A Corporate Social Responsibility Audit within a Quality Management Framework. *Journal of Business Ethics , 31* (4), 285-297.

KPMG International . (2008). *KPMG International Survey of Corporate Responsibility Reporting.* KPMG, London.

Kronqvist, J., & Salmi, A. (2012). Co-Designing (with) Organization-Human-Centeredness, Participation and Embodiment in Organizational Development.

Lages, C. (2012). Employees' External Representation of their Workplace: Key Antecedents. *Journal of Business Research* .

Maceli, M., & Atwood, M. (2011). From Human Factors to Human Actors to Human Crafters. *iConference* . Seattle.

Maignan, I., & Ralston, D. (2002). Corporate Social Responsibility in Europe and the US: Insights from Businesses' Self Presentations. *Journal of International Business Studies , 33* (3), 497-514.

Majumdar , A., & Szigeti, H. (2011). *ICT for Manufacturing-The ActionPlanT Vision for Manufacturing 2.0.* ActionPlanT.

Mavrikios, D., Karabatsou , V., Pappas, M., & Chryssolouris, G. (2007). An Efficient Approach to Human Motion Modeling for the Verification of Human-Centric Product Design and Manufacturing in Virtual Environments. *Robotics and Computer-Integrated Manufacturing* , 533-543.

McDonald, P. (2011). It's Time for Management Version 2.0: Six Forces Redefininf the Future of Modern Management. *Futures* , 797-808.

Mitchell, R., Agle, B., & Woo, D. (1997). Toward a Theory of Stakeholder Identification and Salience: Define the Principles of Who and What really Counts. *The Academic of Management Review , 2* (4).

Morimoto, R., Ash, J., & Hope, C. (2005). Corporate Social Responsibility Audit: from Theory to Practice. *Journal of Business Ethics , 62* (4), 315-325.

Nations, U. (2007). *Indicators of Sustainable Development: Guidelines and Methodologies.* United Nations , New York.

Nikolaeva, R., & Bicho, M. (2010). The Role Institutional and Reputational Factors in the Voluntary Adoption of Corporate Social Responsibility Reporting Standards. *Journal of the Academy of Marketing Science , 39* (1), 136-157.

Omann, I., & Spangenberg, J. (2022). Assessing Social Sustainability . *7th Biennal Conference off the International Society for Ecological Economics.* Wien.

Paju, M., Heilala, J., Hentula, M., Heikkila, A., & Joahansson, B. (2010). Framework and Indicators for a Sustainable Manufacturing Mapping Methodology. *Winter Simulation Conference.*

Robertson, D., & Nicholsom, N. (1996). Expressions of Corporate Social Responsibility in U.K. Firms. *Journal of Business Ethics , 15* (10), 1095-1106.

Rowley, T. (1997). Moving Beyond Dyadic Ties: a Network Theory of Stakeholder Influences. *The Academic of Management Review , 2* (4), 887-910.

Schönborn, G. (2010). Value Performance on the Relation between Corporate Culture and Corporate Success. *Journal of Psychology , 218* (4).

Schein , E. (2009). The Corporate Culture Survival Guide. *New York: Wiley* .

Schein, E. (1990). Organizational Culture. *American Psychologist , 45*, 109-119.

Siegall, M., & Gardner, S. (200). Contextual Factors of Psychological Empowerment. *Personnel Review* , 703-722.

Snider, J., Hill, R., & Martin, D. (2003). Corporate Social Responsibility in the 21st Century: a View from the World's Most Successful Firms. *Journal of Business Ethics , 48*, 175-187.

Stiglitz, J., Sen, A., & Fitoussi, J.-P. (2009). *Report by the Commission on the Measurement of Economic Performance and Social Progress.* Commission on the Measurement of Economic Performance and Social Progress (CMEPSP).

Ullmann, A. (1985). Data in Search of a Theory: a Critical Examination of the Relationships among Social Performance, Social Disclosure and Economic Performance of U.S. Firms. *Academy of Management Review , 10* (3), 540-557.

United Nations. (2007). *Indicators of Sustainable Development: Guidelines and Methodologies.* United Nations, New York.

Wood, D. (2010). Measuring Corporate Social Performance: a Review. *International Journal of Management Reviews , 12* (1), 50-84.

World Commission on Environment and Development (WCED). (1983). *Brundtland Commission.* World Commission on Environment and Development (WCED).