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THESIS:  
SUSTAINABLE DEVELOPMENT  
MANAGEMENT IN SMALL AND MEDIUM-SIZED  
ENTERPRISES.  
CONTRIBUTIONS REGARDING ITS  
MEASUREMENT AND IMPLEMENTATION

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## SUMMARY

The field of sustainable development is very topical from the perspective of finding solutions to achieve sustainable economic growth, without compromising the ability of future generations to meet their own needs. Sustainable development is traditionally associated with political will and the measures taken publicly to achieve it. However, the business world follows its own logic, of profit, and the contribution of enterprises to the achievement of sustainable development objectives can be relevant only by motivating them to achieve projects that meet sustainability criteria. Determining business managers to make the decision to invest in sustainable development projects is therefore a challenge for the public authorities, and finding the right financing instruments varies depending on the legal framework from country to country. The interest of the chosen theme consists precisely in highlighting the factors that underlie the decision-making process at the level of enterprises.

The interest of this paper lies in addressing a topical issue, sustainable development in small and medium enterprises, on which there is a limited number of scientific research. The literature lists numerous indicators for measuring sustainable development in large enterprises (corporations) or at the macroeconomic level (country, group of countries). For SMEs, there is no set of generally accepted indicators, and their definition depends on the accounting rules of each country. Based on the mandatory accounting information provided by companies, we want to identify possible indicators to calculate. This stage of objective determination of the possibilities for measuring sustainable development is completed by a study of the perception of the integration of sustainable development in the company by managers (subjective analysis).

The first part of the thesis consists of a bibliographic study, to determine the current state of scientific knowledge in the field. The main aspects studied in this part are: clarification of the concept of sustainable development, with orientation including its philosophical dimension; the main institutional and legislative benchmarks related to this concept; transposing the notion of sustainable development at enterprise level, through Corporate Social Responsibility; the specifics of its integration in small and medium-sized enterprises; the relationship between sustainable development and innovation. The approach is gradual, from general to specific, from conceptual and macroeconomic to enterprise level.

In the second part of the thesis, the stated research topic is developed and the general objective and the specific ones of the research are specified. From this stage derive the research hypotheses, as well as the means and methods of study. At this stage, we confirmed and developed the research niche, namely the implementation and measurement of sustainable development in small and medium enterprises, respectively the construction of statistical research tools for this purpose. If the academic literature and studies of international organizations abound in ways of reporting and calculating the degree of sustainability of large companies, for SMEs the information is much less accessible, for several reasons: lack of human and financial resources to carry out these steps, information and insufficient interest related to sustainable development at their level, fragility and logic of survival, the impression that commitment in the social and environmental field is costly, etc.

By studying the academic literature in the field, but also by analyzing non-academic documents (reports, accounting documents, legislative acts) and semi-structured discussions with managers and specialists in the fiscal, accounting and legislative sector, we built a questionnaire for enterprises in the sample selected. The mixed research methods allowed to obtain qualitative data, both those resulting from interviews and discussions, but also from documents, as well as from the questionnaires themselves. The qualitative and statistical data were structured according to the main research topics, respectively: managers' knowledge and attitudes regarding sustainable development, barriers and facilitators to its implementation within the company, concrete sustainability policies (general, environmental and social), indicators that reflects sustainable development at the firm level. Following the construction in the second part of our paper of the research tool, respectively of the questionnaire intended to be administered to the enterprise managers, we performed its verification on a panel of 5 enterprises, which were not part of the extended sample.

The purpose of this approach is to test and then validate the research tool in real conditions, using the same type of respondents who complete the final questionnaire. This process showed us that the reformulation of questions, the re-clarification of the meaning of some terms, the elimination of any doubt regarding the confidentiality of data and the existence of value judgments following the answers, as well as the encouragement of managers to propose their own and spontaneous answers, competed to obtain and validation of a reliable and exploitable research tool.

Part III of the thesis is devoted to the presentation of research results. The analysis of the scientific data obtained in the second stage was performed both descriptively and statistically. The general descriptive analysis of the data is presented on the four key topics of our study: the

knowledge and attitudes of managers, facilitators and barriers to implementing sustainable development in companies, the degree of integration of sustainable development policies in sample companies, sustainability measurement indicators at company level, use both those proposed by the literature and those suggested by the responding managers. Next, we perform a comparative study between companies in the sample with different parameters, depending on the following criteria: company size by number of employees and turnover (micro, small and medium enterprises), profit level, manager's age, level of education , manager type and type of clientele (BtoB or BtoC). The qualitative and quantitative data obtained were analyzed through the IBM SPSS Statistics program, which allowed finding correlations between variables, validating hypotheses and determining decision trees based on the responses where most cleavages were observed.

The last part of the paper is dedicated to the conclusions, personal contributions and perspectives for capitalizing on the research results. Some of them have already been disseminated in scientific events, and this approach will continue after the completion of the paper. Some theoretical aspects of the thesis deserve to be deepened (for example, the link between the manager's gender and the implementation of sustainable development policies), and the practical aspects can be a guide of procedures and practices for managers who want to integrate sustainability as a structural principle into their business.



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# ABBREVIATIONS

- AC: Agenda Cetățeanului
- APD: Ajutorul Public pentru Dezvoltare
- APEC: Asia-Pacific Cooperation Economies
- BFSI: Bellagio Institute for Sustainable Development
- BM: Banca Mondială
- BtoB, BtoC: Modele de afaceri în care tranzacțiile se efectuează între companii (BtoB), respectiv între companii și consumatorul final (BtoC)
- CA: Cifra de Afaceri
- CEREMA: Centrul de Studii și Expertiză pentru Riscuri, Mediu și Mobilitate (Franța)
- CNUED: Comisia Națiunilor Unite pentru Mediu și Dezvoltare
- CO<sub>2</sub>: Dioxid de Carbon
- CSR: Corporate Social Responsibility
- DD: Dezvoltare Durabilă
- EAP: Earth Action Plan
- FEDR: Fondul European de Dezvoltare Regională
- FEI: Fondul European de Investiții
- FIELD: Fundația pentru Legea de Mediu Internațională și Dezvoltare
- FMI: Fondul Monetar Internațional
- FSE: Fondul Social European
- GCP: Global Carbon Project
- GIEC: Grupul de Experți Interguvernamentali asupra Evoluției Climatului
- HIV: Human Immunodeficiency Virus
- IASB: International Accounting Standard Boards
- IISD: International Institute for Sustainable Development
- IMM: Întreprindere Mică și Mijlocie
- ISO: International Standard Organization
- IUCN: International Union for Conservation of Nature
- NCSD: National Centre for Sustainable Development
- NSRF: National Strategic Reference Framework
- OECD: Organization for Economic Cooperation and Development
- OMC: Organizația Mondială a Comerțului

- ONG: Organizație Non-Guvernamentală
- ONU: Organizația Națiunilor Unite
- PEA-PME: Plan d'Épargne en Actions pour les Petites et Moyennes Entreprises
- PIB: Produs Intern Brut
- PO: Pecking Order
- PT: Persuasive Technology
- ROA: Return on Assets
- RSI: Responsabilitate Socială a Întreprinderilor
- TO: Trade-Off
- UE: Uniunea Europeană
- UEFISCDI: Unitatea Executivă pentru Finanțarea Învățământului Superior, a Cercetării, Dezvoltării și Inovării
- UNCED: United Nations Conference for Environment and Development
- UNDP: United Nations Development Programme
- USA: United States of America
- VCC: Venture Capital Companies
- WCED: World Commission for Environment and Development
- WCS: World Conservation Strategy
- WSSD: World Summit for Sustainable Development

# 1.INTRODUCTION

The concept of sustainable development is by its nature, at the intersection of three dimensions (called in the literature "triple bottom line"), which gives it a multidisciplinary character: economic, social and environmental. Some authors have even tried to prioritize the three aspects, establishing that economic imperatives are implicit and that a profitable business can then raise the issue of positive impact on the environment and society. In other words, profitability must be a premise<sup>1</sup> for the integration of social or environmental policies within the company.

The notion of sustainable development has constantly evolved since its shaping in the 1970s and until today, both in its abstract, philosophical and practical sense, at the company level. The transposition of this concept at company level is done through the company's social responsibility (CSR or Corporate Social Responsibility). Today, the concept evolves from the "single shareholder" dimension to a "multi-stakeholder"<sup>2</sup> approach. This includes investors, employees, business partners, customers, regulatory institutions, local communities, the environment and society at large.

The main objective of the doctoral thesis is to determine the factors and conditions that favor the implementation of sustainable development in small and medium enterprises. The main purpose of practical research is to collect a sufficient set of data to achieve this goal.

The specific objectives of the paper are the following:

- raising the awareness of the managers of small and medium enterprises regarding the issue of sustainable development at company level;
- presentation of the current state of scientific research in the field, relevant to the main objective;
- identifying new ways of measuring and evaluating the social responsibility of small and medium enterprises;
- determining some models and typologies of behavior regarding the implementation of sustainability at the level of SMEs;
- elaboration of a guide of good practices in the field, for the attention of Romanian SME managers;

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<sup>1</sup> Henriques Adrian and Julie Richardson, *The Triple Bottom Line: Does It All Add Up? Assessing the Sustainability of Businesses and Csr*, Sterling VA: Earthscan, London, pp.52-53, (2004).

<sup>2</sup> Banerjee M. Preeta and Shastri Vanita, *Social Responsibility and Environmental Sustainability in Business: How Organizations Handle Profits and Social Duties*, New Delhi: Response Books, p.2, (2010).

- highlighting the complexity of the factors that impact sustainability at the company level, as well as their interdependence relations, including with the external environment of the company.

In the diagram below, we present the schematic structure of the doctoral thesis, consisting of three main parts.

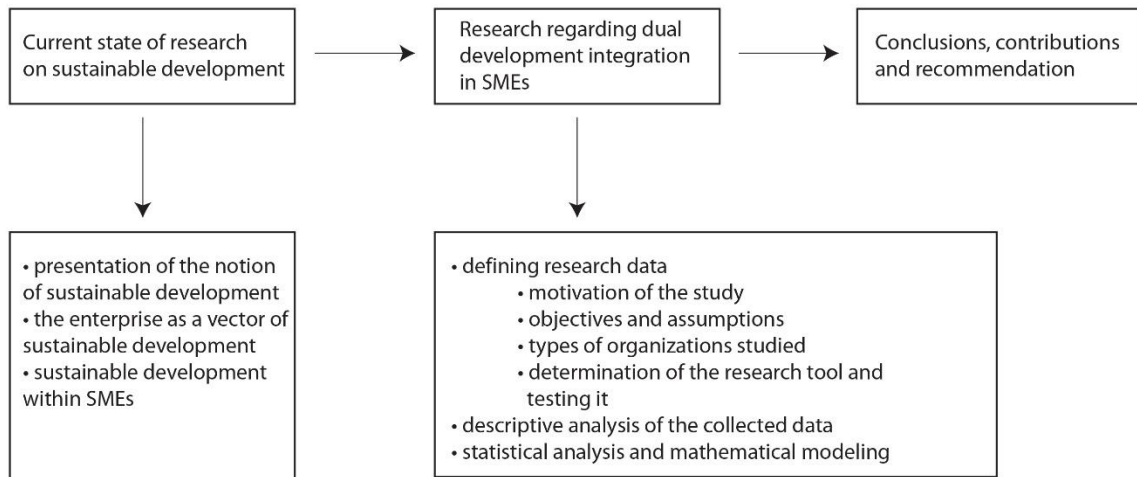


Figure 1-Logical scheme of the doctoral thesis

Based on open conversations with managers and the preliminary study of the scientific literature, we formulated a series of research hypotheses, which were subsequently verified:

- Hypothesis no. 1. There are significant differences in the implementation of sustainable development in SMEs, depending on their size. The smaller they are (micro-enterprises), the more they are in the "survival logic" mentioned above.
- Hypothesis no. 2. There are significant differences in terms of the company's sustainability policy, depending on the type of manager.
- Hypothesis no. 3. The smaller a firm is, the greater the influence of the manager's subjective attitudes and knowledge.
- Hypothesis no. 4. Most SME managers do not use, consciously or not, a structured system of sustainable development indicators. This does not preclude the use of specific evaluation methods, which can be assimilated to indicators.
- Hypothesis no. 5. Other factors such as the age of managers, the level of education, the type of clientele, can have significant influences on some aspects of sustainability policies in SMEs.

The analysis of all these aspects - knowledge and attitudes of managers, barriers and facilitators, sustainable policies and indicators - aims to confirm research hypotheses, consolidate information still insufficiently explored, and find new avenues to explore.

# **PART I - CURRENT STATE OF SCIENTIFIC KNOWLEDGE REGARDING SUSTAINABLE DEVELOPMENT AND ITS INTEGRATION INTO ENTERPRISES**

In the first part of the thesis, we focus on presenting the current state of scientific research on sustainable development, through the following aspects: clarification of the concept of sustainable development, enterprise as a vector of implementing sustainability, the link between innovation and sustainability, challenges of integrating sustainable development in enterprises small and medium. This first part of the paper consists of six chapters.

## **2.THEORETICAL FUNDAMENTALS RELATED TO SUSTAINABLE DEVELOPMENT**

### **2.1.CONCEPTUAL CLARIFICATIONS REGARDING SUSTAINABLE DEVELOPMENT**

In this subchapter of the paper we aim to illustrate the current state of knowledge on sustainable development, starting from its broad, macroeconomic meaning, highlighting its applicability at the microeconomic level and the implications it has on each individual and quality of life.

Sustainable development is the institutional translation (through the United Nations) of the concept of sustainability, as we will show below. Next, we will use in the paper the two options - sustainable development and sustainability - to refer to one and the same concept.

The notion of "sustainable development" was first used in 1987 by the Prime Minister of Norway, Gro Harlem Brundtland. He, as chair of the World Commission on Environment and Development, presented the report *Our Common Future*, in which sustainable development was defined as “development that meets the needs of the present, without compromising the ability of future generations to meet their own needs.”<sup>3</sup>. In fact, this is the best known definition of sustainable development, out of the more than 50 existing.

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<sup>3</sup> *Our Common Future*, ed. United Nations World Commission for Environment and Development, [http://conspect.nl/pdf/Our\\_Common\\_Future-Brundtland\\_Report\\_1987](http://conspect.nl/pdf/Our_Common_Future-Brundtland_Report_1987), (1987).

Awareness of the negative impact of human activities on the environment has generated the need to create specific international institutions, whose role is to draw attention to the irreversible nature of environmental degradation and to propose protection measures.

In the context of an unprecedented economic crisis in terms of duration and complexity, the society in which we live is at a crossroads: should it prioritize high economic growth as an absolute priority, but consuming resources that prove limited? The foundation of our vision of humanity has become the rejection of the idea of limit<sup>4</sup>. The model of our world is the desire to abolish all boundaries, which is the opposite of the Greco-Latin tradition for which "hubris," or lack of measure, was the major mistake. Hence, the idea of "decrease", because infinite growth is not possible.

Accepting the slowdown in economic growth and the possibility of a decline in developed countries has been a taboo in political discourse for many decades, although a number of economists have sounded the alarm since the two world wars. More and more economists agree that the world economy is inevitably moving towards the limits of its growth. The first theorist of economic decline, Nicholas Georgescu Roengen<sup>5</sup>, born in Romania in 1906, conducted world-renowned studies on the dynamics of economic growth, and drew attention, 20 years before all, to the negative effects of economic growth on the environment. For him, economics is a life science, anchored in biology, which does not respond to a mechanical logic. In this multidisciplinary approach, the economist draws a parallel with thermodynamics, the science founded in 1824 by Sadi Carnot, to model the economy and show the limits of economic growth: depletion of resources, which leads to social conflicts and limits the survival of the human species.

The causes of economic stagnation or decline are therefore primarily the scarcity of natural resources, which in turn leads to an increase in their price. The current economic crisis has also been interpreted in the light of Marxist theses by a number of current economists; In this sense, three authors come together<sup>6</sup> to review the Marxist analysis to explain the mechanism of the crisis: "The core of this crisis is characterized by the growing impossibility of converting goods produced into money at a level sufficient to guarantee the accumulation of monetary value, indispensable for the proper functioning of the market system ». The idea of the marginal return on GDP, itself generated by increased energy use, is also evoked by the American

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<sup>4</sup> Cheynet Vincent, *"Décroissance Ou Décadence"*, Fido, ISBN: 9791092605037, Paris, p.14., (2014).

<sup>5</sup> Georgescu-Roengen Nicholas, *"La Science Économique, Ses Problèmes Et Ses Difficultés"*, Paris: Dunod, PP XVI+300, pp.282-283, (1970).

<sup>6</sup> Bayon Denis, Filipo Fabrice, and Schneider, François *"La Décroissance: 10 Questions Pour Comprendre Et Débattre"*, La Découverte, ISBN: 2707157910, pp.15-26.

anthropologist Joseph. A. Tainter<sup>7</sup>, in his paper 'L'effondrement des sociétés complexes', in which he emphasizes that investment in a sociopolitically complex society reaches a point where the benefits of investment begin to decline, precisely because of the complexity of society, which leads to increasing energy consumption for system maintenance.

On the other hand, economist Dick Richardson<sup>8</sup> argues that sustainable development is only a verbal and political convention, promoted and even invented by the Brundland Commission. It is an expression of political correctness, the purpose of which is to unite the two political poles, which are de facto deeply separated: anthropocentric and biocentric. He suggests that the central idea of Brundland's approach is to integrate anthropocentric programs and an industrial vision into a biocentric language. Proponents of this approach do not question the quantitative increase measured in traditional terms. By contrast, advocates of biocentric vision question the very concept of quantitative growth. The problem with the Brundland Commission is therefore to try to unite what could not be united.

Its conclusion is that, in order for this concept to acquire a utility, it must be radically redefined, and its inclination for anthropocentric approach - recognized and removed. Instead of the environment adapting to economic growth, development itself must adapt to the environment.

The only possible path of evolution is sustainable development, seen as we have shown above, as a sum of rights of individuals and future generations; I propose to analyze in this paper the conditions for the realization of these rights, as well as the way to go from the general principles of sustainable development to concrete projects at microeconomic level, supported by responsible economic agents.

## **2.2.INSTITUTIONAL AND LEGISLATIVE REFERENCES**

Although the Stockholm Declaration adopted at the 1972 United Nations Conference on Environment and Man does not contain any explicit reference to sustainable development, it is generally accepted that it laid the foundations for the concept<sup>9</sup>.

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<sup>7</sup> Tainter Joseph A., *"L'Effondrement Des Sociétés Complexes"*, Paris: Retour aux sources, ISBN-10: 235512051X, pp.26-35, (2012).

<sup>8</sup> Richardson Dick, *"The Politics of Sustainable Development"*, ed. Baker et al., London: Routledge, ISBN 13: 9780415138741, pp.15-21, (1997).

<sup>9</sup> Sumudu Atapattu A., *"Emerging Principles of International Environment Law"*, NY: Transnational Publishers, ISBN 9781571051820. 9789047440147, pp.18-26, (2006).



In 1980, the World Conservation Strategy<sup>10</sup> was drafted by the IUCN, an organization whose goal is the protection of natural resources. Headquartered in Gland, Switzerland, it includes governments, environmental NGOs and individuals. The strategy notes as a precondition for sustainable development, conservation of life resources. After the Stockholm Conference in 1972, the polarization<sup>11</sup> between developed and developing countries was accentuated. Thus, the General Assembly of the United Nations gave the newly created WCED (World Commission on Environment and Development) in 1983 a mission to find ways to reconcile environmental protection with economic development.

The report also indicates that sustainable development contains two key concepts: needs and limitations. In response to the WCED report, the United Nations Conference on Environment and Development (UNCED)<sup>12</sup> was adopted in 1992 in Rio. Following the conference, several mandatory (UN Framework on Climate Change, UN Convention on Biological Diversity) and non-binding (soft law "instruments were created: Rio Declaration on Environment and Development, Agenda 21, Forest Principles). This statement has been criticized for not focusing enough on environmental issues and prioritizing economic development.

The conference proposed a concrete plan for implementing sustainability, through "Agenda 21". The "Local Agenda 21" versions provide governments with support and tools for conceptualizing and implementing medium- and long-term sustainable development. The challenges of the 21st century<sup>13</sup> are reflected in national and global programs, whose main lines of action are the fight against poverty and social exclusion, the sustainable production of goods and services, and environmental protection.

In 1995, the Copenhagen World Summit on Sustainable Development (WSSD) took place, and the Copenhagen Declaration on Sustainable Development<sup>14</sup> was the first document to clearly identify the three pillars of sustainable development: economic development, environmental protection and social development.

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<sup>10</sup> \*\*\*"World Conservation Strategy", URL <http://www.iucn.org>, IUCN, (1980).

<sup>11</sup> Sumudu, Atapattu A., *"Emerging Principles of International Environment Law"*, NY:Transnational Publishers, pp.23-26, (2006).

<sup>12</sup> <sup>12</sup>Daly H. E., *"Section-1, Chapter-1 of Agenda-21 (International Policies to Accelerate Sustainable Development in Developing-Countries and Related Domestic Policies) - Unced"*, *Population and Environment* 15, no. 1, ISSN 0199-0039, pp.66-69, (1993).

<sup>13</sup> Ciote Cristina, *"Eu Actions and Progresses in Terms of Climate Change and Energy Politics"*, *Annals of the Ovidius University XI*, no. 1, Issue 1, p.379, (2011).

<sup>14</sup> \*\*\*"Copenhagen Declaration", ed. World Social Summit, URL <http://visionoffice.com/socdev/wssd-0.htm>, (1995).

In addition to the European strategy for socio-economic reforms, defined in 2000 by the Council of Europe (Lisbon Agenda), the European Union adopted an ambitious strategy<sup>15</sup> for sustainable development at the European Council in Gothenburg, Sweden, in 2001. This strategy was revised. in 2005, when the European Commission found a worsening of climate change, public health, poverty and social exclusion, and declining biodiversity.

Romania has developed and adopted its own national sustainable development strategy, as well as a set of indicators calculated by the National Institute of Statistics. Romania's strategy recognizes key European priorities and complements them with issues specific to the Romanian context.

### **3.THE ENTERPRISE AS A VECTOR OF SUSTAINABLE DEVELOPMENT**

In recent years, enterprises are increasingly asserting themselves as actors of sustainable development<sup>16, 17</sup>, regardless of their size, location or object of activity.

#### **3.1.THE CONCEPT OF ENTERPRISE. SMALL AND MEDIUM ENTERPRISES**

From a legal point of view, the enterprise is an economic and social body, constituting an autonomous organization of an activity, with the help of the factors of production by the entrepreneur and at his risk, in order to produce goods and services for exchange, in order to obtain a profit.

Enterprises can be classified according to a multitude of criteria<sup>18</sup>: according to the footprint of a mode of production, according to the form of ownership, legal nature<sup>19</sup>, size, object of activity, economic sector, etc.

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<sup>15</sup> Miculescu Andra and Negruț Lucia, "Eu Strategy on Sustainable Development", Annals of the West University of Timisoara Seria Științe Economice, ISSN 1582-2680, pp.518-523, (2010).

<sup>16</sup> Tasdemir C., Gazo R., and Quesada H. J., "Sustainability Benchmarking Tool (Sbt): Theoretical and Conceptual Model Proposition of a Composite Framework", Environment Development and Sustainability 22, no. 7, pp.6755-6797, (2020).

<sup>17</sup> Pathak S. and Mukherjee S., "Entrepreneurial Ecosystem and Social Entrepreneurship: Case Studies of Community-Based Craft from Kutch, India", Journal of Enterprising Communities-People and Places in the Global Economy, 10.1108/JEC-06-2020-0112, (2020).

<sup>18</sup> [http://Www.Stiucum.Com/Management/Managementul-Intreprinderii/Clasificarea-Intreprinderilor52655.Php.](http://Www.Stiucum.Com/Management/Managementul-Intreprinderii/Clasificarea-Intreprinderilor52655.Php)

<sup>19</sup> Lefebvre D. et al., "Droit Et Entreprise. Aspects Juridiques, Sociaux, Fiscaux. 9eme Edition", Libre Cours, Grenoble: PUG, ISBN 10 : 270610922X, p.162, (2003).

Small and medium-sized enterprises account for more than two-thirds of the world's companies. There are almost 21 million SMEs in the European Union, representing more than 98% of all companies and 67% of employees<sup>20</sup>. Given that SMEs are the main source of job creation and supply and for providing revenue to state budgets, it is clear that they play a key role in the growth and development of the European Union.

In the present paper, the following classification for the definition of SMEs has been retained: in accordance with article no. 4 of Law no. 346/2004, Art. 4, “small and medium enterprises are classified, according to the average annual number of employees and the annual net turnover or the total assets they hold, in the following categories:

- a) micro-enterprises - have up to 9 employees and achieve a net annual turnover or hold total assets of up to 2 million euros, equivalent in lei;
- b) small enterprises - have between 10 and 49 employees and achieve a net annual turnover or hold total assets of up to 10 million euros, equivalent in lei;
- c) medium-sized enterprises - have between 50 and 249 employees and achieve a net annual turnover of up to 50 million euros, equivalent in lei, or hold total assets that do not exceed the equivalent in lei of 43 million euros ”.

## **3.2. FROM SUSTAINABLE DEVELOPMENT TO CORPORATE SOCIAL RESPONSIBILITY**

The key to implementing sustainable development policies is suggested by the scientist François Roddier<sup>21</sup> for him, as in biology and physics, the problems that concern us can be solved through collective awareness. Awareness of the need for sustainable development at the microeconomic level is therefore the key to the successful implementation of sustainability strategies at the macroeconomic level. The integration of the notion of sustainable development within the company gave rise to the concept of Corporate Social Responsibility (CSR). A first definition<sup>22</sup> of it dates back to 1953 (Bowden): it is the obligation on the part of business people

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<sup>20</sup> Buculescu Maria-Mădălina, *"Harmonization Process in Defining Small and Medium-Sized Enterprises. Arguments for a Quantitative Definition Versus a Qualitative One"*, Theoretical and Applied Economics XX, no. 9 (586), pp.103-114, (2013).

<sup>21</sup> Roddier François, *"Thermodynamique De L'Évolution, Un Essai De Thermo-Bio-Sociologie"*, Paris: Editions Parole, ISBN: 9782917141328, pp.41-46, (2012).

<sup>22</sup> Vasquez-Carrasco Rosario and Lopez-Perez Eugenia, *"Small and Medium-Sized Enterprises and Corporate Social Responsibility: A Systematic Review of the Literature"*, Springer Qual Quant, pp.3205-3218, (2012).

to adopt measures, decisions and to follow desirable lines of action in terms of societal objectives and values, so as to acquire the potential to contribute to the general good of society.

Many studies related to the adoption of sustainable development strategies at company level highlight the role of the founding manager<sup>23</sup>, whose personal values influence the strategic direction of the enterprise and therefore the integration of CSR in its daily activities. In the context of an SME, it has the greatest impact<sup>24</sup> on strategic choices and the decision to cooperate or not with certain stakeholders, especially external ones. In an SME, involvement in sustainable development is therefore a belief and a desire of managers. In a study by the Canadian Federation of Independent Enterprises, 87% of SMEs acknowledge that their personal values are at the root of the changes made to train the enterprise towards sustainable development<sup>25</sup>. These beliefs are strengthened and materialized all the more as the internal and external stakeholders of the enterprise are concerned with sustainable development<sup>26</sup>. The founding manager can therefore be an essential facilitator or barrier in integrating sustainable development into SMEs.

### **3.3.FINANCING OF SUSTAINABLE DEVELOPMENT PROJECTS**

Integrating sustainable development into the enterprise strategy would not be possible without considering and planning viable financing instruments for these projects.

#### **3.4.1.At the macroeconomic level**

At the macroeconomic level<sup>27</sup>, the declaration of the 1992 Rio Conference notes that "the eradication of poverty, the condition of sustainable development for all, is the collective responsibility of all countries, especially the richest, because of their superior responsibility to degrade the planet."

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<sup>23</sup> Jenkins H., "A Business Opportunity Model of Corporate Social Responsibility for Small and Medium-sized Enterprises", *Business Ethics: A European Review* 18, no. 1, pp.21-36, (2009).

<sup>24</sup> Labelle and Aka, "Processus D'innovation Durable En Contexte Pme: Les Effets D'un Systeme Generant Des Retombees Positives", *Journal of Small Business and Entrepreneurship* 25, no. 4, pp.479-498, (2012):

<sup>25</sup> Armstrong & Armstrong et coll., "Achieving Eco-Prosperity Smes' Perspectives on the Environment", FCEI- Federation Canadienne de l'Entreprise Independante, Toronto, ISBN 978-2-7605-3795-8, pp.22-38, (2007).

<sup>26</sup> \*\*\*DTI, "Engaging Smes in Community and Social Issues. Research Report," London: Department of Trade and Industry, URL: [http://www.bitc.org.uk/resources/publications/engaging\\_smes.html](http://www.bitc.org.uk/resources/publications/engaging_smes.html), (2002).

<sup>27</sup> Yveline Nicolas, "Comment Financer Le Developpement Durable Et La Lutte Contre La Pauvrete?", *articol electronic accesat in 04/11/2014*, (2014).

At the 1992 Earth Summit on Environment and Development, the United Nations Commission on Environment and Development (UNCED) estimated the budget for implementing Agenda 21 adopted in Rio in 1992 at \$ 561 billion a year, with \$ 142 billion in Official Development Assistance. (ODA), and the rest, the countries' own resources. These amounts have not really been committed since then. More than 20 years later, developed countries are far from keeping their 1970 promise to affect 0.7% of GDP, development aid to disadvantaged countries.

At European level, in order to be optimally allocated to promoting sustainable development, the Member States and the European Commission must coordinate their actions. This allows for the strengthening of synergies<sup>28</sup> in the use of different co-financing mechanisms.

### 3.4.2. At the microeconomic level

In the last fifty years, the scientific literature on enterprise-level financing options has been widely circulated, with often divergent conclusions<sup>29</sup>. Most studies in the field focus on listed companies. Or, in a global context, only a tiny fraction of businesses are listed. Among unlisted companies, more than 90% are SMEs<sup>30</sup>.

The determinants in choosing the financing options for enterprises have been studied by many authors. Van<sup>31</sup> noted in 1988 that, historically, the financial structure of enterprises has three major approaches: the classical approach; neoclassical approach; modern business theory.

However, the self-financing capacity of companies being limited, family enterprises tend to prioritize indebtedness, capital opening. As a result, the bank debt of family businesses tends to be higher than that of non-family businesses. Some factors such as the desire to pass on the family business to future generations negate this trend<sup>32, 33</sup>.

The financing of SME operations, especially in the short and medium term, is facilitated by the integration of new billing and clearing technologies<sup>34</sup>.

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<sup>28</sup> Dobre Ion, and Hincu Daniela, *"The European Strategy for Sustainable Development"*, Paper presented at the Managerial Challenges of the Contemporary Society, Cluj-Napoca, Romania, pp.67-70, (2009).

<sup>29</sup> Croquet M. and Heldenbergh A., *"Structure Financiere De L'entreprise: Nouvelles Perspectives"*, ed. Cahiers Financiers, Editions Larcier, ISBN : 978-2-8044-3162-4, p.168, (2008).

<sup>30</sup> Colot Olivier, Croquet Melanie, and Pozniak Laetitia, *"Determinants Des Choix De Financement Et Profils De Pme"*, Journal of Small Business Entrepreneurship 23, no. 1 pp.97-115; 153-154, (2010).

<sup>31</sup> Van Caillie D., *"Etude Longitudinale De La Structure Financiere Des Petites Ou Moyennes Entreprises Belges Issues De 9 Secteurs Industriels"*, in Congres International Francophone de la PME, Metz, pp.1-21, (1998).

<sup>32</sup> Friedman M., Friedman S., *"How to Run a Family Business"*, Cincinnati OH: Betterway Books, ISBN-10: 1574100947, pp.16-21, (1994).

<sup>33</sup> Gallo M., and Vilaseca A., *"Finance in Family Business"*, *Family Business Review* 9, no. 4, pp.387-405, (1996).

<sup>34</sup> Nienhuis Jaap Jan, Cortet Mounaim, and Lycklama Douwe, *"Real-Time Financing: Extending E-Invoicing to Real-Time Sme Financing"*, Journal of Payments Strategy & Systems 7, pp.232-244, (2013).

Dong<sup>35</sup> notes that smaller and younger firms in the non-manufacturing sector face severe obstacles in obtaining bank loans and have to rely on domestic financing. Moreover, the availability of credit information, banking concentration, economic development and the institutional environment can significantly affect SME financing.

### **3.4.3. Specific financing programs for SMEs in Romania**

The European Union provides support<sup>36</sup> for SMEs in Europe. It can take many forms, such as grants, loans, and sometimes collateral. Support can be provided either directly or under programs implemented at national or regional level, such as the European Union Structural Funds. SMEs can also benefit from non-financial assistance actions, materialized through business support programs and services. These programs are constantly evolving, with the timely completion of a program not automatically continuing under similar conditions. This situation adds unpredictability to the business and banking environment, often required for complementary financing.

Assistance schemes fall into four categories<sup>37</sup>: Thematic funding opportunities; Structural Funds; Financial instruments; Support for the internationalization of SMEs.

## **3.5. THE ROLE OF INNOVATION IN PROMOTING SUSTAINABLE DEVELOPMENT**

### **3.5.1. Integration of innovation at enterprise level**

As early as 1935, economist A. Schumpeter insisted on the importance of technological innovation. It already identifies the existence of a tension between exploitation and exploration, paving the way for research on ambidextrous organizations<sup>38, 39</sup>.

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<sup>35</sup> Dong Yan and Men Chao, "Sme Financing in Emerging Markets: Firm Characteristics, Banking Structure and Institutions", *Emerging Markets Finance & Trade* 50, no. 1, ISSN 1540496X, pp.120-149, (2014).

<sup>36</sup> \*\*\*Comisia Europeană, "Sprijin Comunitar. Programe Pentru Imm-Uri. Prezentarea Principalelor Oportunități De Finanțare Destinate Imm-Urilor", (2012).

<sup>37</sup> Ibid.

<sup>38</sup> Duncan R.B., "The Ambidextrous Organization: Designing Dual Structures for Innovation", in *The Management of Organization*, ed. Pondy L.R. Killman R.H., Slevin, D., New York: North Holland, pp.167-188, (1976).

<sup>39</sup> Gupta A. K., Smith K. G., and Shalley C. E., "The Interplay between Exploration and Exploitation", *Academy of Management Journal* 49, no. 4, ISSN 0001-4273, pp.693-706, (2006).

According to a study by J. March<sup>40</sup> on organizational learning, the survival and prosperity of an organization depends on a scientific balance between exploiting already known activities and exploring new ways. Chanal and Mothe<sup>41</sup> define the dynamic capacity<sup>42</sup> for innovation as an optimal combination of the two forms.

Environmental challenges (climate change, scarcity of natural resources, etc.), associated with increasing societal pressures, are a favorable environment for the emergence of innovation<sup>43</sup>. Once adopted, innovation strategies are prerequisites for the sustainability of organizations, regardless of their size<sup>44, 45</sup>. For many businesses, reconciling operating and exploration innovations is a survival goal<sup>46</sup>.

### 3.5.2. The relationship between sustainable development and innovation

Innovation can have an important impact on sustainable development, at several levels: macroeconomic and microeconomic.

The relationship between innovation and sustainable development is little explored<sup>47</sup> in the academic literature, given that Porter noted in 1991 that CSR<sup>48</sup> (transposing the concept of sustainable development at the enterprise level) can stimulate innovation. This view has been supported over time by other authors<sup>49, 50, 51</sup>.

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<sup>40</sup> March J. G., "Exploration and Exploitation in Organizational Learning", *Organization Science* 2, no. 1, ISSN 1047-7039, pp.71-87, (1991).

<sup>41</sup> Chanal V., and Mothe C., "Concilier Innovations D'exploitation Et D'exploration. Le Cas Du Secteur Automobile", *Revue Francaise de Gestion* 154, pp.173-191, (2005).

<sup>42</sup> Teece D. J., Pisano G., and Shuen A., "Dynamic Capabilities and Strategic Management", *Strategic Management Journal* 18, no. 7, ISSN 0143-2095, pp.509-533, (1997).

<sup>43</sup> Abrassart C., and Aggeri F., "Quelles Capacites Dynamiques Pour Les Strategies De Developpement Durable Dans Les Entreprises? Le Cas Du Management De L'eco-Conception", in *Actes de la XVIeme Conference de l'AIMS, Montreal*, pp.3-29, (2007).

<sup>44</sup> Camison-Zomosa C., Lapiedra-Alcani R., Segarra-Cipres M., and Boronat-Navarro M., "A Meta-Analysis of Innovation and Organizational Size", *Organizational Studies* 25, no. 3, pp.331-361, (2004).

<sup>45</sup> Soparnot R., and Stevens E., "Management De L'innovation", Paris: Dunod, ISBN 978-2-10-051079-5, pp.199-122, (2007).

<sup>46</sup> Chanal V., and Mothe C., "Concilier Innovations D'exploitation Et D'exploration. Le Cas Du Secteur Automobile", *Revue Francaise de Gestion* 154, pp.173-91, (2005).

<sup>47</sup> Castiaux A., "Responsabilite D'entreprise Et Innovation: Entre Exploration Et Exploitation", *Reflets et Perspectives XLVIII*, no. 4, pp.37-49, (2009).

<sup>48</sup> Porter M.E., "Towards a Dynamic Theory of Strategy", *Strategic Management Journal* 12, pp.95-117, (1991).

<sup>49</sup> Grayson, D., Hodges, A., "Corporate Social Opportunity! Seven Steps to Make Corporate Social Responsibility Work for Your Business", *Long Range Planning* 38, no. 3, ISSN 0024-6301, p.323, (2005).

<sup>50</sup> Rennings K., Ziegler A., Ankele K., and Hoffmann E., "The Influence of Different Characteristics of the Eu Environmental Management and Auditing Scheme on Technical Environmental Innovations and Economic Performance", *Ecological Economics* 57, no. 1, ISSN 0921-8009, pp.45-59, (2006).

<sup>51</sup> Little A.D., "The Innovation Highground: Winning Tomorrow's Customers Using Sustainability Driven Innovation", *Strategic Direction* 22, pp.35-37, (2006).

They emphasize the complexity of the relationship between innovation and sustainable development, placed under the sign of interdependence.

In a study of a sample of Danish companies involved in responsible practices, Kramer<sup>52</sup> found a link between both environmental and social "sustainable innovation" and economic performance as a result of increasing market share. A study by A. Castiaux<sup>53</sup> on a group of companies in Italy, Spain and the United Kingdom confirms the proximity between innovation and sustainable development. Although the causalities are not precisely determined, there is a strong commitment to employees and the involvement of external stakeholders.

At the enterprise level, studies<sup>54</sup> show that firms that try to avoid innovation and do not comply with the precepts of sustainable development weaken their market position. In the context of globalization that characterizes this century, innovation is an essential condition for the success of SMEs and the only source of real competitive advantage<sup>55, 56</sup>. Undertakings that do not take advantage of the new innovation opportunities offered by sustainable development would be less competitive<sup>57, 58, 59</sup>.

Innovation can mean different products, services, new or improved processes that increase the overall productivity of an enterprise or allow it to respond to a new market need or to enter a new market<sup>60</sup>. Sustainable innovation has a narrower definition. It is defined as the innovation or improvement of products, services, technologies or organizational processes not

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<sup>52</sup> Porter M., and Kramer M., "*Strategy and Society: The Link between Competitive Advantage and Csr*", Harvard Business Review 84, pp.78-92, (2006).

<sup>53</sup> Castiaux A., "*Responsabilite D'entreprise Et Innovation: Entre Exploration Et Exploitation*", Reflets et Perspectives XLVIII, no. 4, pp.37-49, (2009).

<sup>54</sup> Labelle Francois, and Aka Kadia Georges, "*Processus D'innovation Durable En Contexte Pme: Les Effets D'un Systeme Generant Des Retombees Positives*", Journal of Small Business and Entrepreneurship 25, no. 4, pp.479-498, 533, (2012).

<sup>55</sup> Carrier C., "*Cultiver La Creativite Et Gerer L'innovation Dans La Pme*", in Management Des Pme: De La Creation a La Croissance, ed. Editions du renouveau Pedagogique Inc., Quebec, pp.119-130, (2007).

<sup>56</sup> Nonaka I., "*L'entreprise Creatrice Du Savoir*", in Le Knowledge Management, ed. Harvard Business Review, Paris: Editions d'Organisation, pp.36-63, (2001).

<sup>57</sup> Porter M.E., and Reinhardt F.L., "*A Strategic Approach to Climate*", Harvard Business Review 85, no. 10, pp. 22-26, (2007).

<sup>58</sup> Hockerts K. and Morsing M., "*A Literature Review on Corporate Social Responsibility in the Innovation Process*", Copenhagen Business School (CBS), Center for Corporate Social Responsibility, p. 36, (2008).

<sup>59</sup> Hall J., and Vredenburg H., "*The Challenges of Innovating for Sustainable Development*", MIT Sloan Management Review 45, no. 1, pp.61-68, (2003).

<sup>60</sup> \*\*\*OCDE, "*The Measurement of Scientific and Technological Activities: Proposed Guidelines for Collecting and Interpreting Innovation Data*", Organisation de Cooperation et de Developpement Economique, (2005).



only generates increased economic performance, in the short and long term<sup>61,62</sup> but also integrates stakeholder expectations in the decision-making process and aims to transform existing practices<sup>63</sup>. Sustainable innovation therefore improves the situation of the enterprise from the point of view of the three reference criteria (economic, social and environmental), while also taking into account the relations with stakeholders.

## 4.SUSTAINABLE DEVELOPMENT IN SMALL AND MEDIUM-SIZED ENTERPRISES, INDICATORS

### 4.1.SPECIFICITIES OF INTEGRATING SUSTAINABLE DEVELOPMENT IN SMEs

While large enterprises have for many years integrated the principles of sustainable development into their strategy<sup>64,65</sup> SMEs still remain discreet in this respect. Among the reasons for this behavior, we list<sup>66,67,68</sup>: lack of information, knowledge on sustainable development and financial resources.

If the lack of information could still justify this situation a few years ago, a current review<sup>69</sup> of the documentation available to SMEs on this subject, demonstrates an increasing access to information. This study suggests that the adoption of sustainable development

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<sup>61</sup> Biondi Vittorio, Iraldo Fabio, and Meredith Sandra, *"Achieving Sustainability through Environmental Innovation: The Role of Smes"*, International Journal of Technology Management 24, no. 5/6, ISSN 02675730, p.612, (2002).

<sup>62</sup> Alakeson Vidhya and Wilsdon James, *"Digital Sustainability in Europe"*, Journal of Industrial Ecology 6, no. 2 ISSN 10881980, pp.10-12, (2002).

<sup>63</sup> Bos-Brouwers Hilke Elke Jacke, *"Corporate Sustainability and Innovation in Smes: Evidence of Themes and Activities in Practice"*, Business Strategy & the Environment (John Wiley & Sons, Inc) 19, no. 7, ISSN 09644733, pp.417-435, (2010).

<sup>64</sup> Schmidtheiny Stephan, *"Changer De Cap: Reconcilier Le Developpement De L'entreprise Et La Protection De L'environnement"*, Paris: Dunod, ISBN 13 : 9782100014378, p.33, (1992).

<sup>65</sup> Porter M.E., and Reinhardt F.L., *"A Strategic Approach to Climate"*, Harvard Business Review 85, no. 10, pp.22-26, (2007).

<sup>66</sup> Blombäck Anna, and Wigren Caroline *"Challenging the Importance of Size as Determinant for Csr Activities"*, ISSN 14777835, Management of Environmental Quality: An International Journal 20, no. 3, pp.255-270, (2009).

<sup>67</sup> Castka Pavel, Balzarova Michaela A., Bamber Christopher J., and Sharp John M., *"How Can Smes Effectively Implement the Csr Agenda? A Uk Case Study Perspective"*, Corporate Social Responsibility & Environmental Management 11, no. 3, ISSN 15353958, pp.140-149, (2004).

<sup>68</sup> Lepoutre J., and Heene A., *"Investigating the Impact of Form Size on Small Businesses Social Responsibility: A Critical Review"*, Journal of Business Ethics 67, pp.257-263, (2006).

<sup>69</sup> Armstrong et coll., *"Achieving Eco-Prosperity Smes' Perspectives on the Environment"*, FCEI, Toronto, pp.22-38, (2007).

practices in SMEs would have positive effects. These are presented as a series of interconnected variables, which generate positive externalities<sup>70</sup>. SMEs that do not meet the expectations of sustainable development are placed in a difficult position towards actors sensitive to this issue (regulatory institutions, pressure groups, local communities, etc.). Moreover, the size of the market for sustainable development (eg fair trade, green technologies or green products) is growing, and is likely to progress further<sup>71, 72, 73</sup>.

The action and impact of SMEs on achieving social balance can take various forms.

Some authors<sup>74</sup>, based on the experience and review of good practices in this field, go so far as to propose specific steps to encourage SMEs to get involved in this direction.

In addition to quantitative criteria, researchers interested in SMEs in the context of sustainable development also define them in qualitative terms. They argue that SMEs have the necessary strengths to facilitate interactions and collaborations with stakeholders. These are the following characteristics: organizational flexibility (ease and speed of adaptation to change due to the simple and low-ranking structure); proximity to the environment (reduced hierarchical and social distances between SMEs and actors in their environment); network access capacity.

These qualitative characteristics are presented in the scientific literature<sup>75, 76, 77, 78, 79, 80</sup> as natural assets of SMEs, which allow them to innovate simpler and faster.

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<sup>70</sup> Carroll Archie B., and Shabana Kareem M. *"The Business Case for Corporate Social Responsibility: A Review of Concepts, Research and Practice"*, ISSN 1460-8545, International Journal of Management Reviews 12, no. 1, pp.85-105, (2010).

<sup>71</sup> Dangelico Rosa Maria, Pujari Devashish, and Pontrandolfo Pierpaolo, *"Green Product Innovation in Manufacturing Firms: A Sustainability-Oriented Dynamic Capability Perspective"*, Business Strategy & the Environment-John Wiley & Sons, Inc 26, no. 4, ISSN 09644733, pp.490-506, (2017).

<sup>72</sup> Haanaes K., Balagopal B., Arthur D., Kong M.T., and Velken I. , *"First Look: The Second Annual Sustainability & Innovation Survey"*, MIT Sloan Management Review 52, no. 2, pp.76-84, (2011).

<sup>73</sup> Wagner M., *"Corporate Social Performance and Innovation with High Social Benefits: A Quantitative Analysis"*, Journal of Business Ethics 94, no. 4, pp.581-594, (2010).

<sup>74</sup> Jenkins H., *"A Critique of Conventional Csr Theory: A Sme Perspective"*, Journal of General Management 9, no. 4, pp. 55-75, (2004).

<sup>75</sup> Alves, J., Marques, M.J., Saur, I., Marques, P., *"Creativity and Innovation through Multidisciplinary and Multisectoral Cooperation"*, Journal of Intellectual Property Rights 12, no. 2, ISSN 09717544, pp.261-262, (2007).

<sup>76</sup> Carrier C. *"Cultiver La Creativite Et Gerer L'innovation Dans La Pme"*, In Management Des Pme: De La Creation a La Croissance, edited by Editions du renouveau Pedagogique Inc., Quebec, pp.119-130, (2007).

<sup>77</sup> Filion L.-J., *"Introduction In Management Des Pme: De La Creation a La Croissance"*, edited by Editions du Renouveau Pedagogique Inc. Quebec, (2007).

<sup>78</sup> Georgsdottir A.S., Lubart T.I., and Getz I., *"The Role of Flexibility in Innovation"*, in The International Handbook of Innovation, ed. L.S. Shavinina, Oxford: Elsevier Science Ltd., pp.180-190, (2003).

<sup>79</sup> Julien P.A., *"Entrepreneuriat Regional Et Economie De La Connaissance: Une Metaphore Des Romans Policiers"*, Quebec: Presses de l'Universite du Quebec, ISBN 2-7605-1329-7, pp.13-18, (2005).

<sup>80</sup> Torres O., *"Approche Descriptive De La Specificite De Gestion Des Pme: Le Mix De Proximite"*, in Management Des Pme: De La Creation a La Croissance, ed. L.-J. Filion ed., Quebec: Editions du Renouveau Pedagogique Inc., pp.23-33, (2007).

An analysis of the literature in the field shows that small and medium enterprises (SMEs) have specificities in terms of integrating sustainability into the business strategy, compared to corporations. The table<sup>81</sup> below illustrates these differences:

Table 1-Main differences regarding the CSR approach: SMEs versus large enterprises (adapted from Jamali et al., 2009)

SMEs	LARGE ENTERPRISES
<ul style="list-style-type: none"> <li>▪ Philanthropy, altruism;</li> <li>▪ Discretion;</li> <li>▪ Closer relationships with those involved (stakeholders);</li> <li>▪ The importance of the local community;</li> <li>▪ Inspiration, low integration, moderate innovation;</li> <li>▪ Ethical concepts, managerial values;</li> <li>▪ Unsystematic, unstructured, informal.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Economic perspective, strategic orientation;</li> <li>▪ Holistic approach;</li> <li>▪ More formal / distant relationships with the people involved;</li> <li>▪ Low inspiration, high integration, little innovation;</li> <li>▪ Instrumental orientation, economic objectives;</li> <li>▪ Systematic, calculated, formalized, measurable.</li> </ul>

Many times, SME initiatives suffer from a lack of legitimacy due to their low visibility<sup>82</sup>. This does not mean that SMEs are absent from the current of sustainable development, but that they often remain shy when it comes to communicating<sup>83</sup> on this subject, especially with external stakeholders<sup>84</sup>. According to these authors, responsible management refers to a series of practices mainly influenced by the manager's personal values and beliefs. As early as 1999<sup>85</sup>, MacLagan saw responsible management as a process that allowed the ethical values of SME managers to be articulated with their managerial concerns.

## 4.2. THEORETICAL ASPECTS REGARDING THE INTEGRATION OF SUSTAINABILITY IN SMEs. MEASUREMENT INDICATORS

<sup>81</sup> Jamali D., Zanhour M., and Keshishian T., "Peculiar Strengths and Relational Attributes of Smes in the Context of Csr", Journal of Business Ethics 87, no. 3, ISSN 0167-4544, pp.355-377, (2009).

<sup>82</sup> Jenkins H., "A Critique of Conventional Csr Theory: A Sme Perspective", Journal of General Management 9, no. 4, pp.55-75, (2004).

<sup>83</sup> Murillo D., Lozano J. M., "Smes and Csr: An Approach to Csr in Their Own Words", Journal of Business Ethics 67, no. 3, ISSN 0167-4544, pp.227-240, (2006).

<sup>84</sup> Nielsen A. E., Thomsen C., "Investigating Csr Communication in Smes: A Case Study among Danish Middle Managers", Business Ethics-a European Review 18, no. 1, ISSN 0962-8770, pp.83-93, (2009).

<sup>85</sup> MacLagan P., "Corporate Social Responsibility as a Participative Process", Business Ethics: A European Review 8, no. 1, pp.43-49, (1999).

### 4.2.1.Generalities

The next part of the thesis will be structured according to these major topics from the study of scientific literature in the first part, and for each topic we took useful information from both the academic literature and qualitative studies and discussions with experts. The purpose of this part is to propose concrete tools and working methods for statistical analysis in the third part.

### 4.2.2.Knowledge and attitudes of managers

In this subchapter, we aim to present some theoretical guidelines on how the knowledge and attitudes of SME managers can influence the integration of sustainability in the company, but also how we derived from the academic literature and qualitative studies thematic information useful for building the research tool. .

Decisions on integrating sustainable development at the firm level are usually made by top management, while other organizational levels align their work with the strategic direction.

A framework for strategic sustainable development has been developed in the scientific literature<sup>86</sup> under the name of FSSD (Framework for Strategic Sustainable Development), in order to determine a principled definition of sustainability. It consists of five distinct but interdependent levels, which describe a system (1) that can clearly define its planning goals (2), which is a prerequisite for strategy (3), when actions (4) and tools monitoring, coordination and decision making (5) are selected and announced.

These five steps are shown schematically in the table below:

Table 2-Five-level planning framework for strategic sustainable development at the firm level (adapted from Robert et al., 2000).

<b>LEVELS OF THE GENERIC PLANNING MODEL</b>	<b>SUCCESSFUL PLANNING OF THE ORGANIZATION X IN SOCIETY, IN THE BIOSPHERE</b>
1. System	Organization X, within the society with the involved parties (stakeholders), laws, etc., within nature with its own laws and resources, etc.
2. Success	Compliance of the vision of organization X with the constraints of the global principles of sustainable development
3. Strategic rules	With each investment decision, the goal is to strengthen the organizational framework for new investments, which will progress towards compliance

<sup>86</sup> Robert Karl-Henrik, "Tools and Concepts for Sustainable Development, How Do They Relate to a General Framework for Sustainable Development, and to Each Other?", Ibid.8, Journal of Cleaner Production 8, no. 3, pp.243-254, (2000).

	with the principles of sustainability. The organization must find a reasonable balance between speed / direction of progress and financial considerations (economic efficiency)
4. Actions	Implement individual investment decisions in accordance with strategic rules
5. Tools	Environmental management systems, eco-design tools, indicators, life cycle assessments (LCA), investment calculation, etc.

Compared to larger enterprises, SMEs have a flatter and less formalized structure. The academic literature notes that, in most cases, ownership, control and operations are in the hands of a single person or a small group of people<sup>87, 88</sup>. Therefore, it is logical that the integration of sustainable development in the enterprise strategy depends on the environmental values, attitudes and knowledge of the manager of an SME<sup>89</sup>. Discussions with SME managers confirm the research in the academic literature, according to which responsible management consists of a set of practices essentially influenced by the personal beliefs of the manager / founder<sup>90</sup>. Although it shows the role of the manager's values in this sense, the academic literature remains vague on the way and the degree to which this positive attitude of the manager leads to concrete actions, being signaled a gap values-action<sup>91</sup>.

This aspect of "exemplarity"<sup>92</sup> must be relativized, as the SME manager is not a pure philanthropist or a utopian, but only an individual who wants to contribute to his scale, to the well-being of society, while perpetuating his activity.

One of the peculiarities of SMEs is the shortage of human and organizational resources, which can implicitly lead to difficulties in planning decisions, including those related to sustainable development in the enterprise.

In developing our research tool (questionnaire for managers), we were inspired by the FSSD framework matrix, based on five levels of evaluation on the decision-making system related to sustainability in the company (Hallstedt et al., 2010). Another study<sup>93</sup> of 450 Swedish

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<sup>87</sup> Jenkins H., "A Critique of Conventional Csr Theory: A Sme Perspective", Journal of General Management 9, no. 4, pp.55-75, (2004).

<sup>88</sup> Sharma P., Sharma S., "Drivers of Proactive Environmental Strategy in Family Firms", Business Ethics Quarterly 21, no. 2, pp.309-334, (2011).

<sup>89</sup> Cassells S., Lewis K., "Smes and Environmental Responsibility: Do Actions Reflect Attitudes?", Corporate Social Responsibility and Environmental Management 18, no. 3, pp.186-199, (2011).

<sup>90</sup> Murillo and Lozano, "Smes and Csr: An Approach to Csr in Their Own Words", Journal of Business Ethics 67, no. 3, pp.227-240, (2006)

<sup>91</sup> <sup>91</sup>Ibid. pp.186-199.

<sup>92</sup> Jenkins H., "A Critique of Conventional Csr Theory: A Sme Perspective", Journal of General Management 9, no. 4 pp.55-75, (2004).

<sup>93</sup> Jansson, J., Nilsson J., Modig F., Hed Vall G., "Commitment to Sustainability in Small and Medium-Sized Enterprises: The Influence of Strategic Orientations and Management Values", Business Strategy and the Environment 26, no. 1, pp.69-83, (2017).

SMEs favors a quantitative approach to determine the nature of the relationship / correlation between the commitment to sustainability in an SME, on the one hand, and the strategic orientation (Market Oriented / Entrepreneurial Oriented), manager values and practices. sustainability.

The manager's values in terms of sustainability were assessed according to the NEP (New Ecological Paradigm)<sup>94</sup> scale, which measures interest in the environmental aspects of a group of people, through a questionnaire consisting of 15 statements, on a Likert scale.

### **4.2.3. Facilitators and barriers in the implementation of sustainability at enterprise level**

Sustainable development is unequally integrated in companies, depending on their characteristics, which will be explored later in the statistical analysis, but also by factors independent of the type of companies.

In the elaboration of our research tool (the questionnaire for managers), the working methodology and the qualitative data obtained from similar studies were based. For example, a study<sup>95</sup> by Ecologic, Valdelia and Zero Waste France includes, in addition to the closed-ended questionnaire on eco-management adopted in the office, comments from SME managers and employees (anonymous responses). These facilitators and barriers mentioned by managers in field studies have been supplemented by those listed in the academic literature.

Regarding facilitators, the literature notes that enterprises are subject to double pressures: internal, in order to achieve economic efficiency; external, in the direction of environmental and social responsibility; In this sense, companies that adhere to the Market Orientation (MO) strategy, due to their customer focus, will be more likely to adopt sustainable development policies, if the market demands it. This idea, according to which the pressures of customers and stakeholders in general, put pressure on SMEs to develop pro-environmental measures, has

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<sup>94</sup> Dunlap R. E., Van Liere K. D., Mertig A. G., and Jones R. E., "Measuring Endorsement of the New Ecological Paradigm: A Revised Nep Scale", Journal of Social Issues 56, no. 3, pp.425-442, (2000).

<sup>95</sup> \*\*\*"Quelle Gestion Des Dechets Du Bureau?", Observatoire du Bureau Responsable, p.19, URL [https://www.riposteverte.com/sites/default/files/documents/Observatoire/OBR\\_2017\\_Livret\\_Etude\\_dechets.pdf](https://www.riposteverte.com/sites/default/files/documents/Observatoire/OBR_2017_Livret_Etude_dechets.pdf), raport electronic accesat în data de 2.06.2019.

been stated and documented by several authors<sup>96,97</sup>. The scientific literature<sup>98</sup> notes that this effect is positive, even when sustainability practices are forced by legislation / norms and do not come from the personal attitude of the manager.

Regarding the barriers of sustainability, the academic literature presents situations<sup>99</sup> related to the decision-making process at the company level. Thus, most companies do not formalize procedures to identify challenges related to sustainable development and to pass them on to top management. Many top managers do not consider that sustainability is defined at the company level, nor that it would be a priority for the customer / consumer, as long as he does not have to pay taxes for less environmentally friendly products.

Authors with legitimacy on sustainability issues such as Willard<sup>100</sup>, suggest that the lack of support at the top management level is a major barrier in implementing sustainability at the company level. Thus, companies must look for practical ways to include the aspects of long-term sustainable development in the decisions of top managers, without jeopardizing short-term competitiveness.

For SMEs, decisions and actions related to sustainability are insufficiently monitored and justified, due to the lack of a system of standardized tools and methods<sup>101</sup>. Social issues in particular seem to suffer from vague understanding and random management in SMEs. Through the FSSD matrix, activities that degrade the social system can be more easily identified and reported, such as: abuse of power (forced labor, poor representation of trade unions, wages below the poverty line, exploitation investments, etc.).

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<sup>96</sup> Cuerva M. C., Triguero-Cano A., and Corcoles D., *"Drivers of Green and Non-Green Innovation: Empirical Evidence in Low-Tech Smes"*, Journal of Cleaner Production 68, pp.104-113, (2014).

<sup>97</sup> Triguero A., Moreno-Mondejar L., and Davia M. A., *"Drivers of Different Types of Eco-Innovation in European Smes"*, Ecological Economics 92, pp.25-33, (2013).

<sup>98</sup> Jansson, J., Nilsson J., Modig F., Hed Vall G., *"Commitment to Sustainability in Small and Medium-Sized Enterprises: The Influence of Strategic Orientations and Management Values"*, Business Strategy and the Environment 26, no. 1, pp.69-83, (2017).

<sup>99</sup> Hallstedt Sophie, Ny Henrik, Robert Karl-Henrik, and Broman Goran, *"An Approach to Assessing Sustainability Integration in Strategic Decision Systems for Product Development"*, Journal of Cleaner Production 18, no. 8, pp.703-712, (2010).

<sup>100</sup> Willard Bob, *"The Next Sustainability Wave"*, Gabriola Island: New Society Publishers, pp.165-180, (2005).

<sup>101</sup> Robert Karl-Henrik, *"Tools and Concepts for Sustainable Development, How Do They Relate to a General Framework for Sustainable Development, and to Each Other?"*, Journal of Cleaner Production 8, no. 3, pp.243-254, (2000).

#### **4.2.4. Concrete sustainable development policies at SME level**

Concrete sustainable development policies at company level often respond to a need for validation and a positive image among the public. In this subchapter we aim to analyze how the sustainability strategy in companies can be concretely implemented. This information, associated with the conclusions drawn from previous qualitative studies, will allow us to build the part dedicated to this topic in the research tool.

Based on case studies in innovative firms, Bob Willard identifies five stages of integrating sustainable development into an enterprise, from pre-compliance (ignoring sustainability and adherence to existing rules) to purpose and passion. This is not a stage of business development itself, but rather a special type of company, destined to "save the world").

From a macroeconomic point of view, the SME category is essential for the study of sustainable development. Although SMEs are smaller and, considered individually, have a smaller impact on the environment than corporations, the academic literature admits that they dominate the business environment in many countries. In a 2012 European Commission study cited by Jansson et al. (2017)<sup>102</sup>, SMEs represent 99% of all companies. Therefore, it is legitimate to consider that they have a considerable impact on the environment<sup>103</sup> (it is estimated that they generate between 60 and 70% of total pollution).

In building our research tool, we were also inspired by a support platform<sup>104</sup> in France for small business managers looking for solutions and tools to implement sustainability at the company level, which allows a diagnosis on the following aspects of sustainable development: environment; corporate social responsibility; waste; paper.

#### **4.2.5. Indicators of sustainable development at SME level**

##### **4.2.5.1. Generalities**

The fourth and last aspect regarding sustainable development in SMEs, which we will deepen in the quantitative study that follows in the third part of the thesis, is how the integration of these aspects in companies can be evaluated or measured. This subchapter presents the theoretical landmarks that formed the basis of the design of the research instrument.

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<sup>102</sup> Jansson, J., Nilsson J., Modig F., Hed Vall G., "Commitment to Sustainability in Small and Medium-Sized Enterprises: The Influence of Strategic Orientations and Management Values", *Business Strategy and the Environment* 26, no. 1, pp.69-83, (2017).

<sup>103</sup> Hillary R., "Environmental Management Systems and the Smaller Enterprise", *Journal of Cleaner Production* 12, no. 6, pp.561-569, (2004).

<sup>104</sup> Hergott Cyril, "Riposte Verte", <https://www.riposteverte.com/auto-diagnostics-rse>.



Assessing the integration of sustainable development in companies and at the macroeconomic level is not possible without establishing a clear and scientific system of indicators<sup>105</sup>, useful both for decision-making and for monitoring feedback mechanisms.

Assessing the sustainability<sup>106</sup> of a company involves:

- quantifying the impact of the outflows and inputs from the company (upstream-downstream) generated by its activity;
- their integration in a unique measurement system.

Regarding the quantification of the impact of flows, the study of the academic literature shows the existence of several methods for measuring economic, social and environmental aspects at the firm level: Life Cycle Assessment (LCA)<sup>107</sup>; Life Cycle Costing (LCC)<sup>108</sup>; Social Life Cycle Assessment (SLCA)<sup>109</sup>.

Jiang et al. propose a three-dimensional system<sup>110</sup> for measuring the sustainability of the company, based on its main components (main component analysis): social; economic; environmental.

To be relevant, the academic literature<sup>111, 112</sup> lists the minimum criteria that indicators must meet:

- to have a clear purpose and to be adapted to the company's situation;
- be easy to use;
- data must be easy to collect;
- the information must be reliable and comparable;

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<sup>105</sup> Hosseini H. M., and Kaneko S., "Dynamic Sustainability Assessment of Countries at the Macro Level: A Principal Component Analysis", *Ecological Indicators* 11, no. 3, pp.811-823, (2011).

<sup>106</sup> Jiang Q. H., Liu Z. C., Liu W. W., Cong T. Li, W. L., Zhang H. C., and Shi J. L., "A Principal Component Analysis Based Three-Dimensional Sustainability Assessment Model to Evaluate Corporate Sustainable Performance", *Journal of Cleaner Production* 187, pp.625-637, (2018).

<sup>107</sup> Curran M. A., "Overview of Goal and Scope Definition in Life Cycle Assessment", In *Goal and Scope Definition in Life Cycle Assessment*, Dordrecht: Springer, pp.1-62, (2017).

<sup>108</sup> Bradley R., Jawahir I. S., Badurdeen F., and Rouch K.. "A Total Life Cycle Cost Model (Tlccm) for the Circular Economy and Its Application to Post-Recovery Resource Allocation", *Resources Conservation and Recycling* 135 pp141-149, (2018).

<sup>109</sup> Sureau S., Mazijn B., Garrido S. R., and Achten W. M. J.. "Social Life-Cycle Assessment Frameworks: A Review of Criteria and Indicators Proposed to Assess Social and Socioeconomic Impacts", *International Journal of Life Cycle Assessment* 23, no. 4, pp.904-920, (2018).

<sup>110</sup> Jiang Q. H., Liu Z. C., Liu W. W., Cong T. Li, W. L., Zhang H. C., and Shi J. L., "A Principal Component Analysis Based Three-Dimensional Sustainability Assessment Model to Evaluate Corporate Sustainable Performance", *Journal of Cleaner Production* 187, pp.625-637, (2018).

<sup>111</sup> Tao J., Chen Z. R., Yu S. R., and Liu Z. F., "Integration of Life Cycle Assessment with Computer-Aided Product Development by a Feature-Based Approach", *Journal of Cleaner Production* 143, pp.1144-1164, (2017).

<sup>112</sup> Kibira D., Brundage M. P., Feng S., and Morris K. C., "Procedure for Selecting Key Performance Indicators for Sustainable Manufacturing" *Journal of Manufacturing Science and Engineering-Transactions of the Asme* 140, no. 1, p.7, (2018).

- they must reflect problems with identifiable solutions<sup>113</sup>.

In the study conducted by Jiang et al., the primary indicators of sustainable development at the firm level, in the method of assessing the sustainability of PCA, concern the economic aspects (total assets, turnover, etc.), environmental (energy consumption, emissions CO<sub>2</sub>, solid waste, etc.), and social (ratio between female and male employees, replacement rate of staff, etc.).

Today, measuring and reporting the company's sustainability appear as tools to increase transparency, to improve the company's reputation, in order to ultimately influence its competitiveness.

#### **4.2.5.2. Qualitative elements related to sustainable development indicators, with applicability in Romania**

The purpose of qualitative studies in this case is to determine possible indicators for measuring the degree of implementation of sustainable development at the SME level, starting from mandatory reporting by enterprises.

Mandatory reporting for companies depends on the following factors:

- company size;
- object of activity.

In determining the documents useful for qualitative studies, we had discussions with people with experience in the 3 aspects of sustainable development: accountants and expert accountants; directors of chambers of commerce and business clubs; environmental inspectors; inspectors of the Territorial Labor Inspectorate.

In this sense, we considered that it is useful for research to define the reporting obligations of companies and identify the elements of sustainable development in these reports.

##### 1) Accounting reports:

The accounting reports of the companies are made depending on their size, but also on the affiliation of the capital (majority state or not), according to the classification from the Order of the Ministry of Finance no. 1802 / 2014. Thus, micro and small enterprises benefit from exemptions and simplifications in terms of reporting (only abbreviated balance sheet, without explanatory notes to the annual financial statements). „Micro-entities draw up an abbreviated

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<sup>113</sup> Atlee J. and Kirchain R., "Operational Sustainability Metrics Assessing Metric Effectiveness in the Context of Electronics-Recycling Systems", Environmental Science & Technology 40, no. 14, pp. 4506-4513, (2006).

profit and loss account, showing separately: net turnover; other incomes; the cost of raw materials and consumables; staff costs; value adjustments; other expenses; taxes; profit or loss.”

Medium and large enterprises, as well as enterprises with majority state capital, have extensive obligations regarding the documents to be reported, regardless of turnover. Also, entities in the resource exploitation sector (forests, extractive industry, etc.) must make additional reports on payments to the government. By analyzing the documents resulting from the mandatory reports, we detached elements of sustainable development related to environmental and social aspects.

## 2) Environmental reporting

The reporting to the National Agency for Environmental Protection (ANPM) is regulated by law 211/2011, and the Ministerial Order 794 of February 2012 presents the annexes for the activities related to packaging.

Most companies' activities, regardless of the need for environmental authorization, involve one or more ways of reporting to the relevant authority for environmental protection. The National Agency for Environmental Protection (ANPM)<sup>114</sup> ensures compliance with the specific provisions on waste management for the safety and protection of human health and the environment. It is "subordinated to the Ministry of Environment, Waters and Forests and has responsibilities in implementing environmental laws and policies at national and local level, as well as reporting to the European Environment Agency."

Discussions with environmental inspectors, with business managers, but also with the press highlight that Law no. 211/2011 and Ministerial Order 192/2014 are ambiguous<sup>115</sup> regarding the unequivocal identification of the waste producer. Law no. 211 stipulates that it is a producer of waste: "authorized natural person or legal person who, professionally, designs, produces, processes, treats, sells or imports products". From this we can deduce that service companies would be an exception, but the term "deals" can be the source of different interpretations. The environmental inspector may interpret that the paper has been "treated" when it has passed through the printer.

The European Commission has recommended to the members of the European Union that all environmental reporting be done exclusively online, in an integrated environmental system (SIM). Many of the records and expertise require laborious technical measurements, to which small businesses do not have access. In order to avoid appointing a person internally as an

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<sup>114</sup> <sup>114</sup>\*\*\*Green Environment Support, "*Raportari Anpm*" <https://www.solutiidemediu.ro/raportari-anpm/>, articol electronic accesat în 18/05/2019.

<sup>115</sup> <sup>115</sup>Ibid.

environmental manager, more and more companies are turning to specialized external consulting companies, which include environmental specialists, in order to be able to offer the full range of reports to environmental authorities.

## **PART II – QUALITATIVE AND QUANTITATIVE STUDIES ON THE INTEGRATION OF SUSTAINABLE DEVELOPMENT IN SMEs**

The second part of the thesis consists of four chapters, in which we present the study, from the design of the research tool to the obtaining and analysis of results. The first chapter of this part summarizes the research topic, its stages, as well as the means of research. The conclusions drawn from the study of scientific literature in the field, made in the first part of the thesis allowed us to identify and specify the research niche, but also possible approaches in the mixed quantitative and qualitative study.

### **5.DEFINITION OF RESEARCH DATA**

The data flows related to the construction of the research instrument are presented schematically in figure no. 2.

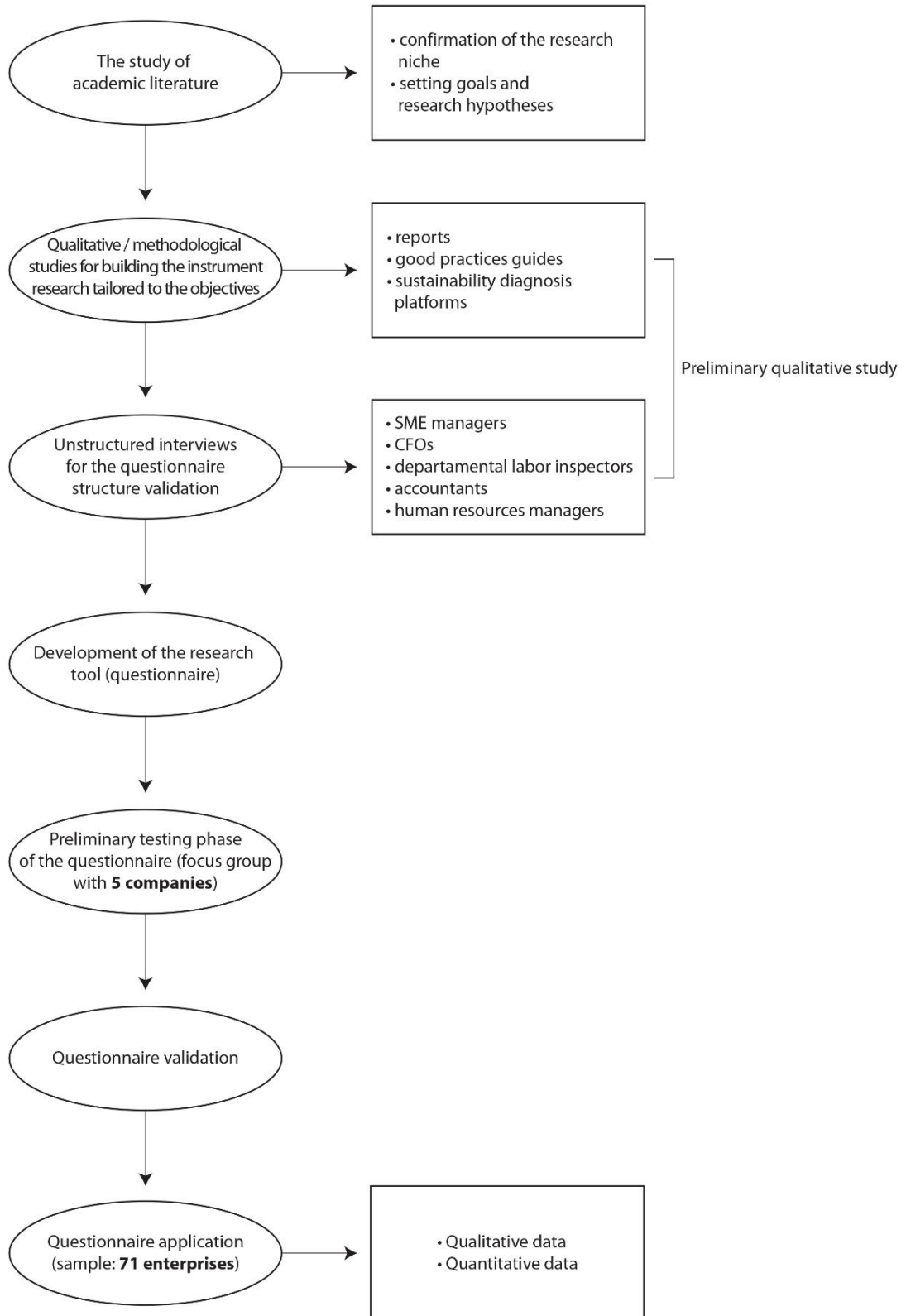


Figure 2 Data flows in the construction of the research tool

## 5.1. TYPES OF ORGANIZATIONS STUDIED

For our study of small and medium enterprises, we retained the classification from the point of view of the business environment, as it clearly differentiates small and medium enterprises, the direct object of our study, depending on the number of employees, turnover and total assets. We favored the stratified-optimal survey method, by which we limit in the sample the proportion of homogeneous layers (for example SMEs in the service field) and increase the proportion of heterogeneous layers (for example we increase instead the layer of SMEs in the industrial sector). This method of designing the sample allows a superior quality of the obtained data and a better degree of knowledge of the analyzed elements.

The sample totals 71 small and medium-sized enterprises, for an initial target of at least 60. The number of respondent enterprises is high, given the average time spent on each entity (one hour and 45 minutes) and the corroboration of the questionnaire with a semi-structured interview, which allows the deepening of information about the perceptions of managers and their practices of sustainable development in the enterprise, materialized in qualitative data.

To determine the appropriate sample size, some researchers used values such as: percentage of total population (eg 10%), values from other similar studies. Creswell<sup>116</sup> stated that when deciding on the sample size of a study, three factors should be considered: the tolerable margin of error, the confidence level of this margin, and the estimated percentage of the sample. Given these factors, the following calculation formula was used (adapted from SurveyMonkey.com, based on Fowler's 2008 study<sup>117</sup>):

$$sample\ size = \frac{\frac{z^2 * p(1-p)}{e^2}}{1 + \frac{z^2 * p(1-p)}{e^2 N}}$$

where Sample size = sample size, N - population size, e - margin of error, z - z score, p - population percentage (50% or 0.5).

The z-score represents the number of standard deviations by which a certain proportion differs from the mean. Based on the formula presented above, it was estimated that the size of 71 questionnaires is sufficient for the significance level of 95% ( $z = 1.96$ ) and with a margin of error of just over 10% ( $e = 11.59$ ).

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<sup>116</sup> Creswell, J. W., *"Qualitative inquiry & research design: Choosing among five approaches"* (3rd ed.), Thousand Oaks, CA: Sage. ISBN 978-1-4129-9531-3, pp.154-157, (2013).

<sup>117</sup> Fowler Jr., F. J., *"Survey research methods"* (4th ed.), Thousand Oaks, CA: Sage, ISBN: 9781412958417, pp.68-69, (2008).

Regarding the territorial distribution of enterprises, this does not aim at the real distribution of companies on the Romanian territory, but is the direct consequence of the degree of availability and openness of the consulted managers. Regarding the number of employees, 70% of the companies in the sample correspond to the definition of micro-enterprises, with less than 10 employees. 20% fall into the category of small enterprises, and the remaining 10% to medium enterprises. The profit of the company is the next parameter of the characteristic of the studied companies. According to a 5-year study published by Instant Factoring in 2018, the average profit of micro-enterprises is 52,390 lei, ie a little over € 10,000 / year.

Regarding the activity sector, in order to facilitate the research and the correlations, we merged the activity sectors of the respondents, in order to obtain only 13 fields, illustrated graphically in figure number 3.

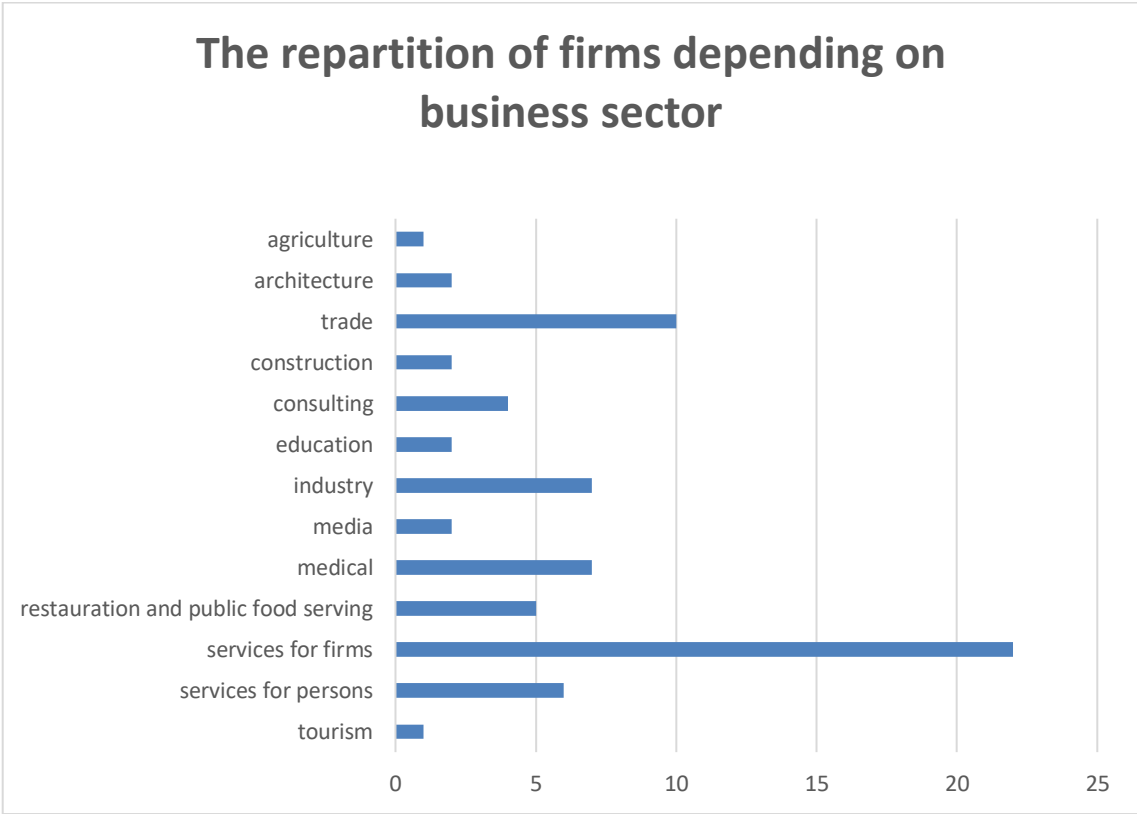


Figure 3-Distribution of the sample companies by activity sectors

Regarding the manager's age, almost half of the respondents are in the 40-60 age group, while a third are between 35 and 40 years old. Among the managers of the companies in the sample, none is under 25 years old. This distribution largely corresponds to that indicated in the White Paper on SMEs, stating that the average age of the SME owner in Romania is 44 years.



Our sample instead includes a higher share of managers with higher education (92%), while at national level the proportion is 64%. Regarding the type of managers, it is well balanced in our sample, with a slight preponderance for women (51%), while the national average is 30%<sup>118</sup>, the trend being increasing every year. Increasing the share of women in our sample is voluntary, in order to determine specific behaviors related to the implementation of sustainable development at the firm level, depending on gender.

Regarding the origin of capital, only 8% of the respondents of our study have capital from countries other than Romania, all European (France, Germany, Italy, Sweden and Hungary). Their weight is too low in the total sample for a quantitative analysis with the possibility of extrapolation, but the results can give indications of trends possible to be validated later by quantitative statistical methods.

## **5.2.THE RESEARCH STAGES AND RESEARCH METHODS**

### **5.2.1.Preliminary phase**

Following the study of scientific literature and non-academic sources, we built in the second part of the paper the research tool, respectively the questionnaire to be administered to business managers. Before submitting it for completion, we performed its verification on a panel of 5 companies, which are not part of the extended sample.

The purpose of this approach is to test and then validate the research tool in real conditions, using the same type of respondents who complete the final questionnaire. The research methods used in this phase were: semi-structured interview with the managers of the selected companies; administration of the test questionnaire; on-site observation at the company's premises.

In the diagram below, we present schematically the information flows from the preliminary phase, the place where they are collected, the research methods used at this stage, as well as the interlocutors providing information.

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<sup>118</sup> Nicolescu Ovidiu, "*Carta Alba a Imm-urilor*", Consiliul Național al Intreprinderilor Mici și Mijlocii din România, ed. Pro Universitaria, pp.16-22, (2016).

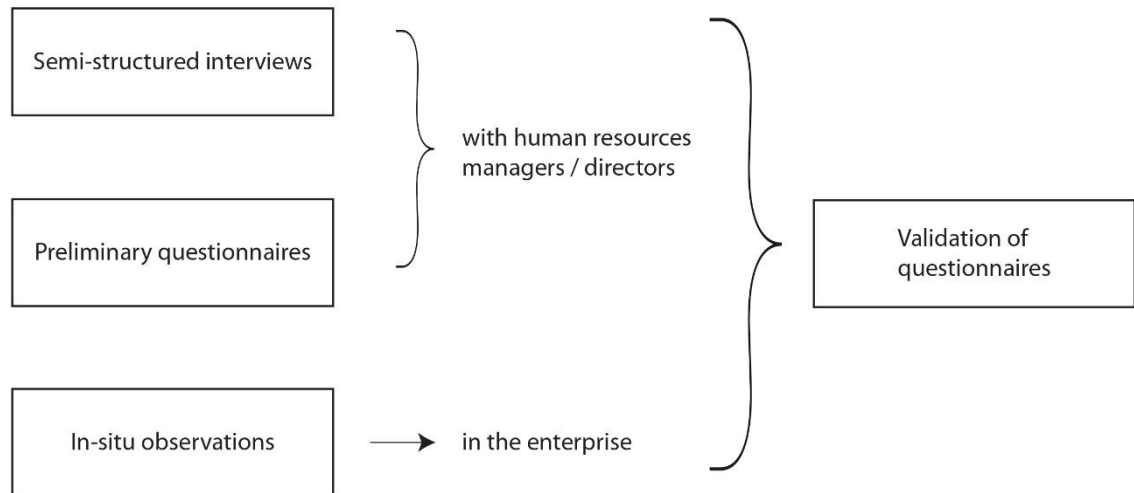


Figure 4-Information flow in the preliminary phase. Source: own conception

At the end of this stage, we concluded that reformulating the questions, re-specifying the meaning of some terms, eliminating any doubt about data confidentiality and the existence of value judgments from the answers, as well as encouraging managers to propose their own and spontaneous answers, and validation of a reliable and exploitable research tool.

### 5.2.2. Qualitative research stage

At this stage, the qualitative research was carried out during two intermediate stages:

□ the preliminary stage, whose purpose was to test the statistical research tool (questionnaire) on a panel of 5 enterprises; During this stage, the following statistical methods were used:

- semi-structured interview;
- in situ observation;
- survey (administration of the questionnaire itself).

□ the stage of extending the questionnaire to the entire sample of enterprises. During this stage, statistical data were obtained from the entire selected group, both qualitative and quantitative. Despite the fact that a series of data resulting from the treatment of the questionnaire refers to qualitative and / or immeasurable notions, we consider that these are statistical data and therefore their analysis is performed according to the quantitative statistical methods set out in the following chapter.

Both the semi-structured interview and the observation at the company's headquarters are part of the method of empirical analysis, a qualitative analysis that aims to identify the values and entrepreneurial attitudes<sup>119</sup> (policies, strategies and actions) underlying the company's evolution and the context in which they are found.

### **5.2.3. Quantitative research stage**

We performed the statistical analysis of the data obtained from companies in two stages:

- descriptive analysis;
- non-descriptive, comparative statistical analysis.

A descriptive statistical analysis, using indicators such as number of cases, percentage, mean, standard deviation, confidence interval for mean (95%), was initially performed to analyze the answers obtained for the questions of the proposed questionnaire.

The contingency tables and the Chi-Square test or the Fischer test (depending on the situation) were then used to identify whether there were significant differences between the following groups of organizations (micro, small and medium-sized enterprises). This technique has been used in relation to the various study directions proposed. The results were presented using synthesis tables and graphs such as boxplot, bar, pie chart, etc.

Data mining techniques such as association rules have been used to identify the most common combinations of aspects that managers consider when defining the sustainable development and sustainability of the company. The FP-Growth and Association Rules operators within the RapidMiner software package were used to generate the association rules. The most frequent combinations of 2 and 3 items (between economic, social and environmental items) were analyzed.

The KKLayout format was used for the graphical visualization of the obtained rules and their support and confidence were taken into account as metrics for evaluating these rules.

## **6. GENERAL QUANTITATIVE DATA ANALYSIS**

In this chapter, we present the data resulting from the analysis of the questionnaires, according to the four main research topics: the knowledge and attitudes of managers regarding sustainable development; barriers and facilitators to the implementation of sustainable

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<sup>119</sup> Weidinger Christina, Fischler Franz, and Schmidpeter Rene, *"Sustainable Entrepreneurship. Business Success through Sustainability"*, Berlin: Springer, p.141 (2014).

development strategies in companies; the degree of integration of sustainable practices in the studied SMEs; the degree of adoption of indicators to measure the integration of sustainable development in SMEs.

## 6.1.KNOWLEDGE AND ATTITUDES OF MANAGERS

### 6.1.1.Managers' knowledge about sustainable development

Thus, in terms of managers' knowledge, more than half of the respondents consider that they have a good and very good level of knowledge on sustainable development, on the other hand only a third state that they would know the legislation well and very well. Managers feel that the notion of sustainable development is better known to them than waste legislation.

For most responding managers, social issues are the main component of sustainable development (94%), closely followed by economic and environmental ones (figure no. 5). More than half of managers believe that philanthropic and cultural aspects are part of the notion of sustainable development. More than two thirds of them included all 3 aspects of the definition of sustainable development.

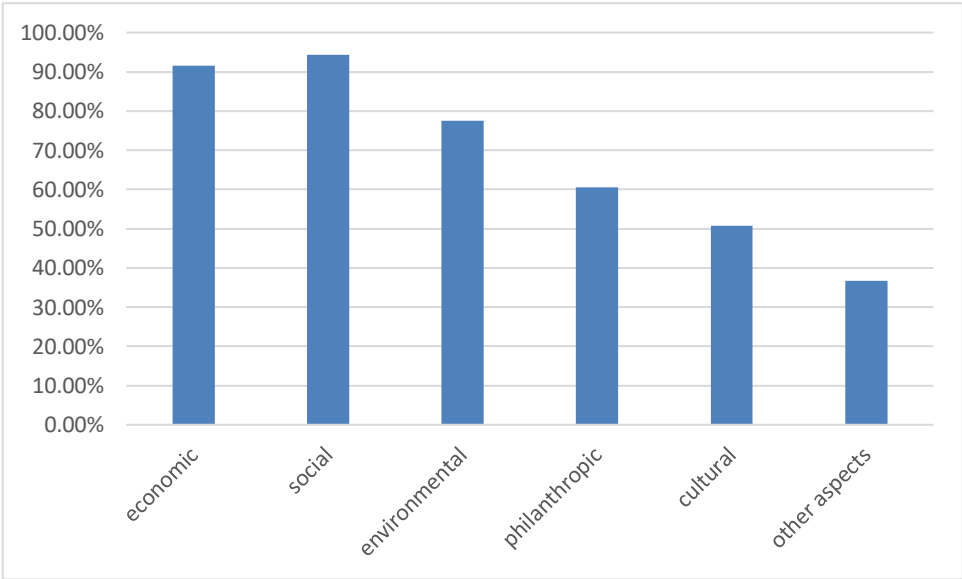


Figure 5-The degree of comprehension of the three main aspects of sustainable development (triple bottom line) in the knowledge of managers

Another issue studied is the definition of managers for a sustainable company, as well as the different associations of answer options, as shown in figure no. 6

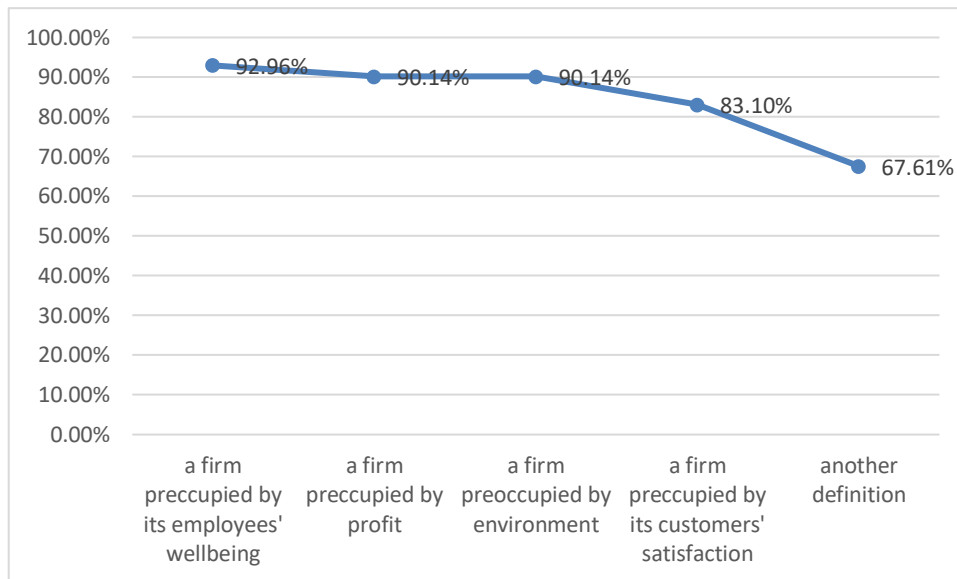


Figure 6-Definition of managers for the sustainable company

The study of open answers proposed by managers shows that they have a broad vision of the company's sustainability. All the variants proposed by them aim in different forms, at the key aspects of sustainability at company level, as it appears from the academic literature. We can therefore conclude that managers have extensive knowledge on the subject, even if some of them are not aware of it.

### 6.1.2. Attitudes of managers related to the environment

This section presents the attitude of the Romanian managers participating in our study, towards the environmental issues, which represent an aspect of sustainability. We treated managers' attitudes towards the environment distinct from their knowledge of sustainable development, as the former reflect the concrete actions they take in daily life, and which have a positive or neutral impact on the environment.

Regarding the attitudes of managers towards sustainable development, the study of the answers to the two questions in the questionnaire shows that environmental issues are a priority for a large part of managers. Among the most common environmental protection gestures practiced in everyday life (Likert score over 3/5) are: selective collection practiced often and very often by 80% of respondents, privileging the repair of objects over the purchase of new ones; limiting the consumption of food, clothing, appliances, etc .; recycling of waste in the sense of changing its destination or capitalizing on it); avoid using plastic packaging. The rarest of the practices suggested by the questionnaire are: participation in campaigns or collective

actions of waste collection, cleaning of green spaces; buying food in bulk; ecological transport (public / bicycle / walking).

## 6.2.FACILITATORS AND BARRIERS TO THE IMPLEMENTATION OF SUSTAINABLE DEVELOPMENT IN SMEs

These questions are included in the “control” category by the academic literature (cf. Hallstedt et al.), But reflect the facilitators and barriers related to the introduction of concrete sustainable development policies at the firm level. Regarding the concrete ways to manage the barriers (solutions), we have chosen to include this topic in the next topic «sustainable development policies at company level».

Both the facilitators and the barriers are summarized in table no. 3.

Table 3-Facilitators and barriers for the implementation of sustainable development at company level

	No.(%)
<b>Barriers to sustainable development</b>	
<b>31 What are the main challenges / difficulties related to sustainable development at company level (BARRIERS)</b>	
▪ limited financial resources	46 (64,79%)
▪ limited human resources	45 (63,38%)
▪ I never asked myself the problem, our company worked very well and without them	5 (7,04%)
▪ It costs too much	16 (22,54%)
▪ I don't know where to start / I don't know how	7 (9,86%)
▪ environmental / social legislation is already complicated, I don't want to create other difficulties	19 (26,76%)
▪ I would like to, but it is difficult for me to explain to colleagues / employees	13 (18,31%)
▪ we already pay taxes, they should be used for sustainable development	25 (35,21%)
▪ OTHERS	45 (63,38%)
<b>Facilitators for sustainable development</b>	
<b>What are the main motivations that can lead you to adopt sustainable development policies at company level (FACILITATORS)</b>	
▪ positive image for: employees, customers, suppliers, etc	61 (85,92%)
▪ reduce costs (for example if we recycle paper, limit energy consumption, etc.)	44 (61,97%)
▪ legal obligations (pollution taxes, waste taxes, etc.)	34 (47,89%)

▪ personal belief that everyone is responsible for the protection of the environment / community	65 (91,55%)
▪ we want to attract new employees through a socially / environmentally responsible enterprise policy	24 (33,80%)
▪ OTHERS	30 (42,25%)

The study of data collected in this regard shows that the main barriers to the implementation of sustainable development are the limitation of financial and human resources (respectively 65% and 63%, respectively). Equally important is the "other difficulties" mentioned by managers, which we will detail and classify below. Less than 10% of managers do not know where to start sustainable development or do not know how, this is not a real impediment in implementing sustainability at the company level. A smaller proportion (7%) say they have not raised this issue, as the company operates well and without adopting sustainable principles. More than a third of managers believe that sustainable development is not their responsibility, but the responsibility of the state, to which they pay taxes. More than a quarter of entrepreneurs believe that environmental and social legislation is complex, and implementing sustainable development at the firm level could create new difficulties. For more than a fifth of respondents, sustainable development would cost too much, and 13 of them are motivated by good intentions, but fail to mobilize employees or customers in this direction.

Given the large number of managers (N = 45, ie 63%) who proposed other difficulties than those listed in the questionnaire, it is important to consider their answers, which we classified into 8 main topics (fig.7):

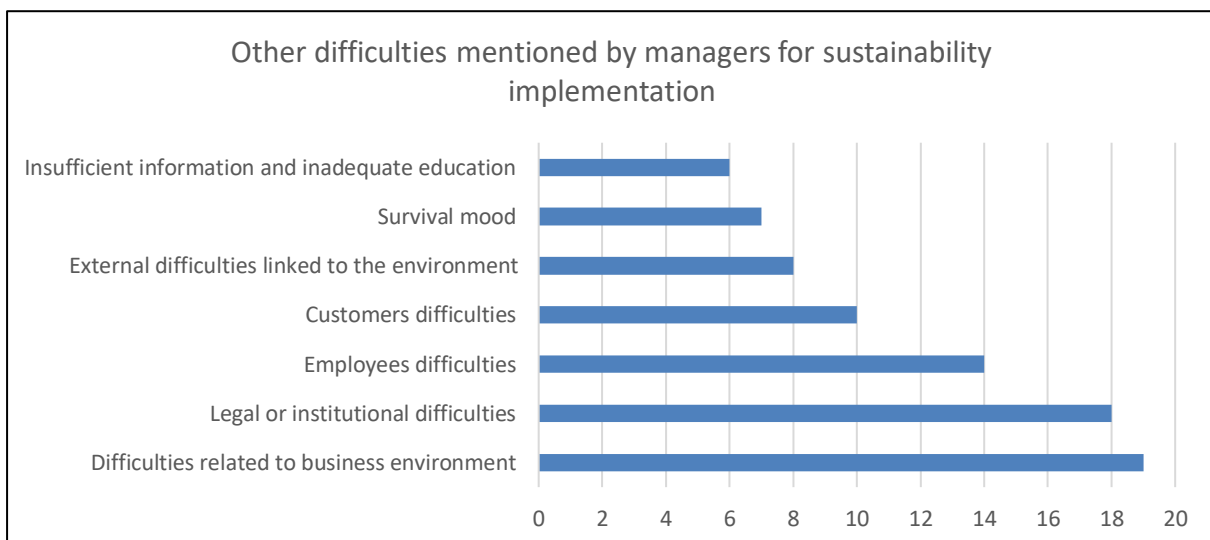


Figure 7-Other difficulties mentioned by managers in implementing sustainable development at the SME level

Regarding the facilitators of the implementation of sustainable development within an SME, the vast majority of managers (92%) mention the personal belief that everyone is responsible for the protection of the environment or the community. A large number of managers (86%) consider that the positive image of a sustainable company towards customers, employees or suppliers is a motivating factor for the adoption of sustainable principles in the company. Also the majority, even if fewer (44, or 62%) are managers motivated by lower costs (eg resource consumption) to have a sustainable firm. Almost half of the respondents mention legal obligations as a determining factor, but also "other facilitators". One third believe that a sustainable company can attract new employees by adopting the principles of sustainable development.

In the spirit of clarity of the analysis, we also classified the facilitators listed by the managers into 8 main categories (figure 8). In the semi-structured interviews, several managers mentioned the word “family” when referring to the company, which shows the strong connection between it and the fruit of their work. It is important to mention that 81% of the respondents are also the founders of the businesses object of the study. The following graph summarizes all the options of facilitators / motivations proposed by managers.

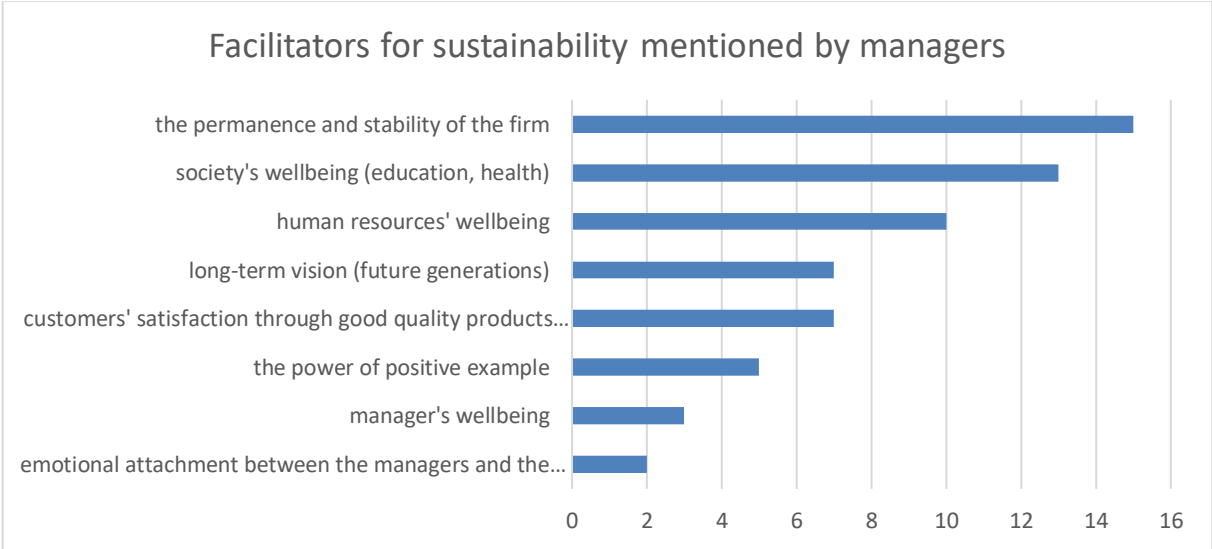


Figure 8-Other facilitators of sustainable development at company level mentioned by managers



### 6.3.DEGREE OF IMPLEMENTATION OF SUSTAINABLE DEVELOPMENT POLICIES AT THE LEVEL OF THE COMPANIES STUDIED

This important aspect was assessed by questions related to the concrete sustainability policies at company level, which were grouped according to the key aspects captured: environmental and social / community. We consciously chose not to evaluate the sustainability of companies from an economic point of view (first pillar), but only the other two pillars (social and environmental) for the reason that economic sustainability is considered by many authors as implicit (the circle representing the economic pillar is presented inside the other concentric circles (environmental and social), in other words the financial health of the company is the premise for the realization of social and environmental policies (according to the diagram presented by J. Bebbington<sup>120</sup>).

The same focus on the other two pillars (social and environmental) emerges from the European Commission's definition<sup>121</sup> of CSR - Corporate Social Responsibility: this is how companies integrate social and environmental issues into their operations and interactions with stakeholders voluntarily.

The questions to managers were grouped into 3 sections: environmental policies, general sustainability policies and social policies.

#### 6.3.1.Environmental policies

The summary of the managers' answers is presented in table no. 4. We grouped the environmental themes into the following categories: ecological supply policy; collaborative design policy; limiting energy consumption; eco-mobility; limiting resource consumption and environmentally friendly waste treatment.

Table 4-Environmental policies of enterprises

	Does it exist / not?	
	38 What actions are being taken to limit the company's environmental impact? [none]	2(2.82%)
	Carbon balance	1(1.41%)

<sup>120</sup> Bebbington Jan, "Accounting for Sustainable Development Performance", Bebbington, London: Cima, Elsevier, p.31, (2007).

<sup>121</sup> Weidinger Christina, Fischler Franz, and Schmidpeter Rene, "Sustainable Entrepreneurship. Business Success through Sustainability", Berlin: Springer, p.42, (2014).

<b>Environmental POLICIES</b>	Ecological supply policy	
	▪ use of recycled paper	29(40.85%)
	▪ use of collective printers / copiers	35(49.30%)
	▪ use of ecological household products	33(46.48%)
	▪ limitation of plastic packaging and disposable products (water bottles, coffee capsules, etc.)	47(66.20%)
	▪ use of refurbished furniture	29(40.85%)
	▪ other eco-responsible supply measures	39(54.93%)
	Collaborative design policy (with customers, suppliers, competitors)	29(40.85%)
	Limiting energy consumption	
	▪ external energy audit	4(5.63%)
	▪ printer / computer shutdown policy at night	44(61.97%)
	▪ making a diagnosis of energy performance	9(12.68%)
	▪ there are clear instructions for employees related to lighting / heating (depending on temperature, brightness, etc.)	38(53.52%)
	▪ the need to recycle is displayed on external communication media (brochures, reports, etc.)]	13(18.31%)
	▪ other measures related to energy consumption	46(64.79%)
	Eco-mobility	I 45-46
	▪ incentives for employees to use public transport / cycling / walking on the home / service route	28(39.44%)
	▪ only for professional trips	17(23.94%)
	▪ other eco-mobility measures	30(42.25%)
	Limiting resource consumption / ecological waste treatment	
	▪ there are toilets / sinks with water saving	9(12.68%)
	▪ there is a selective collection	62(87.32%)
	▪ are recycled: cartridges / toners	47(66.20%)
	▪ the bulbs are recycled	40(56.34%)
	▪ batteries are recycled	45(63.38%)
	▪ computer materials are recycled	28(39.44%)
	▪ other actions	38(53.52%)

The analysis of the table allows the formulation of the following remarks:

Regarding the degree of implementation of environmental policies in the company, only 2 managers state that they do not undertake any environmental protection policy in the company, the vast majority of them (97%) being active in this field. We grouped the environmental themes into the following categories: ecological supply policy; collaborative design policy; limiting energy consumption; eco-mobility; limiting resource consumption and environmentally friendly waste treatment.

Regarding the eco-responsible supply measures, two thirds of the managers declare that they voluntarily limit within the company plastic packaging and disposable products (water bottles, coffee capsules, etc.); most respondents come with other answer options, adapted to the situation of their company. Half of the managers chose to use collective printers and copiers in the office, for economic (cost) and environmental reasons.

Almost half of the companies have designed products and services jointly with business partners (customers, suppliers, competitors, etc.). Regarding limiting energy consumption, most companies turn off computers or printers at night, and just over half have clear instructions for employees regarding lighting or heating.

Performing an energy performance diagnosis and an external energy audit, respectively, or calculating the carbon dioxide footprint is not a priority for managers, despite the multiplication of online calculation solutions. Most SME managers do not have an active eco-mobility policy, in the sense that they do not propose incentives for employees to use environmentally friendly modes of transport (bicycle, public transport, walking), both on the way home -service, as well as for professional trips.

Regarding the limitation of resource consumption and the ecological treatment of waste, the vast majority of managers (87%) practice the selective collection of waste in the company, recycle light bulbs, batteries, printer cartridges. A quarter of managers practice reducing the environmental impact in the company's office, through multifunctional office products, reducing paper consumption by reusing it, digitizing and printing on both sides.

Almost a quarter of managers reuse products and equipment, including by changing the destination, use them beyond the accounting depreciation period, use professional products or equipment for professional purposes to limit consumption, practice DIY.

More than a third of the managers have adopted in the company a lighting / heating strategy / equipment with low energy consumption or automated (LEDs, light sensors, thermostat, etc.). Also, more than a quarter of them practice shutting down energy-intensive installations and equipment when not in use.

Below, we present other response options proposed by managers for eco-responsible procurement policies. These are summarized in the graph in the figure below:

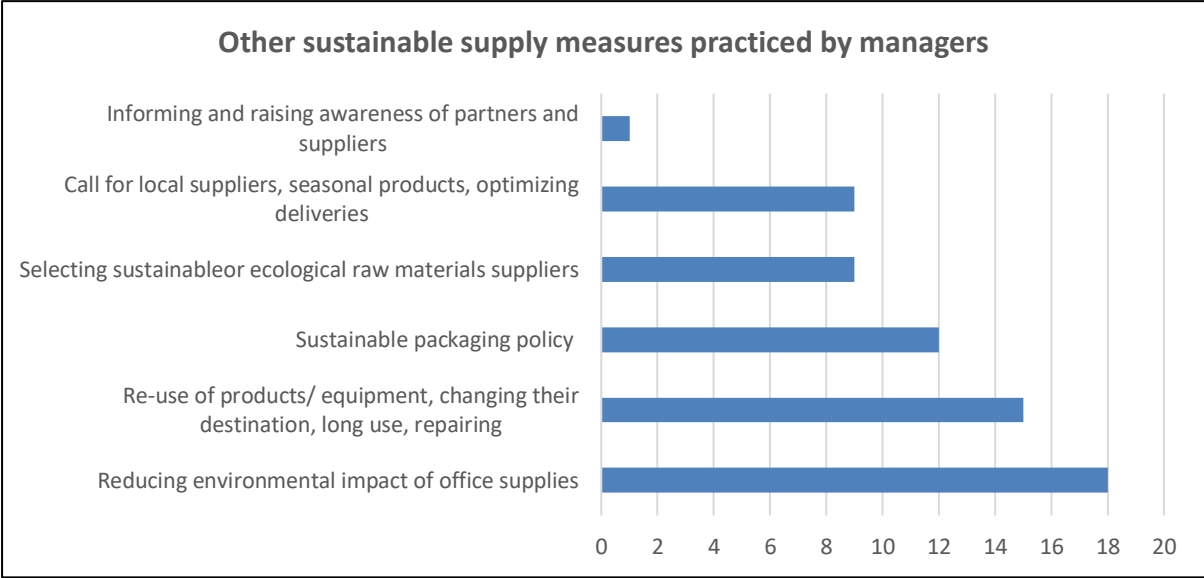


Figure 9-Other eco-supply measures practiced by managers

Equally interesting are the open response options of managers, regarding the energy saving measures practiced in the company. These are synthetically represented in the graph in figure no.10:

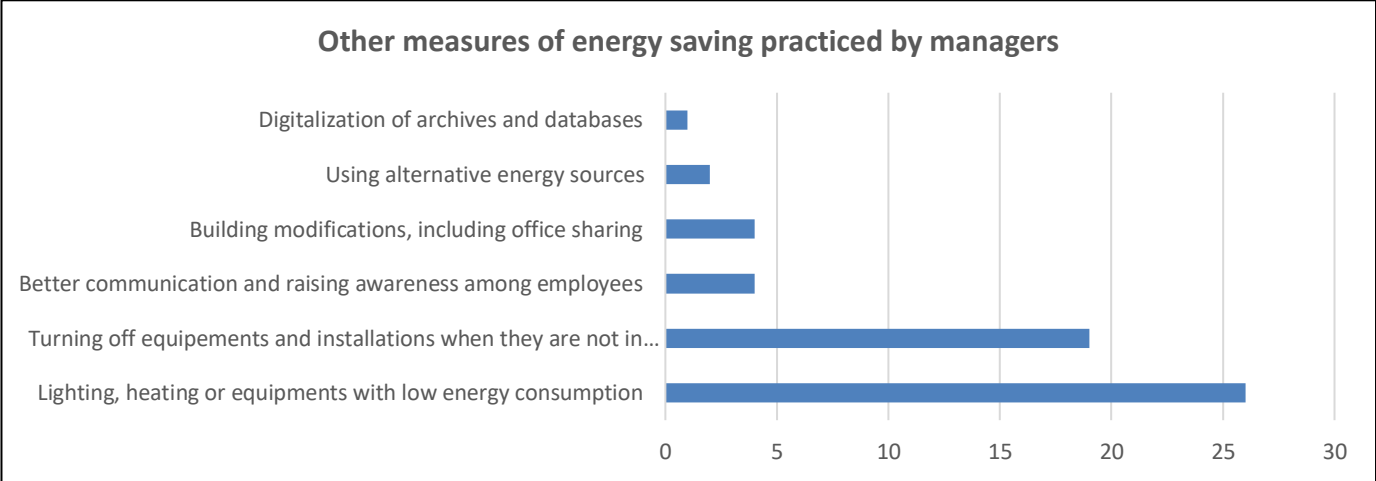


Figure 10-Other energy saving measures practiced by managers

As in the previous sections, the solutions practiced by managers in the “eco-mobility” chapter offer interesting perspectives, represented in the graph in figure no. 11.

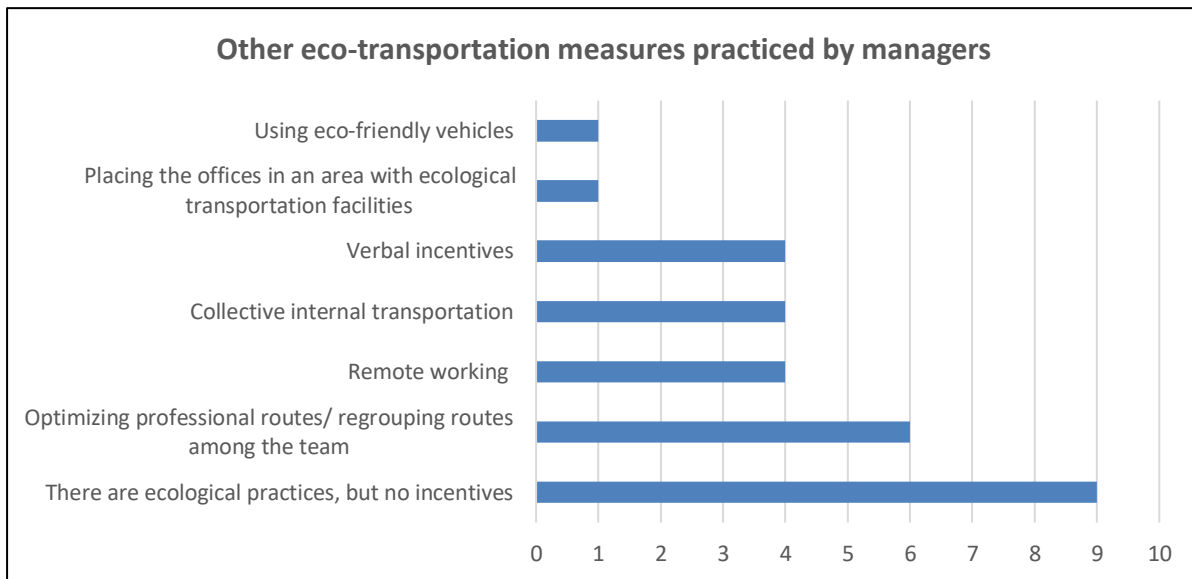


Figure 11-Other eco-mobility measures practiced by managers

The last section of environmental policies is the one regarding the limitation of the consumption of resources in the company and the ecological treatment of waste. In addition to the answer options proposed by the questionnaire, the managers proposed other options, summarized in the following graph.

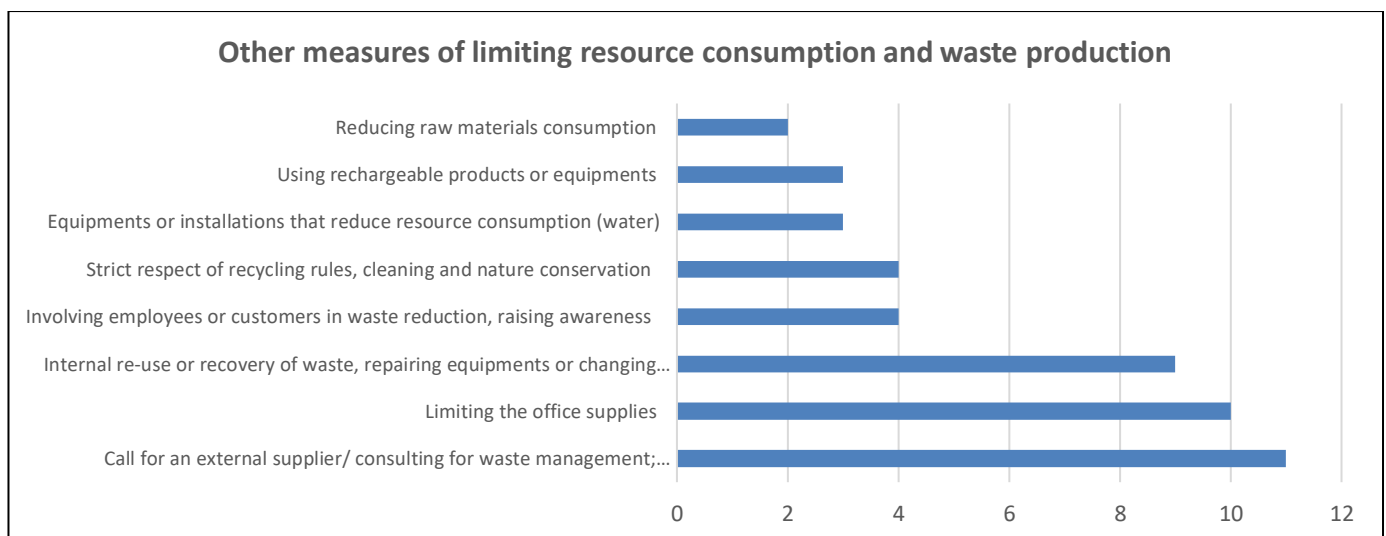


Figure 12-Other measures to limit resource consumption

### 6.3.2.General sustainability policies

The questions regarding the general sustainable development policies at company level (non-specific for environmental or social issues) are represented in table no. 5. These concern: solutions implemented by companies to face the difficulties (barriers) that stand in the way of the sustainability of their company (presented and analyzed in the previous subchapter);

partnerships concluded by companies with different entities in their territory; obtaining official certifications regarding the location, products or services; degree of knowledge of human rights law.

Table 5-General sustainability policies in the studied sample

<b>GENERAL POLICIES</b>	<b>Solutions to sustainability problems (barriers)</b>				
	<b>33 What does the company do at a strategic level to manage these challenges?</b>				
	▪ nothing, we focus on what we are already doing;			10(14.08%)	
	▪ we take an example from other enterprises in the same field / geographical sector;			42(59.15%)	
	▪ we turn to specialized external consultancy;			23(32.39%)	
	▪ we do a market study to determine the interest of customers / employees for these practices.			19(26.76%)	
	<b>Community involvement</b>				
	<b>67 Does your organization enter into active partnerships with other actors in its territory?</b>				
	▪ no partnership;			17(23.94%)	
	▪ schools;			20(28.17%)	
	▪ training centers;			12(16.90%)	
	▪ employment or insertion bodies;			5(7.04%)	
	▪ associations;			48(67.61%)	
	▪ other.			24(33.80%)	
	<b>Certification</b>				
	<b>49 Is your organization certified or in the process of being officially certified for location / products / services?</b>				
	▪ no certification;			48(67.61%)	
	▪ ISO14001-EMAS-EnVol;			11(15.49%)	
	▪ buildings with high energy qualities;			0 (0%)	
	▪ European Ecolabel;			1(1.41%)	
	▪ sectoral certification;			9(12.68%)	
	▪ other official certifications.			10(14.08%)	
	<b>Respecting the human rights</b>				
<b>71 To what extent is your organization aware of the risks to which it is exposed by non-compliance with human rights (civil, political, etc.)?</b>					
▪ internally: employees, shareholders;			3.20±1.39		
▪ abroad: providers, customers, suppliers, etc			3.21±1.38		
<b>71 To what extent is your organization aware of the risks to which it is exposed by non-compliance with human rights (civil, political, etc.)? [internally: employees, shareholders]</b>		1	3	1	18,31%
		2,		7	9,86%
		3,	0	2	28,17%
		4,	5	1	21,13%
		5	6	1	22,54%
		1	3	1	18,31%

<b>71 To what extent is your organization aware of the risks to which it is exposed by non-compliance with human rights (civil, political, etc.)? [externally: providers, customers, suppliers, etc.??]</b>	2,	6	8,45%
	3,	1 2	29,58%
	4,	5 1	21,13%
	5	6 1	22,54%

In close relation with the barriers to the implementation of sustainability, it is useful to analyze what solutions managers adopt to counter them. Thus, more than half of the respondents state that they take an example from other companies operating in the same field or geographical sector. As many managers propose other answer options, summarized in the chart in figure no. 13.

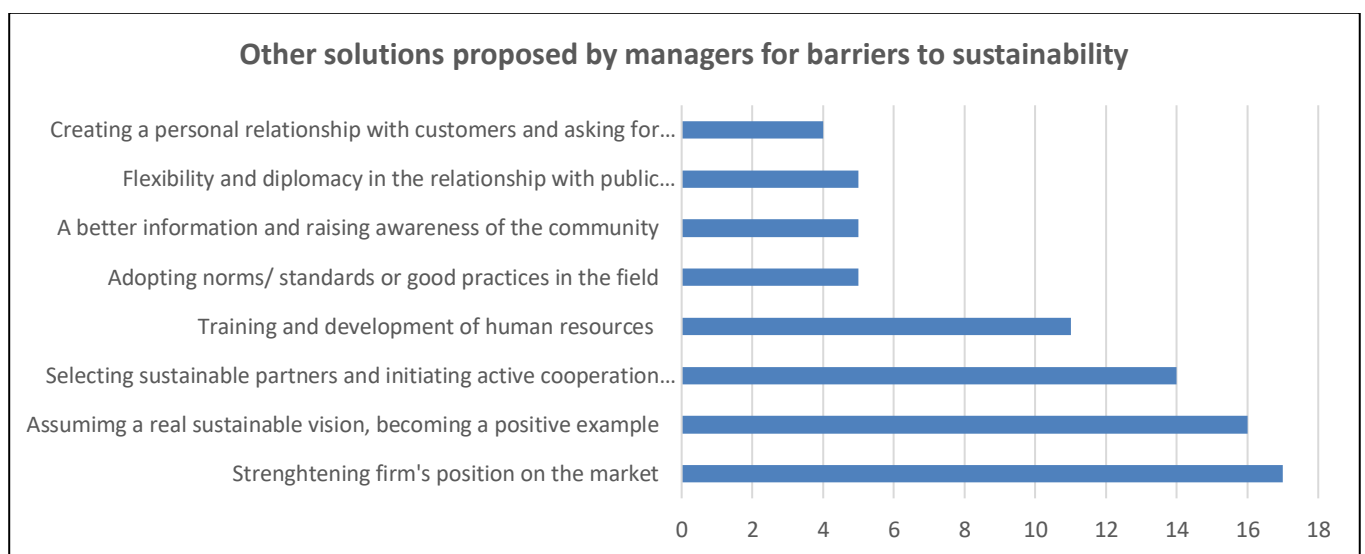


Figure 13-Other solutions practiced by managers for sustainability barriers

Regarding the partnerships that the company concludes with other organizations in its territory, a quarter of the SMEs in the sample state that it does not conclude any partnership. The most common partnerships are created with associations and NGOs (68%), followed by schools, training centers, employment and insertion bodies and others.

Certification and adoption of international standards<sup>122</sup> can be important factors in monitoring and reporting on sustainability, and are a competitive advantage. There are less expensive certification options<sup>123</sup>, designed specifically for SMEs. Regarding the sample of

<sup>122</sup> Frederick Andreas, Cooperman S. Elizabeth, Gifford Blair, and Russell Graham, "A Simple Path to Sustainability. Green Business Strategy for Small and Medium-Sized Businesses", Santa Barbara: Praeger, p.45, (2011).

<sup>123</sup> Orsato Renato J., "Sustainability Strategies: When Does It Pay to Be Green?", London: Palgrave MacMillan, pp.74-75, (2009).

SMEs studied, 68% of companies have not adopted any certification, and of those that have adopted, none operate in a building with high energy performance. 15% of SMEs have adopted the ISO14001 or EMAS standard, while less than 15% have received other standards or certifications.

The last question in this section concerns the degree of knowledge of human rights law, namely the sanctions by which the company is exposed for non-compliance. The results are substantially equal for the rights inside (employees) and outside the company. The average score is 3.20 / 5. 18% of managers say they do not know this legislation at all, while a third consider that they know it well and very well.

### 6.3.3.Social policies

Social policies represent an important component of sustainable development within the company, these being represented schematically in table no. 6.

Table 6-Social policies of the studied enterprises

<b>SOCIAL POLITICS</b>	<b>Remote work</b>	70(98,59%)
	<b>New skills for employees</b>	
	<b>51 With what formalized actions does the company encourage employees to acquire new skills?</b>	
	▪ None;	3(4.23%)
	▪ legal minimum (professional training plan for enterprises with more than 20 employees, obligations deriving from the collective labor contract, from the individual contract, etc.);	66(92.96%)
	▪ individual training plan determined together with the employee and re-evaluated periodically.	43(60.56%)
	<b>The balance of private life and professional life</b>	
	<b>53 With what formalized actions does the company encourage the balance between private and professional life? (more than the legal minimum)</b>	68(95.77%)
	▪ preparing to return from vacation;	8(11.27%)
	▪ flexible working time;	57(80.28%)
	▪ remote work;	41(57.75%)
	▪ part-time work;	32(45.07%)
	▪ other.	27(38.03%)
	<b>Protection in the field of health, safety and well-being</b>	
	<b>56 What formalized actions does the company provide protection in the field of health, safety and well-being of employees?</b>	
	▪ none;	3(4.23%)
▪ legal minimum (mandatory contributions, observance of occupational medicine visits, updating the documentation regarding risks, etc.);	61(85.92%)	
▪ private health insurance;	17(23.94%)	
▪ private pensions;	10(14.08%)	
▪ life insurance;	7(9.86%)	
▪ holiday vouchers;	3(4.23%)	



▪ other;	33(46.48%)
<b>Professional equality between men and women</b>	
▪ inaction;	24(33.80%)
▪ there is a formalized plan (charter / internal regulation communicated to employees, etc.);	2(2.82%)
▪ informal actions: employment according to the needs of the enterprise, with the attempt to informally maintain a balance;	40(56.34%)
▪ equal pay: there is a formalized plan;	7(9.86%)
▪ other informal actions.	13(18.31%)
<b>Lack of discrimination</b>	
▪ employment of disadvantaged unemployed people;	51(71.83%)
▪ employment of disadvantaged young graduates;	28(39.44%)
▪ other.	51(71.83%)
<b>Responsibility to customers / consumers</b>	
<b>63 How far does the responsibility towards customers / consumers / users go?</b>	
▪ formalized policy for the management of complaints / litigations (existence of an internal book for satisfaction; condition of complaints, etc.);	44(61.97%)
▪ information / labeling of the social impact of products or services (bio, local, fair trade, biodegradable packaging, etc.);	26(36.62%)
▪ compliance with the recommendations of specialized professional organizations regarding advertising (responsible advertising, non-denigration of competition, clear specifications, etc.);	38(53.52%)
▪ co-conception of a product / service with an external third party (customer / supplier / competitor);	29(40.85%)
▪ other.	27(38.03%)
<b>Caring for the health and safety of customers</b>	
<b>65 The organization's products / services are designed with care for the health and safety of consumers or customers / users, in particular due to:</b>	
▪ compliance with the legal minimum (regulations on products / services, ethical norms and labels, traceability obligations, etc.);	60(84.51%)
▪ other additional practices: increased vigilance and communication for vulnerable customer categories (eg allergies);	28(39.44%)
▪ other additional practices: lack of product promotion for sensitive customer categories (eg sweets for children, diabetics, etc.);	12(16.90%)
▪ none of these practices;	2(2.82%)
▪ other.	23(32.39%)

Among them, allowing or encouraging employees to work remotely can contribute to increasing their well-being and promoting the balance between private and professional life. The synthesis of the managers' answers on this subject is presented in the chart in figure no. 14.

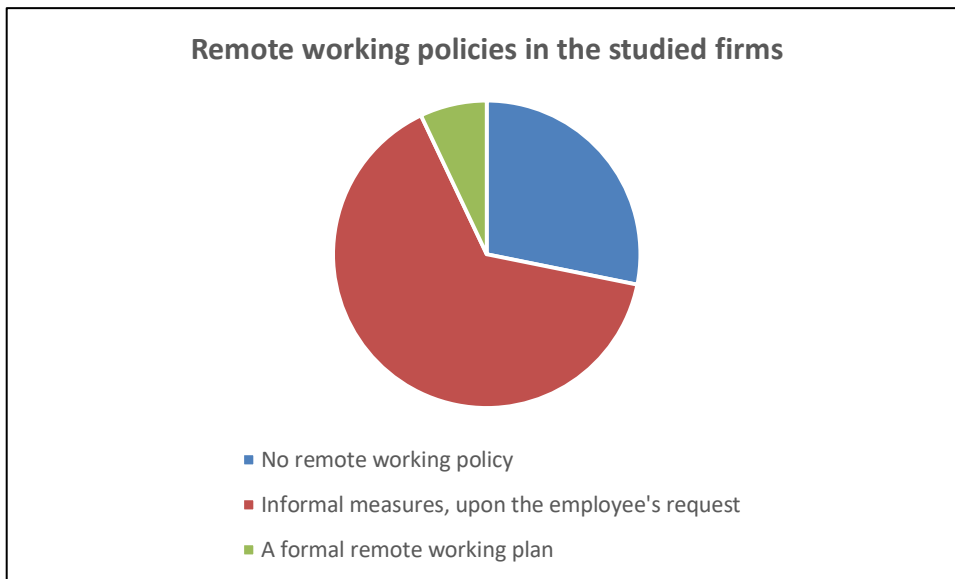


Figure 14-Distance work policies for the studied companies

Over a third of the managers proposed other answer options, which we present in the chart in figure no. 15.

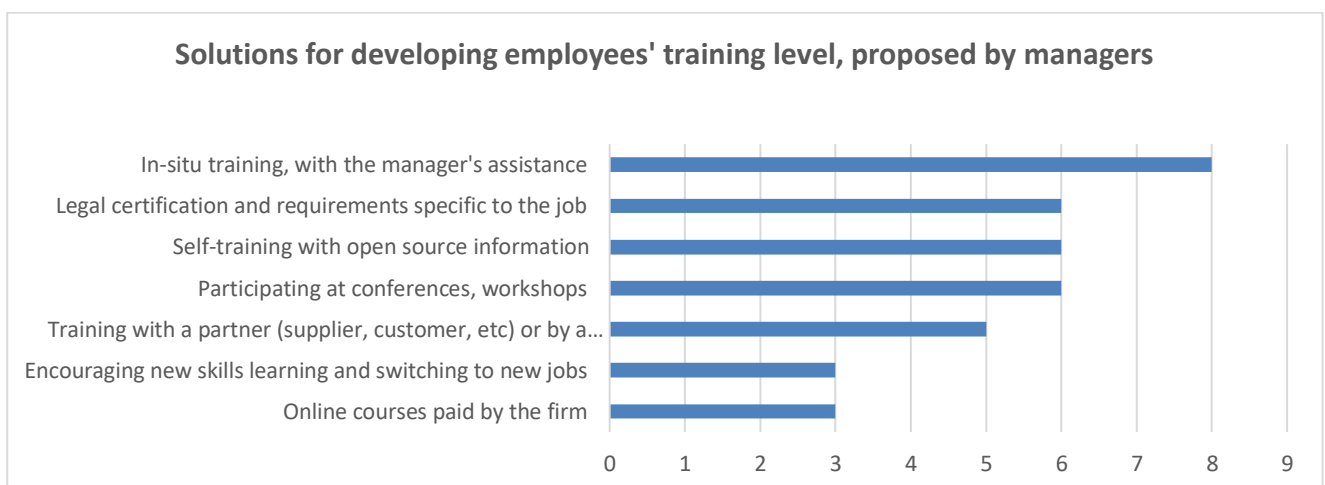


Figure 15-Other solutions for developing employee competence proposed by managers

The next section looks at the work-life balance of employees and managers, another indicator of well-being in the enterprise. A positive aspect in this respect is the fact that the vast majority of companies (96%) say they do more than the legal minimum in this regard ("compliance"). Sustainable entrepreneurship is more than complying with existing

legislation<sup>124</sup>, even if it is its basis, along with philanthropic actions. Today, social entrepreneurship means the positive contribution of the company in the community, or the well-being of its own employees is an important premise for the social impact of the company. The analysis of the answers to the questionnaire offers some more pleasant surprises. 80% of managers say they have implemented a flexible work schedule for employees, and 58% allow remote work. In the chapter of conclusions and personal contributions, we present some landmarks related to remote work (telework), highlighted during discussions with managers in the context imposed by the Covid pandemic<sup>19</sup>. Even before this exceptional situation, almost half of them offered the possibility of working part-time in the company, and more than a third propose other options, which we will analyze in the next part. Only a small proportion of managers (11%) help employees prepare for their return from parental leave.

Regarding the answer options offered by managers on this topic, we classified them into 4 main topics, whose share is represented in figure no. 16

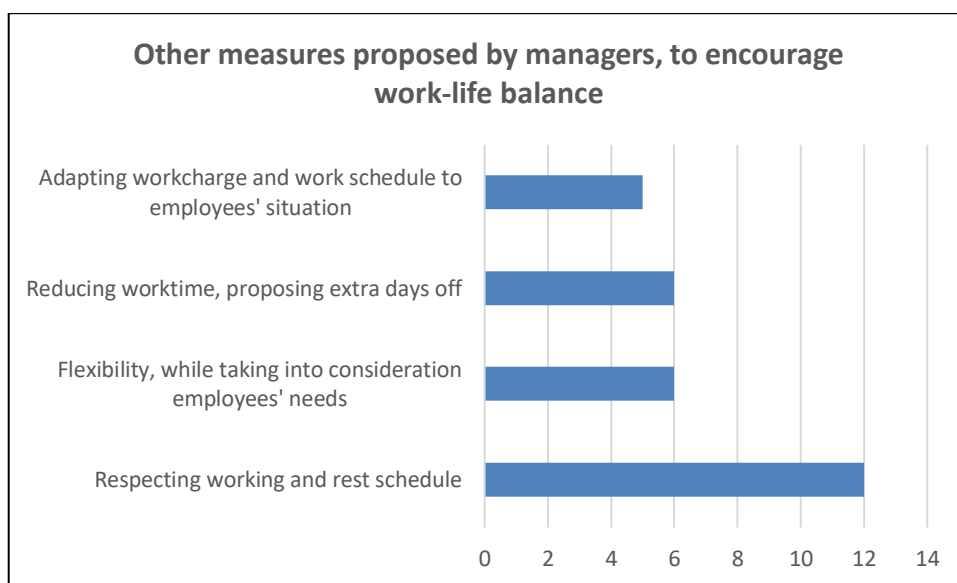


Figure 16-Other measures proposed by managers to promote work-life balance

The next section on social policy in the questionnaire concerns the health and well-being of employees. In this sense, it is interesting to note that 3 companies in the sample (4%) did not take any action in this area. 86% of companies comply with the legal minimum (mandatory

<sup>124</sup> Weidinger Christina, Franz Fischler, and Rene Schmidpeter, "Sustainable Entrepreneurship. Business Success through Sustainability", Berlin: Springer, p.29, (2014).

contributions, compliance with visits to occupational medicine, updating the documentation on risks, etc.). A significant number of managers (46%) practice other measures than those stated in the questionnaire, which we will detail below. Less than a quarter of companies offer private health insurance (24%), while private pensions, private life insurance and holiday vouchers offered by the company remain marginal (14%, 10% and 4% respectively).

Considering the important proportion of managers who proposed other variants of measures, we synthesized and classified their answers in 8 themes, illustrated in figure no. 17.

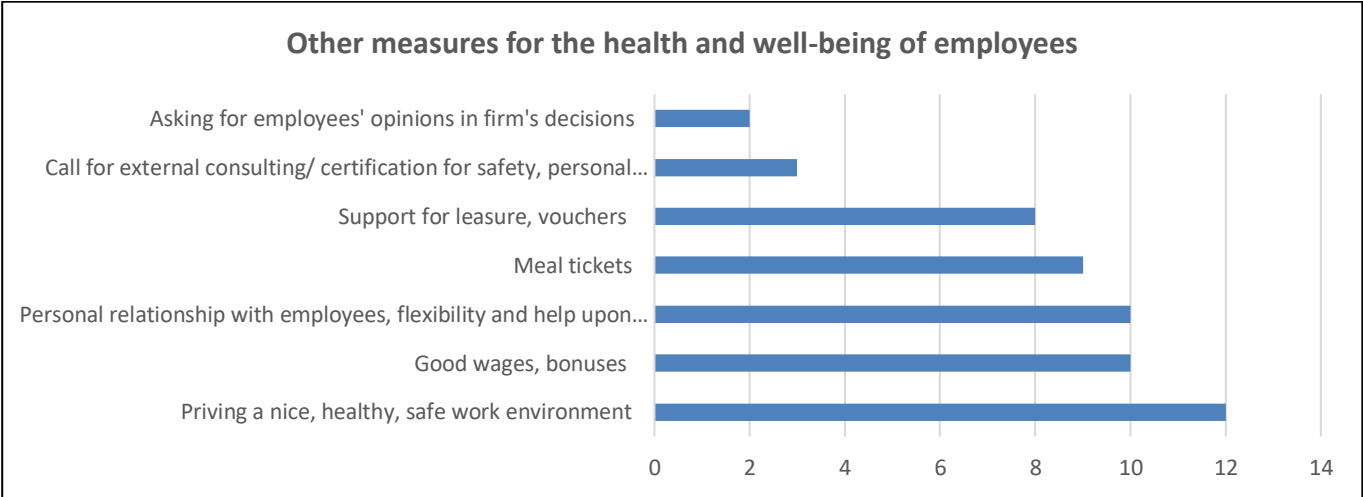


Figure 17-Other measures regarding the health and well-being of employees

Regarding professional equality between women and men, only 2 companies state that they have implemented a formalized charter plan to provide for this. The vast majority of companies (three quarters) undertake only informal actions in this regard, of which 18% practice other measures than those mentioned in the questionnaire.

We grouped these variants of measures as follows: privileging the employment of women; achieving a random balance; unbalanced situation, but percentage of women above the average of the activity sector.

Another related topic, non-discrimination in employment, offers various answers. Thus, the vast majority of managers (72%) employ the unemployed, and as many managers indicate other disadvantaged categories that are employed without discrimination: the elderly; single mothers / victims of domestic violence; some companies say there are no barriers to employment for disadvantaged people, but the opportunity has not arisen either; students; some companies have hired other disadvantaged people (Roma or from placement centers). More than a third of managers say they hire young graduates.

Regarding the responsibility towards customers, consumers and users, the majority of managers (62%) indicate that their company has a formal policy for managing complaints or litigations (internal satisfaction card, complaints form, etc.). More than half of the companies follow the recommendations of specialized professional organizations regarding advertising (responsible advertising, non-denigration of competition, clear specifications, etc.). We repeated in this section the question regarding the collaborative conception of a product / service in collaboration with a supplier, customer or competitor, for two reasons:

- the conception in collaboration with partners is a factor of sustainability, both from a social and environmental point of view;
- is a good way to control the consistency of managers' statements. In this case, the score is identical (41%), and the answers can be exploited statistically.

More than a third of managers (38%) propose other answers, which we detail in the next section, and 37% of companies say they provide information, respectively a specific labeling of the social impact of products or services (organic, local fair trade, biodegradable packaging, etc.).

The new answer options offered by managers on this topic offer interesting perspectives, illustrated in figure no. 18.



Figure 18-Other measures to increase customer accountability

The last question in the "social policies" section is about caring for customers' health and safety. In this sense, 2 companies indicated that they did not take any measures in this regard, while the majority (85%), that they respect the legal minimum. More than a third of companies

practice increased vigilance and communication for vulnerable customer groups. One third of the managers propose other answer options, detailed below. 17% of companies do not promote their products to certain categories of sensitive customers (for example, sweets for children, diabetics, etc.). This practice denotes a high level of responsibility towards customers and its privilege over making a profit at any cost.

Managers' approaches bring original information about other ways in which the company can contribute to the health and safety of consumers. We grouped their practices into 6 topics:

- attention to the health and safety of clients in different phases of the relationship with them;

- quality standards or level of services above the legal or contractual minimum;

- a good knowledge of customers and their needs;

- use of raw materials / environmentally friendly products / customers' health;

- respecting vulnerable customers by proposing specific product ranges / services or privileges;

- selection of clients or partners according to the company's values.

The analysis of environmental, social policies and general measures in the sense of sustainable development shows the existence of positive practices, widely exemplified by managers when they are encouraged to do so. A preliminary finding of the in-depth discussions with managers was that they practice sustainability involuntarily or unintentionally, and following discussions with them, in a large majority of cases there was an awareness of their involvement at this level.

## **6.4.SUSTAINABLE DEVELOPMENT INDICATORS AT THE LEVEL OF FIRMS STUDIED**

### **6.4.1.Descriptive analysis of indicators**

In the last part of the questionnaire, we asked managers questions about indicators; In this regard, we sought to determine the indicators already used at the firm level to measure sustainable development issues, but we provided examples and answers to managers, without ruling out the possibility that they may mention other indicators that they consider useful or appropriate.

In table no. 7 we summarize the managers' answers regarding the indicators used.

Table 7-Managers' responses on sustainability indicators

<b>INDICATORS</b>	<b>Environmental</b>	
	▪ (I1) the amount of paper consumed annually per employee	24(33.80%)
	▪ (I2) the percentage of recycled paper used in the enterprise	21(29.58)
	▪ (I3) water consumption per employee	16(22.54%)
	▪ (I4) energy consumption per employee	16(22.54%)
	▪ (I5) the amount of waste generated	16(22.54%)
	<b>Social</b>	
	▪ (I6) amounts intended for sponsorships of humanitarian organizations (whether or not related to profit / turnover)	46(64.79%)
	▪ (I7) percentage of women in the total workforce	51(71.83%)
	▪ (I8) percentage of vulnerable people (unemployed, young graduates, people with disabilities, etc.)	25(35.21%)
	▪ (I9) percentage of employees who benefit from a private pension system	10(14.08%)
	▪ (I10) percentage of employees who benefit from a private health insurance system	16(22.54%)
	▪ (I11) percentage of employees receiving private life insurance	8(11.27%)
	▪ (I12) staff training expenses related to payroll or turnover	35(49.30%)
<b>Proposed / used by the company</b>	I97	

The information provided by the managers was structured in 3 categories: indicators proposed in response: environmental and social, and indicators proposed or used by the company.

From the analysis of the data collected from the managers, we can deduce the following:

□ the results are relatively homogeneous regarding the degree of use of the environmental indicators proposed by the questionnaire; the largest share of companies (one third) monitors the amount of paper used, and smaller proportions, between 20 and 30%, use the following indicators in monitoring the environmental impact of the company: the percentage of recycled paper used in the enterprise, water consumption and energy consumption per employee, amount of waste generated;

□ the answers are more disparate in terms of social indicators: the most used indicator is the percentage of women in the company, possibly in the context of accessibility and ease of calculation (72% of companies monitor it); followed by the sums intended for the sponsorships of humanitarian organizations, with 65%, and the expenses with the training of the personnel, which half of the companies use. The rest of the proposed social indicators meet a lower adherence among companies (the percentage of vulnerable people in the total workforce - one third; the percentage of employees receiving private health insurance paid by the company

(23%), and the percentage of employees receiving private pensions, respectively private life insurance, both under 15%.

The high degree of heterogeneity of the indicators proposed by the managers determined us to group them on 14 topics:

- quantitative indicators related to the object of activity of the company:
  - purely economic (turnover, size of profit, size of liquidity of the company (cash flow), size of reserves, degree of fulfillment of objectives, etc.);
  - notoriety / attractiveness;
  - new cooperations or partnerships concluded;
  - indicators of positive impact on the clientele (degree of satisfaction, degree of recommendation, seniority of clients, etc.);
  - internal environmental indicators (degree of recycling / reuse of products / waste, number of campaigns or environmental actions carried out by the company, indicators that measure the impact of transport (eg number of km traveled), etc .;
  - social indicators related to: the well-being of employees; employee training; employee involvement in social campaigns or actions; taking into account the feedback of employees, customers and partners; company involvement in campaigns or social actions (consulting, donations, etc.); creating new jobs;
- qualitative indicators:
  - social (tolerance, openness, adoption of new technologies by employees, etc.);
  - environmentally friendly (for example, the use of environmentally friendly products);
  - economic (creating a trusting relationship with customers, compliance -observing legal norms- obtaining financing or grants).

The degree of use of the indicators proposed by the managers is illustrated in the graph in figure no. 19.





Figure 19-Other sustainability indicators proposed by managers

The analysis of the ways of evaluating the sustainability at the level of the studied companies allowed the highlighting of some practices in direct relation with the size of the enterprises. Thus, the tendency to use quantitative indicators for environmental aspects is directly proportional to the size of the company. The largest companies in the sample are more inclined to monitor the amount of paper used, the percentage of paper recycled, water and energy consumption or the amount of waste produced. The most used social indicators are directly related to the legal reporting obligations of companies. Managers are reluctant to use indicators that require calculations from data for which the company has no legal reporting obligations. Thus, the percentage of women in the workforce, the amounts destined for humanitarian organizations (deductible from the profit tax) and the personnel training expenses are most frequently monitored. The use of percentage indicators of people with disabilities / vulnerabilities is a characteristic of the largest companies in the sample, as shown by the analysis of decision trees.

## 6.5.THE DECISION-MAKING PROCESS IN SMALL AND MEDIUM-SIZED ENTERPRISES

A major problem<sup>125</sup> with decision-making on sustainability in companies is the large amount of information, which can confuse those responsible for such decisions in the company and delay the decision-making process.

We chose to analyze the decision-making process in companies with a predilection for small and medium-sized enterprises, excluding micro-enterprises, as the number of employees and their size justify the existence of a decision-making circuit, including for sustainable development.

We structured the managers' answers regarding the definition of the strategic decision in the following categories (8): decision with long-term implications; in a key area for the company; which involves adapting to a new context; with an impact on human resource development; which has the effect of developing partnerships; which takes place following a SWOT analysis; which leads to the development of the company; participatory decision.

Concrete examples of strategic decisions were also grouped by theme: diversification of company activities; development / expansion; operating investments; adapting to a new context; social responsibility; a new internal organization (work environment / locations, etc.); development and optimization of human resources; creating new partnerships; a new marketing and promotion strategy.

Regarding the examples of sustainable development decisions, the managers' answers are relatively similar, with the mention that they integrate the additional environmental component: human resources development; company development or expansion; decisions that lead to increased customer satisfaction or loyalty; efficiency investments; internal organization of workspaces; marketing and / or promotion; new partnerships; reducing resource consumption; offering environmentally friendly products or services.

In this case, we notice a focus of managers' attention on the company's stakeholders: employees, customers, the community in the broadest sense (through the environment), business partners, and less on the purely economic component, more present in general strategic decisions.

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<sup>125</sup> Brandon Peter. S and Lombardi Patrizia, *"Evaluationg Sustainable Development in the Built Environment"*, Oxford: Blackwell Science, pp.105-106, (2005).

Thus, more than three quarters of the responding managers stated that decisions on sustainable development are considered strategic, and general managers are always involved in making them, and in less than half of the cases, other functions, such as human resources director, other people, the communication director, respectively the financial-accounting director.

Regarding the systems, methods or concepts used at the top management level for sustainable development decisions, more than half of the managers use as support for decisions the manuals of good practices and internal book of ethical values, an important weight having the adherence to international standards, with the corresponding specifications. More than a third of managers propose other answer options, which we have grouped into 3 main themes:

- calling an external expert unrelated to the company (the most common situation);
- calling on an expert partner with the company (for example, supplier);
- implementation of an internal monitoring system;

The answers of the managers to this question are represented in figure no. 20.

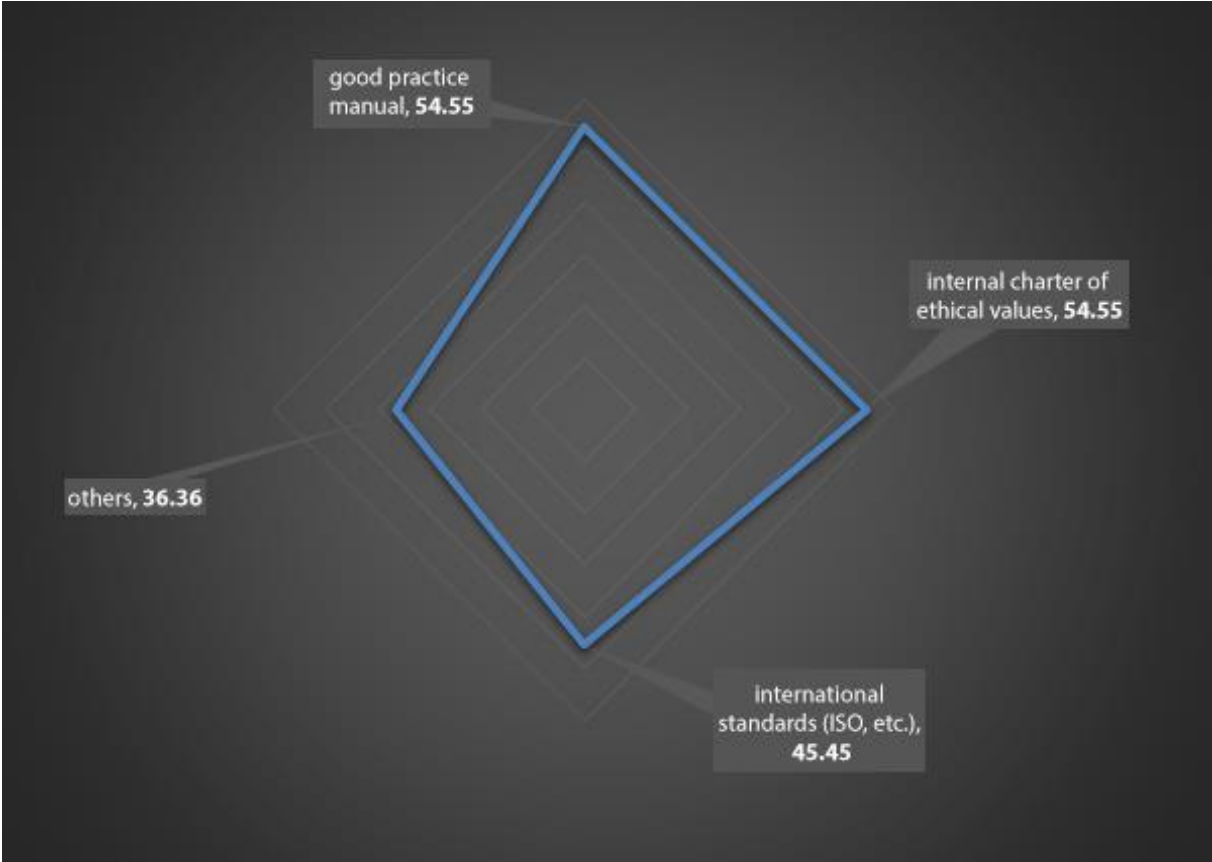


Figure 20-Systems, methods or concepts used by managers for sustainable development decisions

Regarding how decision-making processes can be improved to increase sustainable development, most managers believe that clarity of instructions to employees, adoption of policies to select sustainable business partners, and greater involvement of the company in the community are important factors. of success. Lower, but still majority, weights also have the adoption of international certification standards in the field, as well as the appeal to a consulting firm in the field of ecology / social responsibility. The map of the ways to improve the decision-making processes related to sustainability is illustrated in figure no. 21.

And on this topic, we encouraged managers to propose their own options, 8% agreeing to share their own good practices in this regard, and they converge in implementing an internal manual of procedures to facilitate these decisions.

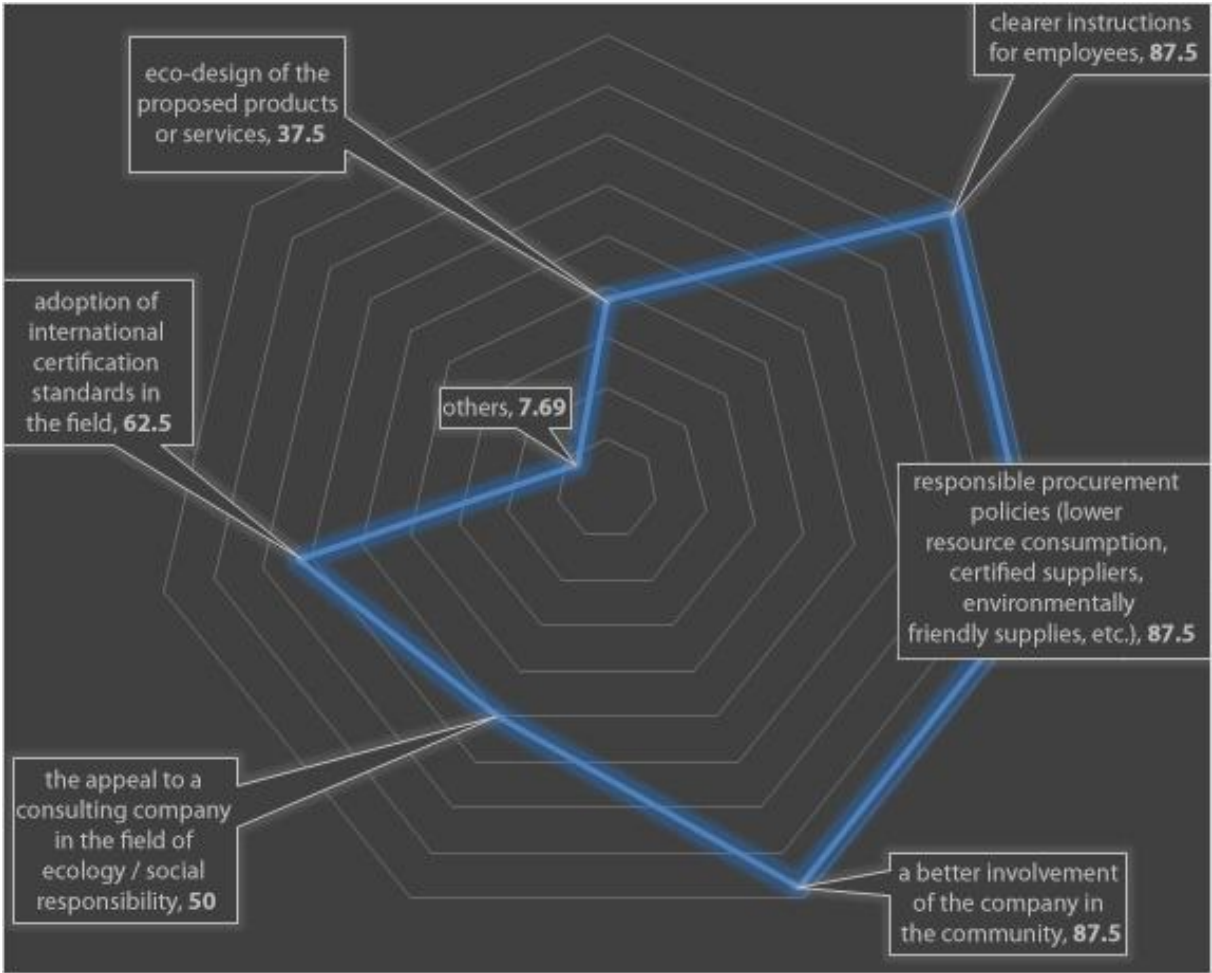


Figure 21-Ways to improve the decision-making process related to sustainability

## 6.6. STATISTICAL ANALYSIS BY DECISION TREES

In this subchapter, we present the method of modeling through decision trees and how we applied this technique in our research.

### 6.6.1. Classification decision trees

Tree models in which the target variable is a qualitative / categorical variable (with a finite number of values) are called classification trees. In the case of these leaf trees we have representations of the classes / categories of the target variable (categorical variable) and the branches represent conjunctions of the predictors that describe the labels of the classes in the corresponding leaves. The information in the nodes is represented by frequencies and percentages of the classes of the target variable. Each path (eg branch) from the root node to the inner nodes or to the leaves is a classification rule that can also be described as an “if-then” rule / condition. Based on these rules / conditions, a prediction can be made regarding the values of the dependent variable according to the values of the independent variables.

The CART algorithm is a recursive, binary partitioning method (a node can have only two branches), proposed by Breiman (1984)<sup>126</sup>. The shaft construction methodology using the CART algorithm consists of three parts: (i) the construction of the maximum shaft, (ii) the choice of the correct shaft size, (iii) the classification of new data using the constructed shaft. As a division rule, this algorithm uses the Gini index and as an evaluation criterion for selecting the optimal attribute after which to perform the division, it uses the Gini gain (Gini Gain). It is calculated (similar to the gain of information) according to the following formula:

$$GiniGain(A, S) = Gini(S) - GINI(A, S) = Gini(S) - \sum_{i=1}^n \frac{|S_i|}{|S|} Gini(S_i)$$

where  $S_i$  is the partition of  $S$  induced by the value of the attribute  $A$ .

For the data set within this thesis we built decisional trees using the CART algorithm to identify (having as target variables):

- the profile of the enterprises according to the number of employees and the turnover;
- the profile of the enterprises according to their profit categories;
- profile of enterprises by age groups, level of education and type of manager.

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<sup>126</sup> Breiman, L., J. H. Friedman, R. J. Olshen, and C. J. Stone, "Classification and Regression Trees", Belmont, California: Wadsworth International Group, pp.3-18, (1984).

For this purpose, several models were created, depending on the attributes / predictor variables used:

□ models in which the predictors were considered those indicators that were identified as significant (for each situation) in the analysis of various from the previous chapter;

□ models in which the predictors were considered all the analyzed indicators.

For each of the CART models built, the evaluation of the model's performance was analyzed through the following metrics: the accuracy of the model, its sensitivity and specificity.

### **6.6.2. The main conclusions of the analysis through the CART Algorithm**

Next, we present an example of the structural model of the decision tree built using the CART algorithm, having as target variable the number of employees (with the 3 classes: 1- small companies, 2- micro-enterprises, 3- medium companies (many employees)), and as predictive variables indicators: CM13 (employee development), CM3 (economic aspect), B1 (limited financial resources), F1 (positive image), F2 (lower costs), F5 (attract new employees), PS23 (employment of disadvantaged unemployed people) , PS24 (employment of disadvantaged young graduates), PS25 (employment of disadvantaged people with disabilities), PS7 (flexible working time), PS28 (information / labeling of the social impact of products), PM4 (printers and copiers), PM14 (recycling displayed on external support), PM24 (recycling of computer materials), PM251 (limiting the consumption of supplies), PM252 (calling on an external provider for waste management), PM6 (limiting packaging plastic and disposable products), PG3 (specialized external consultancy for sustainable development), PG7 (partnerships with training centers), is presented in figure no. 22.

The structural model of the decision tree built using the CART algorithm, having as target variable the number of employees (with the 3 classes) and as predictor variables all the analyzed indicators, is presented in figure no. 2. 3.

For both models the total accuracy of the model was 98.6%, and the prediction for each of the classes was 100% for categories 1 and 3 and 92.9% for category 2, respectively.

Analyzing the two structural models resulting from the application of the CART algorithm, we can identify the relationships between the indicators and the three categories of companies (depending on the number of employees).

Based on these rules it can be said that:

□ medium-sized companies (category 3, rules 1,2,7,8) are characterized (compared to the other two categories, and taking into account the predictor variables considered) by: we want to attract new employees through a socially responsible enterprise policy / with the environment (F5 = 1), we reduce costs (for example if we recycle paper, limit energy consumption, etc.) (F2 = 1), we recycle computer materials (PM24 = 1), we use reconditioned furniture (PM7 = 1), we diagnose energy performance (PM12 = 1), the use of collective printers / copiers (PM4 = 1), and some of them employ people with disabilities (PS25 = 1);

□ the smallest firms - micro-enterprises (category 1, rules 4-6, 9) are characterized (compared to the other two categories, and taking into account the predictor variables considered) by: limited financial resources (B1 = 1), are not certified or in the process of official certification for location / products / services (PG11 = 1), does not perform energy performance diagnosis (PM12 = 0);

Figure 22-Structural model of the CART algorithm, having as target variable the number

of employees, and as predictive variables, significant indicators within the analysis of various aspects

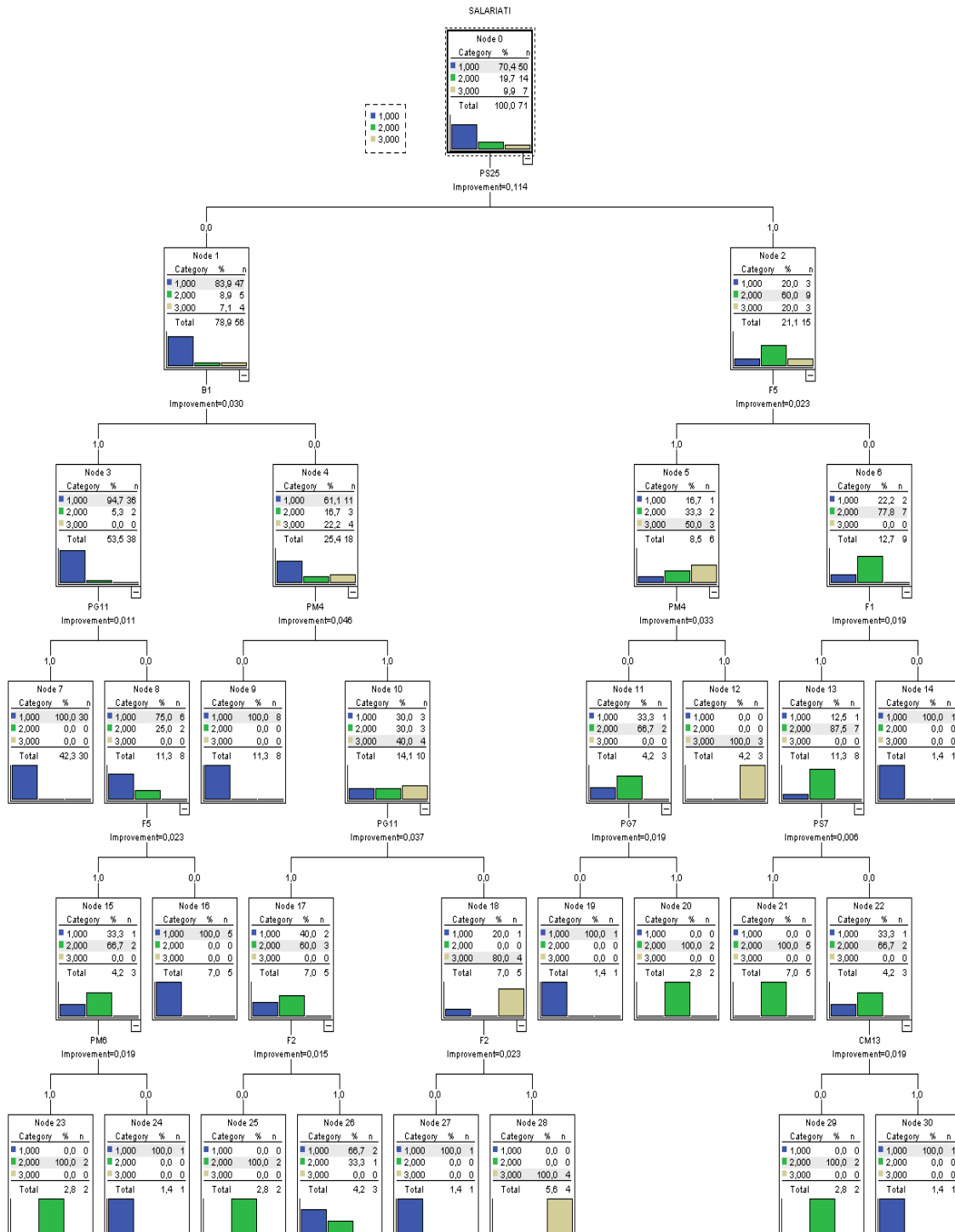






Figure 23-Structural model of the CART algorithm, having as target variable the number of employees, and as predictive variables, all indicators studied

The other conclusions resulting from the application of the CART algorithm, depending on other variables of the enterprise, are presented below. Regarding the typology of enterprises studied according to the level of profit, it can be said that:

- companies with a profit of up to EUR 10,000 allow flexible working hours to encourage work-life balance and / or have a formalized claims / litigation management policy and / or consider limited financial resources as a barrier to sustainable development, not performs energy performance diagnosis;

- companies with a profit of up to EUR 100,000 do not have a policy of collaborative design (with customers, suppliers, competitors), use IT tools together, and some of them also perform energy performance diagnostics;

- companies with a profit of over 100,000 EUR have a policy of collaborative design (with customers, suppliers, competitors), do not consider as a barrier to sustainable development limited financial resources, some of them diagnose energy performance.

Regarding the typology of SME behavior according to the age groups of managers, the analysis by decision trees allows the formulation of the following observations:

- companies with managers in the 25-35 age group consider employee satisfaction as a facilitator of sustainable development, and in terms of care for the health and safety of customers respect the legal minimum (regulations on products / services, rules and labels ethics, traceability obligations, etc.);

- companies that have managers in the age group 35-40 years some of them consider aspects related to philanthropy as elements of sustainable development; another part that does not consider as facilitators of sustainable development: the positive image for: employees, customers, suppliers, employee satisfaction, legal obligations and another part of them respects only the legal minimum in terms of health and safety of customers;

- companies that have managers in the age group over 40 consider as facilitators of sustainable development the positive image for employees, customers, suppliers or legal obligations (but not necessarily employee satisfaction) or respect the legal minimum in terms of health and safety customers.

The analysis of the types of behavior of SMEs in the target group depending on the level of education of managers, leads to the following conclusions:

□ companies that have managers with higher education encourage the balance between private and professional life through flexible working time, some of them are, and another part are not certified or in the process of official certification;

□ more than half of the companies with managers with secondary education consider that a company is sustainable if it is profitable.

Based on the rules related to the analysis by decision trees, the following typologies of SMEs can be distinguished depending on the type of manager:

□ women managers: consider flexible working time and part time work, use ecological household products, limit the use of plastic packaging, some of them mention development through investments as a sustainable development policy, did not mention that customer satisfaction is integral part of a sustainable company;

□ male managers: most do not buy bulk food, do not use organic household products, do not reuse products / packaging, do not get involved in the community through active partnerships, some of them mention that customer satisfaction is an integral part of a sustainable company.

Regarding the sustainable behaviors according to the type of clientele (BtoB or BtoC), the analysis of the decision trees shows that:

□ for half of the BTOB companies sustainable development does not involve philanthropic aspects, and these companies did not mention the positive example as a facilitator. More than a quarter of them consider philanthropic actions and consider distance work as a social policy;

□ for half of the BTOB companies, sustainable development involves philanthropic aspects. More than a third of BTOB companies do not consider distance work as a social policy.

In this sense, a topic of interest identified during the statistical research is the development of telework in the conditions of social distancing imposed by the Covid pandemic<sup>19</sup>. This parameter can be turned into a competitive advantage under certain conditions. Approximately half of the questionnaires and semi-structured discussions with managers took place during the restrictions imposed by the state of emergency and alert in Romania. The vast majority of managers interviewed during this period told us that they worked from home frequently and that they had implemented a new organization of the workspace and the company's schedule, in order to meet these requirements. As we have shown in the chapters on social policies, measures that favor telework have a positive impact on the balance between private and professional life of employees, thus contributing to the sustainability of the company. New

research that has emerged during this period<sup>127</sup> shows that companies can create a telework opportunity, advantageous both for productivity and for the environment and employees. Telework can be a success when the hierarchical ties are blurred, the manager being able to develop stronger and more trusting relationships with employees, while showing a sincere concern for their well-being. Other authors<sup>128</sup> see telework as one of the most widespread forms of responsible social engagement of enterprises during the Covid pandemic<sup>19</sup>. However, this implies a new organization of the workspace and a structural orientation of the company towards online commerce. The trend towards distance work has already been confirmed in our statistical study, which showed that micro-enterprises have a predilection due to the more flexible structure for this way of working. The impact of telework on corporate social responsibility in the context of the Covid pandemic<sup>19</sup> is a topic that deserves further study.

## **6.7.NETWORK MULTIVARIATE ANALYSIS**

In this subchapter we present both the methodology of multivariate analysis of networks and the results obtained from this type of research.

### **6.7.1.Methodology used**

The network type analysis allows the visualization of the associations / interactions between the different analyzed items. In the case of the present study, the items are represented by: attitudes, knowledge, facilitators, barriers, policies (environmental, social, general). The nodes of the network represent these items and the association between the items is rendered through the arches that connect the nodes. With the help of such a network, we can analyze how one of the social policies is associated, for example the employment of the unemployed, with another social policy, for example work at a distance, or with the attitudes of managers. By using these networks you can identify / visualize in a fairly clear way complex patterns (models) (statistically), without the need for size reduction methods.

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<sup>127</sup> Contreras F., Baykal E., and Abid G., *"E-Leadership and Teleworking in Times of Covid-19 and Beyond: What We Know and Where Do We Go"*, *Frontiers in Psychology* 11,

<sup>128</sup> Popkova E., DeLo P., and Sergi B. S., *"Corporate Social Responsibility Amid Social Distancing During the Covid-19 Crisis: Brics Vs. Oecd Countries"*, *Research in International Business and Finance* 55, p.12, (2021).

To perform the network analysis, Epskamp S. and colleagues from the University of Amsterdam, Department of Psychological Methods used packages (bootnet, qgraph, etc.) of the R<sup>129</sup> program to estimate the models. The networks were created by estimating the partial correlations using the LASSO<sup>130</sup> (least absolute shrinkage and selection operator) and the Extended Bayesian Information Criterion (EBIC) selection model. In this way the most important associations between the network nodes are more visible. The thickness of the arches indicates the degree of association between the two paired nodes, when the associations with all the other nodes were also taken into account. The thicker the arches, the stronger the association. The color of the arcs indicates the sign of the association: the green color indicates a direct association (positive correlation) and the red color indicates an inverse association (negative correlation). Also, for the positioning of the nodes within the networks, both the default variant and the Fruchterman-Reingold<sup>131</sup> algorithm were used. For a better interpretation and visualization of the networks in the situation of the items related to environmental, social and general policies, due to the higher number of items, we opted for the generation of both networks containing all items (arranged in clockwise order) and for the version with clusters / item classes.

Several networks have been created to analyze:

- how the size of the company (number of employees, SAL) is associated with the attitudes (AM1-AM10) respectively the knowledge of the managers (CM3-CM13);
- how the size of the company (number of employees, SAL) is associated with the facilitators (F1-F6) respectively the barriers (B1-B9) to sustainable development;
- how the size of the company (number of employees, SAL) is associated with environmental (PM3-PM25), social (PS1-PS36) and general (PG1-PG18) policies.

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<sup>129</sup> \*\*\*"R Development Core Team: *A Language and Environment for Statistical Computing*. R Foundation for Statistical Computing", Vienna, Austria. ISBN 3-900051-07-0, URL <https://www.gbif.org/tool/81287/r-a-language-and-environment-for-statistical-computing>, accesat în data de 23.09.2020, (2012).

<sup>130</sup> Tibshirani R. "Regression shrinkage and selection via the lasso". Journal of the Royal Statistical Society: Series B (Methodological), 58(1), pp.267–288, (1996).

<sup>131</sup> Fruchterman T. M., & Reingold E. M., "Graph drawing by force-directed placement", Software: Practice and Experience, 21(11), pp.1129–1164, (1991).

## 6.7.2. The results obtained following the multivariate network analysis

Analyzing the structure of networks that describe the associations / interactions between various items studied, it can be seen that:

□ there are no significant connections between the size of the company and the attitudes and knowledge of managers, but strong connections can be observed within the same construct / class of items (attitudes) but also interclass (attitudes-knowledge) (Figure no. 24);

□ we have significant connections, both positive and negative, between the size of the company (number of employees, SAL) and the facilitators, respectively the barriers of sustainable development. A negative association between firm size and the B1 barrier strengthens the hypothesis, identified both by univariate analysis and by tree models, by which small firms consider limited financial resources as a barrier to sustainable development (in contrast to large firms - none of these did not specify this barrier). A positive association between the size of the company and the F5 facilitator (we want to attract new employees through a socially / environmentally responsible enterprise policy) emphasizes the increased frequency of this facilitator in the case of large companies and less in the case of small ones. It is also worth noting the positive association between costs and other barriers (other than those mentioned in the questionnaire) of sustainable development (B4, B9) and the mention of other facilitators of it (F6). (Figure No. 25);

□ the association between company size and environmental policies is mainly outlined by positive associations, among the strongest being PM12 (making a diagnosis of energy performance), PM4 (using collective printers / copiers), PM24 (computer materials are recycled) , PM10 (external energy audit), PM15 (other energy consumption measures). These environmental policies are more specific to large companies and less to small ones (Figure no. 26);

□ the association between the size of the company and social policies again underlines a hypothesis identified in the decision trees, thus the social policy of employment of people with disabilities being the one that significantly differentiates large companies from small ones. (Figure No. 27);

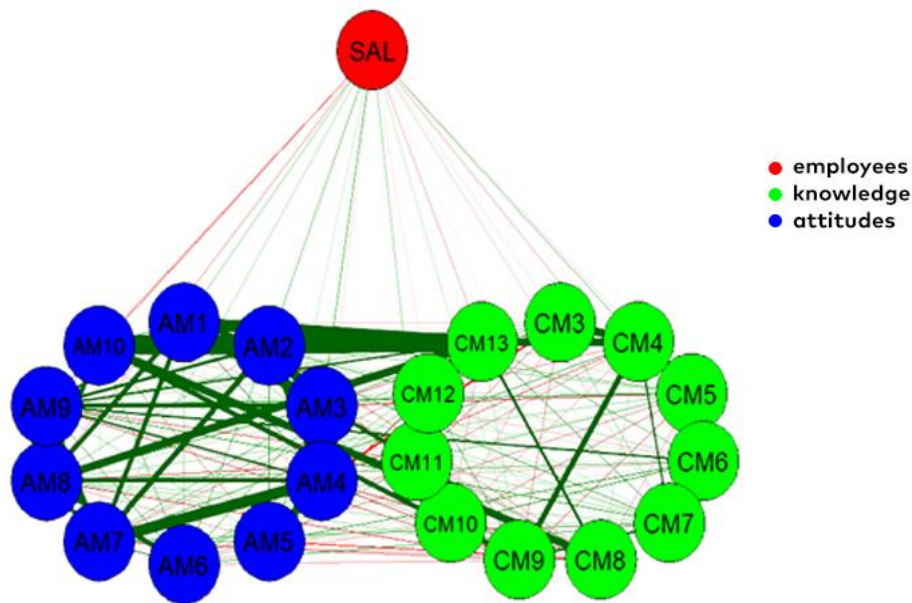


Figure 24-Network structure that analyzes the associations / interactions between the company size (number of employees, SAL) and the attitudes, respectively the managers' knowledge

Analyzing the association between the size of the company and general policies, it is observed that policies such as concluding active partnerships with training centers (PG7), ISO14001-EMAS-EnVol certification and other official certifications (PG12, PG16), knowledge of risks at which is exposed by non-respect of human rights (internally: employees, shareholders PG17) are found more in large companies than in small ones (80% of them having no certification, PG11, hence the negative association) (Figure no. 28).

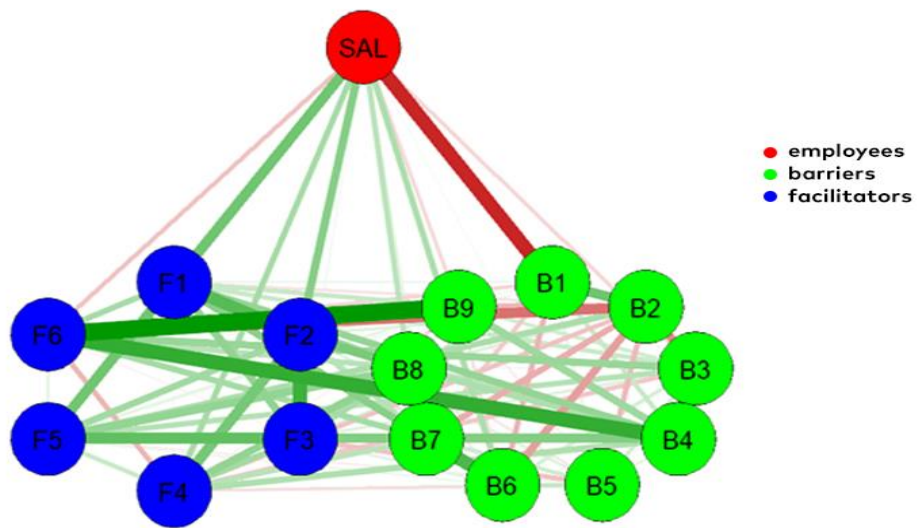


Figure 25-The structure of the network that analyzes the associations / interactions between the size of the company (number of employees, SAL) and the facilitators and barriers of sustainable development

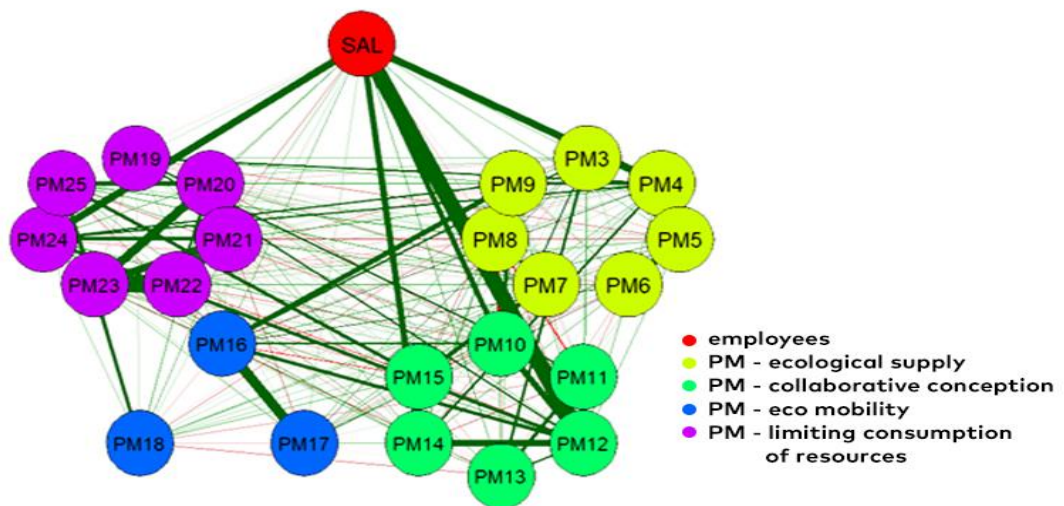


Figure 26-Network structure that analyzes the associations / interactions between the size of the company (number of employees, SAL) and environmental policies - the clustered version



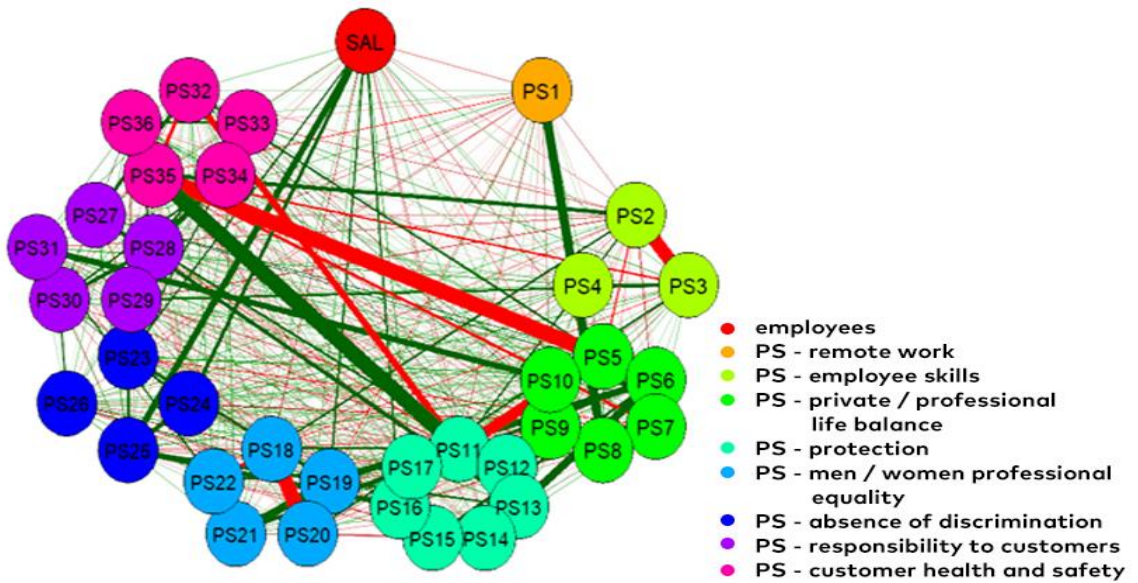


Figure 27-Network structure that analyzes the associations / interactions between the size of the company (number of employees, ADR) and social policies - the clustered version

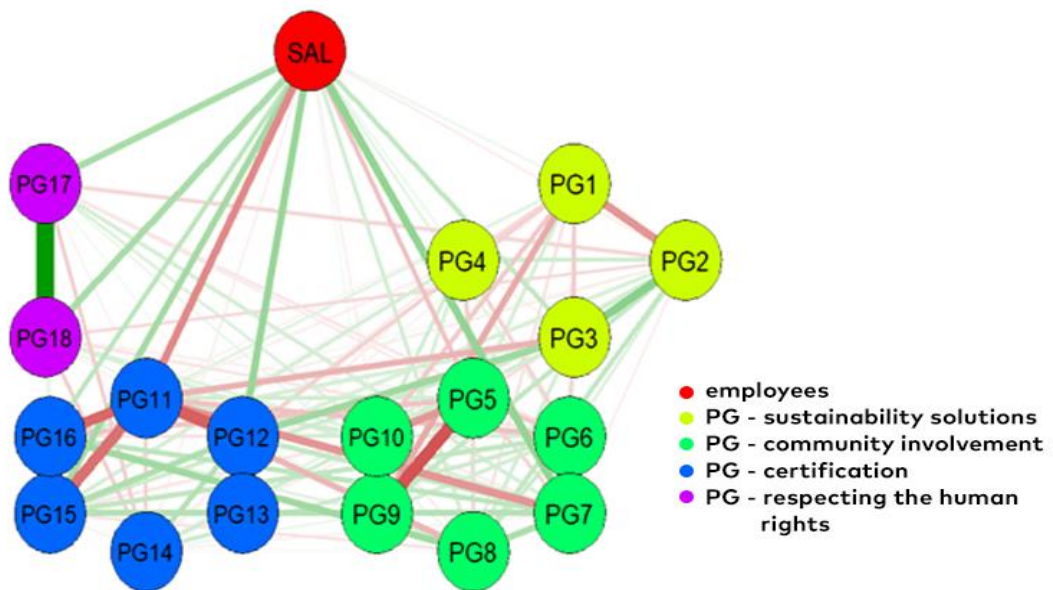


Figure 28- Network structure that analyzes the associations / interactions between the size of the company (number of employees, SAL) and general policies - the clustered version

## 6.8.CONCLUSIONS OF THE COMPARATIVE RESEARCH

The multitude of questions in the questionnaire (over 90), but also the size and diversity of the sample studied, allowed us to collect an important volume of qualitative and quantitative data, which were processed according to statistical methods. The main purpose of the part dedicated to statistical research is to provide a true picture of sustainable development in small and medium enterprises, by analyzing 4 topics:

- knowledge and attitudes of managers;
- facilitators and barriers to the implementation of sustainable development in companies;
- the degree of implementation of environmental and social policies;
- use of sustainability indicators.

The data were structured and analyzed both descriptively and comparatively from a statistical point of view, depending on the size of the enterprises.

The comparative study according to the size of the enterprises allowed us to identify disparities at the following levels:

- the following practices are the prerogative of the largest companies in the studied sample: limiting consumption and avoiding the use of plastic packaging (as attitudes of the manager); the positive image of the company as a facilitator of sustainable development; offering holiday vouchers to employees; the existence of a formalized plan for equal pay and balance between men and women; use of collective printers and copiers to limit environmental impact; use of ecological household products; majority recycling of computer equipment; the call for specialized external consultancy regarding sustainable development; concluding partnerships with training centers; above average knowledge of the risks to which the company is exposed by non-compliance with human rights; use of environmental indicators, in this case water and energy consumption per employee;

- the following aspects are preponderant in the case of micro-enterprises: consideration of limited financial resources and limited human resources as an impediment to the implementation of sustainable development; practicing distance work.

In most cases, we have sought and provided explanations for these differences. The construction of a mathematical model helped to identify some typologies of entrepreneur, with

multiple influencing factors besides the size of the enterprise defined by the number of employees: gender of the manager, sector of activity, age of the manager.

A general conclusion that emerges is that when they are encouraged to provide open answers, most managers provide interesting and diverse data related to business practices. In most cases, they offered answers other than those proposed in the questionnaire, which we systematically structured on topics, so that they could be exploited in the construction of the mathematical model. It is also evident the attitude of micro-enterprise managers to minimize the efforts and sustainability measures adopted, often without perceiving them as such. The semi-structured interviews were an opportunity to raise awareness of the actions already taken and ways to improve.

## **7.FINAL CONCLUSIONS, PERSONAL CONTRIBUTIONS AND RESEARCH PERSPECTIVES**

In this chapter, we present the final conclusions of the thesis. It also illustrates personal contributions and how research results are capitalized in various academic settings. The analysis and dissemination of research results contribute to shaping the future directions and niches of study in the field.

### **7.1. FINAL CONCLUSIONS, RECOMMENDATIONS**

All the qualitative and quantitative research carried out, as well as the documentary study, had as common objective the fulfillment of the main objective of the thesis, namely the determination of the factors and conditions that contribute to the implementation of sustainable development in small and medium enterprises. By associating different research techniques and methods, but also through discussions with the managers of the studied companies, we also wanted to increase the awareness of these managers on the issue of sustainable development at the company level. Other secondary objectives of the research were the presentation of the current state of scientific research in the field, relevant to the main objective, but also the identification of new ways of measuring and evaluating the social responsibility of small and medium enterprises. Through mathematical modeling (decision trees) and multivariate network analysis, we also aimed to determine models and types of behavior regarding the implementation of sustainability at the level of SMEs. Finally, one of the practical desideratum

of the paper is to provide sufficient data for the elaboration of a guide of good practices in the field, in the attention of the Romanian SME managers. This mainly involves highlighting the complexity of the factors that impact sustainability at the company level, as well as their interdependence relations, including with the external environment of the company.

The main conclusions on the current state of scientific research in the field of sustainable development, applicable to small and medium-sized enterprises, are:

- the complexity of this concept and the difficulty of its operationalization in order to transpose it to the study needs at microeconomic level;

- highlighting the multitude of definitions of sustainable development, but there is a consensus of researchers on them: meeting intergenerational needs must be at the confluence of economic, social and environmental issues;

- the existence of an interdependence link between the economic performances of corporations and the adoption of the principles of corporate social responsibility (CSR). In other words, the more profitable a business is, the more it will tend to be socially responsible. At the same time, there is a direct proportional relationship between the responsible character of a company, and its ability to generate profit through image benefits among stakeholders, but also through access to new "green" markets and the response to demand. responsible products from customers;

- In order to be sustainable, a company must satisfy its customers, generate profit to ensure its financial health, and meet the expectations of the people it impacts or depends on, for example employees, suppliers or the community in the sense wide in which it carries out its activity; hence the need for a multi-stakeholder approach;

The reduction of the share of capital or public wealth can be explained by massive privatizations and by increasing public debt. A logical consequence of this situation is the natural concentration of private capital in the hands of a small number of economic actors, which diminishes in value the expenditures of public authorities in projects generating social equity: education, health, infrastructure. This situation leads to the transfer of responsibility for sustainable development from public to private, to civil society and implicitly to enterprises; corporate social responsibility fully justifies its meaning;

- innovation and sustainable development are two interdependent and closely linked concepts;

- defining a responsible business is not possible without taking into account some key features highlighted in the literature:

- compliance with internal laws and regulations;

□ seeking to increase positive contributions for relevant stakeholders, while taking measures to minimize the negative impact;

□ the company's initiatives go beyond the legislative and contractual requirements;

□ the company's actions are proactive and take place regularly.

□ there are a small number of publications dealing with the issue of sustainable development in SMEs. A series of works helped us to identify some specificities for this category of enterprises:

□ have fewer employees, which may lead to easier implementation of management principles, but may in turn be an obstacle;

□ operations are more flexible, which means that they can identify and respond more easily and quickly to new ideas and market opportunities;

□ many SMEs already have a responsible behavior, so they do not have to redefine their strategy, but only seek to maximize the impact of their activity in the community;

□ the preponderant role of the founding manager in the implementation of sustainable policies.

□ the specificity of SMEs also lies in the perceived obstacles to the integration of sustainable development at company level: increased costs; more immediate needs and a perspective of survival; lack of know-how and know-who; difficulties in measuring intangible benefits; limited rewards (at least obvious and immediate) from the market or public authorities; lack of a reliable and easily measurable system of indicators for monitoring the implementation of sustainable development in companies. These two aspects, the one of obstacles (barriers) and the one related to indicators, are topics approached with predilection in our mixed research;

The main conclusions and recommendations regarding the implementation of sustainable development in SMEs, through mixed research and statistical modeling, are:

□ mixed research methods highlighted the need to inform and raise awareness of SME managers about the significance of sustainable development and how it can be integrated into the company's strategy;

□ following the open and semi-structured interviews within the preliminary stage of the research, the attitude of the micro-enterprise managers to minimize the efforts and sustainability measures adopted, most of the times without perceiving them as such, emerges; discussions with them were an opportunity to raise awareness of the actions already taken and ways to improve;

□ most managers consider that they have a good knowledge of the elements of sustainable development, but the qualitative and quantitative study showed discrepancies between the level

of knowledge and the stated attitudes, on the one hand, and the concrete actions taken, on the other hand; important differences were found following the comparative analysis between companies, both on criteria related to size and others related to the characteristics of the company and managers (level of profit, age, level of education, gender, type of clientele); mathematical modeling and network analysis allowed the definition of behavioral typologies and associations between the different factors studied;

- these conclusions can serve as a basis for the elaboration of a guide of good practices for the attention of small and medium enterprises;

- we recommend establishing clear and easy-to-monitor procedures related to sustainable development policies (recycling, access to training, recruitment of vulnerable people, energy and consumables savings, etc.) and bringing them to the attention of employees;

- as a general rule, we recommend a greater involvement of employees in the integration of sustainability in the company, by increasing their awareness and by a clear definition of the role of each in this process;

- when the internal resources are insufficient (obstacle often mentioned by managers), we recommend the use of external consultancy in this field; by ensuring compliance (compliance with the law) and a proactive attitude, this investment can be quickly recouped and even profitable.

Following the application of the research methods mentioned above, the following hypotheses were verified and validated:

Hypothesis no. 1. There are significant differences in the implementation of sustainable development in SMEs, depending on their size. The smaller they are (micro-enterprises), the more they are in the "logic of survival".

The comparative analysis of the enterprises allowed not only the validation of this hypothesis, but also the determination of new typologies of behavior, depending on the size of the enterprise, as follows:

- micro-enterprises are associated with the following elements: limited financial resources perceived as a barrier to sustainability; practicing flexible working time as a social policy; low consumption of office supplies as an environmental policy; the absence of official certifications for sustainable development, as a general policy;

- the largest enterprises in the studied group (medium ones) are characterized by the following behaviors: managers' knowledge: including the factor "employee development" and the economic factor in the definition of sustainable development; sustainability facilitators: the positive image of the company, the reduction of costs, the attraction of new employees through

a sustainable development policy; social policies: employment of disadvantaged people with disabilities, young insolvent or unemployed, information / labeling of the social impact of products or services; environmental policies: use of collective printers and copiers, display the need for external recycling, recycling of computer materials, use of an external provider for waste management, limitation of plastic packaging and disposable products; general policies: call for specialized external consultancy for sustainable development, concluding partnerships with training centers.

Hypothesis no. 2. There are significant differences in terms of the company's sustainability policy, depending on the type of manager.

Mixed research has allowed us to highlight some gender-specific behaviors, as follows:

□ women managers: mentioning the philanthropic component of sustainable development and concluding partnerships as a component part of sustainable development (managers' knowledge); managers' attitudes: reusing products and packaging, using bulk food, avoiding the use of plastic packaging; sustainability barriers: limited financial resources; facilitators: the permanence and stability of the company; social policies: flexible working time, part-time work; environmental policies: use of ecological household products, reduction of the environmental impact in the office, stopping the installations when they are not used; general policies: concluding other types of partnerships with local organizations, creating a network of sustainable partners;

□ male managers: customer satisfaction mentioned as an integral part of sustainable development at company level; the use of collective printers and copiers and the collaborative conception of products or services in collaboration with a customer, supplier or competitor, as an environmental policy;

Hypothesis no. 3. The smaller a firm is, the greater the influence of the manager's subjective attitudes and knowledge.

Thus, the following aspects are predominant in the case of micro-enterprises: consideration of limited financial resources and limited human resources as an impediment to the implementation of sustainable development; practicing distance work. This shows that the attitude of the micro-enterprise manager, positive or negative, can be a facilitator, respectively an impediment in the implementation of sustainable development. If managers believe that sustainability involves costs and resources that the company cannot afford, it will have an attitude accordingly. However, this situation is worth noting: qualitative interviews with managers revealed that they often involuntarily and / or unconsciously practice measures specific to sustainable development, not identified as such.

Hypothesis no. 4. Most SME managers do not use, consciously or not, a structured system of sustainable development indicators. This does not preclude the use of specific evaluation methods, which can be assimilated to indicators.

This hypothesis was amply verified, both by qualitative interviews and by statistical analysis. Most managers responded in the first instance that they do not use a system of indicators. Subsequently, through open and semi-open discussions and questions, it was found that the largest share of companies (one third) monitor the amount of paper used, and smaller proportions, between 20 and 30%, use other indicators in monitoring the impact of company average: percentage of recycled paper used in the enterprise, water consumption and energy consumption per employee, amount of waste generated. Regarding social indicators, the most used indicator, monitored by almost three quarters of companies, is the percentage of women in the company; followed by the sums intended for the sponsorships of humanitarian organizations, by two thirds, and the expenses for staff training, which half of the companies use. The diversity of managers' responses determined us to take into account their suggestions of indicators, of which the most used are: quantitative indicators of positive impact on customers, used by more than a third of companies, respectively purely economic quantitative indicators (one third) , following at some distance the quantitative indicators related to the well-being of employees and the qualitative economic ones.

Hypothesis no. 5. Other factors such as the age of managers, the level of education, the type of clientele, can have significant influences on some aspects of sustainability policies in SMEs.

The comparative analysis allowed us to define some characteristics of the implementation of sustainable development according to the mentioned factors, as follows:

□ company profit: low-profit companies mainly mention the following factors: flexible working time (social policies), limited financial resources (barrier), recycling of light bulbs and limiting the consumption of supplies (environmental policies), absence of official certifications (general policies) ; high-profit companies are characterized by: the development of the company through investments and the development of employees mentioned as components of sustainability (managers' knowledge); employment of people with disabilities, formalized policy for managing disputes and grievances (social policies); collaborative conception, displaying the need for recycling on external media (environmental policies), appealing to an external provider for sustainable development and “positive example” as a catalyst for sustainable development (general policies);



□ the level of education of managers: thus, managers with secondary education mentioned more often "we already pay taxes" as a barrier, "lower costs" as a facilitator and the absence of official certifications, while managers with higher education prefer flexible working time as a social policy;

□ type of clientele: companies with individual clientele (BtoC) are characterized by including the philanthropic component in the definition of sustainable development, by considering the "positive example" as a facilitator for it, by "information / labeling the social impact of products or services" as social policy and by creating a network of sustainable partners as a general policy; BtoB-type companies more often refer to distance work as social policies and shutting down facilities and equipment when not in use, as an environmental policy.

## **7.2.PERSONAL CONTRIBUTIONS**

From the content of the thesis, we can note the following personal contributions of interest:

□ highlighting the importance and relevance of research in terms of sustainable development, with direct application to small and medium enterprises;

□ raising the awareness of managers and employees who participated in the study, regarding the importance of these aspects; highlighting the need to involve all human resources in the company in its implementation;

□ illustrating the different behaviors within the companies, regarding the integration of sustainable development in the company's strategy;

□ defining some typologies of behavior of companies, through the method of decision trees.

This allowed to find some correlations between:

□ The size of the company and: attracting new employees and lowering costs as facilitators of sustainable development, recycling of computer materials, making energy performance diagnostics, using printers and collective copiers, hiring people with disabilities, obtaining official certifications;

□ Profit level and: flexible working time, limited financial resources as a barrier to sustainability, the existence of a formalized policy for managing complaints and litigation, energy performance diagnosis, collaborative design policy, shared use of printers and copiers;

- The age of managers and: employee satisfaction as a component part of sustainability, the philanthropic component of sustainable development, the importance of the positive image of the company, compliance with the legal minimum in terms of environmental and social norms;
- Level of education and: flexible working time as a social policy, adoption of official certifications, consideration of profit as an imperative of sustainable development;
- Manager's gender and: flexible working time and part-time work, use of ecological household products, limitation of the use of plastic packaging, development through investments as a factor of sustainable development, customer satisfaction as part of sustainability;
- The type of clientele (BtoB and BtoC) and the philanthropic component of sustainable development, the positive example as a facilitator of sustainable development and distance work as a social policy.
- the network type analysis highlighted the existence of associations such as: strong connections within the same construct / class of items (attitudes) but also interclasses (attitudes-knowledge); significant connections, both positive and negative, between the size of the company (number of employees) and facilitators, respectively the barriers of sustainable development; a positive association between the size of the company and the facilitator “we want to attract new employees through a socially / environmentally responsible enterprise policy”, which underlines the increased frequency of this facilitator in the case of large companies and less in the case of small ones. It is also worth noting: the positive association between costs and other barriers (other than those mentioned in the questionnaire); the association between the size of the company and social policies again underlines a hypothesis identified in the decision trees, so that the social policy of employing people with disabilities is the one that significantly differentiates large companies from small ones; the association between the size of the company and environmental policies is mainly outlined by positive associations, these environmental policies being more specific to large companies; Analyzing the association between the size of the company and general policies, it is observed that policies such as concluding active partnerships with training centers (PG7), ISO14001-EMAS-EnVol certification and other official certifications (PG12, PG16), knowledge of the risks to which it is exposed by non-compliance human beings (internally: employees, shareholders) are more common in large companies than in small ones;
- identification of significant differences between enterprises depending on their size, but also on other factors such as the level of profit, age, gender and level of education of managers, type of clients, conducting a comparative analysis;

- creation of research tools adapted to the purpose, in order to enrich the specialized literature on the implementation of sustainable development in SMEs;
- validation of the five research hypotheses listed above;
- proposing future study directions in the field;
- presentation of a practical methodology for companies, in order to evaluate the degree of integration of sustainable development.

The analysis of the ways of evaluating the sustainability at the level of the studied companies allowed the highlighting of some practices in direct relation with the size of the enterprises. Thus, the tendency to use quantitative indicators for environmental aspects is directly proportional to the size of the company. The largest companies in the sample are more inclined to monitor the amount of paper used, the percentage of paper recycled, water and energy consumption or the amount of waste produced. The most used social indicators are directly related to the legal reporting obligations of companies.

Managers are reluctant to use indicators that require calculations from data for which the company has no legal reporting obligations. Thus, the percentage of women in the workforce, the amounts destined for humanitarian organizations (deductible from the profit tax) and the personnel training expenses are most frequently monitored. The use of percentage indicators of people with disabilities / vulnerabilities is a characteristic of the largest companies in the sample, as shown by the analysis of decision trees. No manager mentioned indicators related to the loyalty of business practices (with customers, suppliers, anti-corruption practices, etc.), although this aspect was mentioned by some of them in the definition of sustainability at company level. Among the novelty elements mentioned by managers, we note the number of partnerships concluded, the number of actions or environmental protection campaigns carried out by the company and the number of humanitarian (social) campaigns or actions in which the company participates or initiates. Also, a novelty indicator is the number of free consulting hours offered to non-profit organizations working in the environmental / social field. Regarding the newly proposed quality indicators, a restaurant manager mentioned tolerance for animals (specifically, in this case, tolerance is manifested by placing in front of the restaurant, in the hot summer months, a bowl of water for animals ). Therefore, the discussions with the managers and their answers to the questionnaire highlighted interesting practices related to measuring sustainable development, with some novelty elements.

Also, a topic of interest identified during the statistical research is the development of telework in the conditions of social distance imposed by the Covid pandemic<sup>19</sup>. Approximately half of the questionnaires and semi-structured discussions with managers took place during the

restrictions imposed by the state of emergency and alert in Romania. The vast majority of managers interviewed during this period told us that they worked from home frequently and that they had implemented a new organization of the workspace and the company's schedule, in order to meet these requirements. As we have shown in the chapters on social policies, measures that favor telework have a positive impact on the balance between private and professional life of employees, thus contributing to the sustainability of the company. New research that has emerged during this period<sup>132</sup> shows that companies can create a telework opportunity, advantageous both for productivity and for the environment and employees. Telework can be a success when the hierarchical ties are blurred, the manager being able to develop stronger and more trusting relationships with employees, while showing a sincere concern for their well-being. Other authors<sup>133</sup> see telework as one of the most widespread forms of responsible social engagement of enterprises during the Covid pandemic<sup>19</sup>. However, this implies a new organization of the workspace and a structural orientation of the company towards online commerce. The trend towards distance work has already been confirmed in our statistical study, which showed that micro-enterprises have a predilection due to the more flexible structure for this way of working. The impact of telework on corporate social responsibility in the context of the Covid pandemic<sup>19</sup> is a topic that deserves further study.

### 7.3. VALUATION OF RESEARCH RESULTS

Some of the research results, especially those resulting from theoretical research, have been published in scientific papers, which have been presented at international scientific conferences, indexed on the Web of Science platform, with an impact factor. These papers, which refer to the concept of sustainable development and education on sustainable development as a premise for its implementation, are proof of cooperation between the author and the scientific supervisor of the doctoral thesis, being an opportunity to disseminate research results and exchange ideas with academic environment.

#### **Publications:**

- Costache, C., D.D. Dumitrașcu, and E. Lotrean. *"Learning Sustainable Development in Primary School: The Case of a Finnish School in Romania."* Paper presented at the 13th

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<sup>132</sup> Contreras F., Baykal E., and Abid G., *"E-Leadership and Teleworking in Times of Covid-19 and Beyond: What We Know and Where Do We Go"*, *Frontiers in Psychology* 11, pp.1664-1678, (2020).

<sup>133</sup> Popkova E., DeLo P., and Sergi B. S., *"Corporate Social Responsibility Amid Social Distancing During the Covid-19 Crisis: Brics Vs. Oecd Countries"*, *Research in International Business and Finance* 55, p.12, (2021).

International Technology, Education and Development Conference (INTED), Valencia, SPAIN, Mar 11-13 2019. ISBN 978-84-09-08619-1.

- Costache, C., and D.D. Dumitrașcu. *"Implementing Sustainable Development in a Small and Medium-Sized Enterprise: The Role of Innovation in Workplace Learning."* Paper presented at the 12th International Technology, Education and Development Conference (INTED), Valencia, SPAIN, Mar 05-07 2018. ISBN 978-84-697-9480-7.
- Costache, C. and D.D. Dumitrascu. *"Managing Sustainable Development Projects in Romanian Curricular and Extracurricular Education: A Multi-Criteria Analysis."* Paper presented at the 7th International Conference on Education and New Learning Technologies (EDULEARN), Barcelona, SPAIN, Jul 06-08 2015. ISBN 978-84-606-8243-1.
- Costache, C., and D.D. Dumitrașcu. *"Worldwide Good Practices in Managing the Orientation of Technical Education Towards Sustainable Development."* Paper presented at the 3rd International Engineering and Technology Education Conference (IETEC) / 7th Balkan Region Conference on Engineering and Business Education(IETEC), Lucian Blaga University of Sibiu, Sibiu, ROMANIA, Nov 01-04 2015. ISBN 978-0-646-94781-5.
- Costache, Cătălina, Dănuț Dumitrașcu, Raluca Barac, Ona Anghel, and Carmen Catalina Ioan. *"Assessing Progress Made by Civil Society and Institutions at the End of the Decade of Education for Sustainable Development: The Case of Romania."* Paper presented at the 9th International Technology, Education and Development Conference, Madrid, Spain, 2015. ISBN 978-84-606-5763-7.

**Participation in scientific conferences:**

- 13th International Technology, Education and Development Conference (INTED), Valencia, SPAIN, Mar 11-13 2019
- 12th International Technology, Education and Development Conference (INTED), Valencia, SPAIN, Mar 05-07 2018.
- 7th International Conference on Education and New Learning Technologies (EDULEARN), Barcelona, SPAIN, Jul 06-08 2015.
- 3rd International Engineering and Technology Education Conference (IETEC) / 7th Balkan Region Conference on Engineering and Business Education(IETEC), "Lucian Blaga" University of Sibiu, Sibiu, ROMANIA, Nov 01-04 2015.
- 9th International Technology, Education and Development Conference, Madrid, Spain, 2015.

**Articles proposed for publication in Sustainability journal:**

- C. Costache, D. Dumitrașcu, I. Maniu, “ *Facilitators of and Barriers to Sustainable Development in Small and Medium-Sized Enterprises: A Descriptive Exploratory Study in Romania*”, *Sustainability* 2021, 13(6), 3213; <https://doi.org/10.3390/su13063213> - 15 March 2021.
- I. Maniu, C. Costache, D. Dumitrașcu, „*Adoption of green environmental practices in small and medium-sized enterprises: entrepreneur and business policies patterns in Romania*” (publication in process).

**Book** proposed for publication at Pro Universitaria Bucharest Publishing House:

- C. Costache, D. Dumitrașcu, „Integration of sustainable development within small and medium enterprises in Romania. Good practice guide”.

## **7.4.LIMITIONS OF CURRENT RESEARCH AND FUTURE DIRECTIONS OF STUDY**

The results of this doctoral thesis were obtained following a thorough research, carried out over five years. Theoretical research and mixed methods of qualitative and statistical study were corroborated by practical experience in the field of non-governmental organizations and humanitarian actions. This aspect contributed to the deepening of some concepts studied in the paper, such as the philanthropic component and the attitudes and knowledge of the managers regarding it. Despite the thorough documentation and application of research methods from different disciplines, the present study has some limitations. Thus, statistical research is based on a non-representative sample of firms from certain points of view. Even if in some respects the distribution of companies according to reality is respected (for example from the point of view of the type of clientele), other aspects of the sample do not represent a mirror of the reality in the business environment. We have voluntarily limited the share of enterprises operating in the field of services, but also of micro-enterprises, in order to comply with the statistical recommendations of the stratified survey, where all layers must be sufficiently represented. In other cases, the higher or lower share of a category (for example, middle school managers, women managers, regional distribution of companies) was not a voluntary choice, but imposed by the availability of data. We also chose to administer a very detailed questionnaire (over 90 questions), to the detriment of the number of companies in the sample, given that an interview lasted an average of 45 minutes.

However, research opens up new perspectives for study and provides multiple possibilities for deepening and disseminating results. One of the aspects for which novelty elements have been discovered is the definition of typologies regarding the behavior of enterprises, using the technique of decision trees. For example, the study shows that the employment of people with disabilities is a defining factor in determining the behavior of firms, with significant differences between the largest enterprises in the sample and the smallest (micro-enterprises). This aspect deserves to be deepened through further research. Also, a related element that deserves clarification is why micro-enterprises rarely employ vulnerable people.

Another relevant aspect illustrated by the present research is the influence of the manager's gender on the integration of the aspects of sustainable development in the company. Women managers would be more inclined to enter into partnerships, but also to consider the permanence and stability of the company as an essential objective; also, they have a more inclined behavior towards environmental protection from a personal point of view, which is reflected in the company's management decisions, especially since the company is smaller. The analysis of the typologies of behavior according to gender, but also of other elements such as the age and the level of study of the manager, represent clues for reflection for future research.

Another future direction is the development of a good practice guide for small and medium-sized enterprises, which will present models of responsible behavior available to companies, regardless of size and level of resources, as well as practical ways to measure sustainable development (qualitative and quantitative indicators) already used and proposed by the surveyed managers. Improving non-financial and sustainability reporting can only be a competitive and image advantage for these companies. The practical guide can be distributed through the Chambers of Commerce and Industry and business clubs.

Beyond the concrete, tangible results of the research, we aim to contribute to the development of available information on the concept of sustainable development and how it can be implemented in companies. Following interviews and discussions with managers, many of them concluded the conversation by emphasizing the importance of recalling the need for positive involvement of the company in the community, as well as the fact that through these discussions there was an awareness of the measures already implemented. A more conscious, voluntary approach to sustainability by managers, a constant integration of sustainable measures in the management of the company, beyond the simple observance of the legislation in the field, is for them a premise for increasing the positive image of the company, both internally and the external environment, and thus its profitability and permanence.

