



VIGILADA MINEDUCACIÓN

**ODS number 9 industry, innovation and
infrastructure and number 17 alliances to
achieve the objectives and their effect on
SMEs in Colombia.**

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Colombia.**

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I want to thank all the people who took part in my learning process, the teachers, my family and friends, for all the support given throughout this process, for promoting my dreams and being able to make my dream of being an international negotiator a reality, all the people who made this process of a great adventure full of knowledge and new experiences, for increasing my desire to fulfill my dreams and to always achieve my goals.

Summary

Currently, the ODS are global objectives that are focused on the progress of countries, especially the least developed such as Colombia, making them primary objectives for the development of the country in general, where it seeks sustainable development and cooperation between nations, where there is a focus on environmentally friendly sustainability. The work focused mainly on SMEs in the city of Medellin, and a view of how the country is developing these objectives, shows the current lack of knowledge of the ODS and the benefits it could bring both to companies and the country, showing how important it is to generate its application, in all the companies and processes that take in the country so much in the present time directed to the goal drawn up for the year 2030, wanting to have a total coverage of the goals, and that all the organizations focus their processes to the fulfillment of these objectives, and as through alliances and cooperations so much international as national, a better coverage and a better application of all the objectives in the processes of PYMES can be assured.

Keywords: Sustainability, International Relations, Innovation, ODS, SMEs, Cooperation

Abstract

Currently, the ODS are global objectives that are focused on the progress of countries, especially the least developed such as Colombia, making them primary objectives for the development of the country in general, where it seeks sustainable development and cooperation between nations, where there is a focus on environmentally friendly sustainability. The work focused mainly on SMEs in the city of Medellin, and a view of how the country is in the development of these objectives, shows the current lack of knowledge of the ODS and the benefits it could bring both to companies and the country, showing how important it is to generate its application, in all the companies and processes that take in the country so much in the present time directed to the goal drawn up for the year 2030, wanting to have a total coverage of the goals, and that all the organizations focus their processes to the fulfillment of these objectives, and as through alliances and cooperations so much international as national, a better coverage and a better application of all the objectives in the processes of PYMES can be assured.

Translated with www.DeepL.com/Translator**Key Word:** Sustainability, International Relations, Innovation, ODS, PYMES, Cooperation

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Introduction

"The ODS, also known as global goals, are a universal call for action to end poverty, protect the planet and ensure that all people enjoy peace and prosperity" (UN, 2000). In this study, ODS number 9 "Industry, Innovation and Infrastructure" and number 17 "Partnerships to Achieve the Goals" will be analyzed. The first objective is to ensure that everyone has the necessary infrastructure to connect with the rest of the world by building resilient infrastructure, promoting inclusive and sustainable industrialisation and encouraging innovation. (UCLG, 2015) On the other hand, the second objective seeks to promote alliance and collaborative work among countries for the fulfillment of all the other objectives, as well as the sustainability of nations. This represents alliances, treaties and cooperation agreements between nations and, in turn, a strengthening of a country's international relations.

The purpose of these objectives is to enhance North-South and South-South cooperation, promote international trade and assist developing countries to increase their exports. Some figures and results reported by the UN in 2016 are: six countries reached the international target of maintaining official development assistance above 0.7% of gross national income, international remittances totaled USD 575 billion, 75% of that went to developing countries, official assistance peaked at USD 142.6 billion in 2016. (ONU, Programa de las naciones unidas para el desarrollo, 2016).

This study makes a comparative analysis based on the signed treaties and economic indicators with special emphasis on SMEs in Colombia, verifying the impacts on the country of compliance with the aforementioned ODS and the actions taken.

For the development of the research, the exploratory method will be used to give an approach or panorama on the actions and impacts that have been generated in the country during the activities developed for the fulfillment of ODS 9 and 17. This will be carried out based on different authors and studies developed on the subject that will allow to know the different agreements made, indicators measured in the industry, as well as impacts for the economy of the country.

In this work, research was carried out on the development plans that ODS 9 and 17 work in the country, to identify the public policies and programs that are carried out in the country for the development of these objectives where it will be reflected the inclusion that ODS 9 and 17 have in UNDP from 2015 to the present, Likewise, the sectors that apply these objectives in their processes were analyzed, as well as an approach to the SMEs of the city of Medellín, which seeks to evidence the application or lack of application of these objectives in companies, and the importance that these objectives have in business sustainability plans.

As a result of the research, there is a low level of SME ownership of sustainability principles, low dissemination of ODS in business accompaniment programs and, in general, at the country level. It is evident that both the National Development Plan PND and the Municipal Development Plan PDM include sustainability principles, that the ODS with the greatest mobilization of international resources are 9 and 17 but are not the most prioritized in the country.

1. Formulation of the project

1.1 State of the art

A search was conducted to identify authors who addressed the issue of linking companies to the achievement of Sustainable Development Goals (SDS) which are aimed at ending poverty, fighting inequality and addressing climate change.

To begin on September 25, 2015, Agenda 2030 was approved at the United Nations General Assembly, which motivated a joint effort for sustainable, environmental, political and social development. (United Nations Global Compact, 2015) which involves all development actors at the global level (governments, businesses and individuals), in other words, public-private partnerships are fundamental in issues of finance and trade for the development of nations. (Mancipe Torres, 2018, p. 28)

On the other hand, in the magazine *International Relations*,(2015) a comparison was made on the impact of the ODS and the Millennium Development Goals (MDGs), where it is stated that the latter are predecessors of the ODS, which had a low level of compliance due in part to the weakness in the international relations raised and an exclusive focus on poverty reduction and financial support, which still represents a challenge for the fulfillment of the ODS. Gordon & Ramírez(2019) also state(2019) that the challenges posed by the fulfillment of the ODS must be addressed jointly at the international level but with a differentiated application in each zone: "Achieving the 169 goals of the ODS requires the use of innovative strategies, the active participation of all development actors, as well as the implementation of well articulated and coherent public policies. The author presents some cases in which international relations have allowed the development of programs such as the protection of forests in Mexico, peace and social equity programs between Colombia and Ecuador in border areas, which evidences the development of alliances and articulated plans that will allow a rapid fulfillment of the ODS.

From the local point of view, the association *Antioquia Sustainable*; (2016), conducted a study that poses a baseline of indicators to measure compliance with the ODS

in Antioquia during the study were measured areas of influence such as people, planet, prosperity, peace and partnerships. Educational, governmental and private organizations were included in this study. There it is expressed that the ODS: "signify a hope, a new arena of multi and intersectoral action that forces us to be daring, to dare to think differently ... joint actions are essential". These actions will allow us to generate an open data ecosystem that is solid and enduring over time. It is also important to articulate the institutions of the different administrative territorial orders (national, departmental and municipal) in order to have quality information that is coherent with reality in order to reduce the current gap.

Regarding ODS 9, the study states that Antioquia seeks to promote industrialization and foster innovation, some goals are: "Increase access of small industrial enterprises to credit and integration into value chains and markets"; "Support the development of technologies, research and innovation to give value to commodities"; "By 2030, improve infrastructure and readjust industries to be sustainable, using resources more effectively and promoting the adoption of clean and environmentally sound industrial technologies and processes. This study showed a deficit in research and application of new technologies in companies in Antioquia.

Now, with respect to ODS 17, the study states that this seeks to strengthen the means of implementation for sustainable development, the goals of this objective are focused on promoting partnerships that promote the exchange of technical and technological capabilities among countries for compliance with the ODS, encourage initiatives to measure progress towards sustainable development based on indicators and reports from industries and companies. Finally, the study concludes that it is necessary to continue working on the generation of capacities for the measurement, analysis and reporting of data, to continue the processes of articulation, collaboration and alliances among the actors of the ecosystem.

The UN (2015) for its part states that the objective of partnerships is that: "enable developing countries to improve their status through the exchange of knowledge, technical and technological capacity, financial resources and most importantly increase the participation of least developed countries in world exports".

Public and private institutions at all levels must articulate for the compliance, regulation and monitoring of the ODS, as well as reporting on actions taken to comply with them.

Now, in order to identify the fulfillment of each one of the actors, a series of indicators have been defined, as some of them are proposed by different authors: Adams (2015), who states that indicators alone will not be sufficient to fully measure progress on the targets and that some of these lack adequate indicators to measure their achievement, coupled with the limited availability of resources for statistical operations at the global level.

As Adams(2015) mentioned, there are not enough indicators to measure compliance with the DSOs, and this situation is equally evident in Colombia, as stated by the association Antioquia Sostenible (2016). Here there is not much information available to analyze items such as peace and justice, alliances (DSO 17) or environmental dynamics, such as care of oceans, biodiversity and forests, and especially those associated with climate change and sustainable consumption and production. On the other hand, if there are data on socioeconomic dynamics such as poverty, income distribution, access to education, health and basic services, it is easier and more accurate to evaluate the fulfilment of objectives related to these data. It is also important to highlight that some indicators proposed by the Global Agenda for Sustainable Development are highly novel not only for Colombia, but in general for the world, so there are no clear indicators to measure compliance with all the ODS.

And the last aspect analyzed was the role of companies in complying with the ODS, according to the report presented by Harvard Kennedy School, it was expressed that:

"We must focus on "unlocking the transformative potential of the private sector and inviting companies to apply their creativity and innovation towards the sustainable solution of development challenges and to participate as partners in the development process. Every company, large and small, has the potential to make a very significant contribution to economic, social and environmental progress. (FUND, 2015)

In the study conducted by (FUND, 2015) entitled "Working Together Towards Sustainable Development Objectives: A Framework for Action", a guide that seeks to integrate companies for the development of initiatives that seek to promote networking, sharing resources, technologies and skills for compliance with the ODS. It states that the participation of companies generates value for the company and is aligned with its corporate values, allows companies to remain in the long term and take advantage of the alliances that are being generated for the promotion of innovation, access to new markets. The study states that objectives 9 and 17 focus on the principles of prosperity and alliance generation respectively, which could lead to new business models and improvements in the value chain of companies through the mobilization of national and international resources and alliances with other companies. In addition, the document provides examples of how companies can develop that aim to comply with the ODS, for example, for objective 17 a support program for local farmers is proposed, which improves the chain of the large company and promotes the application of innovation so that these improve their processes and the entire integrated chain. In addition, a series of initiatives are presented around the world to encourage the participation not only of the large company but also of the small one, since the latter has a little appropriation of the principles of the ODS and its strategic planning and long-term vision.

Similarly, the Rio Declaration stresses the crucial role of both multinationals and small and medium-sized enterprises (SMEs) for social and economic development (UNITED NATIONS, 1992, p. 50); the summary document of this summit presents the responsibilities of each of the actors responsible for complying with the ODS, government, companies and individuals.

The contribution of companies to the ODS can be approached from three approaches, non-exclusive and with different returns, which are: first philanthropic actions that seek to improve the conditions of their environment, second actions to improve their production processes and third from the development of innovative products and services framed in sustainability. (Ernst & Young Global, 2015). These contributions can bring to

the company reputational benefits (attraction, retention and customer loyalty), economic benefits through cost reduction and improvements in operational efficiency, the generation of new business models and the development of new business alliances nationally and internationally (SDG Compass, 2019). These principles are being transmitted to companies through organizations such as the Andi to traders for their ownership and participation that still remains low.

The SDG compass was developed by a global pact of the United Nations, developed so that nations organize their ODS according to the sectors in which they develop better, for which the SDG Compass was developed, this pact is composed of 5 key steps: first familiarize with the ODS, second: definition of business opportunities that provides the ODS, third definition of objectives, fourth integration and fifth definition, creation and reporting of actions and results obtained (SDG Compass, 2019). This document discusses the role of companies and how it can be applied in their business models, with respect to objective 9, states that companies should apply innovation process in all areas of the company and contribute to the development of regions by improving the living conditions of people, this means that companies are challenged to measure their performance and define some kpi to evaluate company processes some as numbers of new products created, investment in innovation. In relation to objective 17, this document states that compliance with this objective can be measured by the increase in exports in one country and trade agreements that are generated with other countries or between companies. In spite of the fact that these tools are available, few companies appropriate them or do not know them in Latin America, which represents a challenge for their massification and application (Parra, 2018), even some goals related to the objectives do not have defined indicators, the Key Performance Indicator (KPI) and reports that allow to see the progress of the companies regarding the fulfillment of the ODS are not yet regulated in all the countries, in Colombia the organization that is developing this activity is called CECODES.

Despite the importance of the involvement of companies and the application of the principles of sustainability in their commercial operations, value chain and at a social level through the creation of alliances, their involvement has been gradual but continuous in

different contexts as proposed in the studies of (Mancipe Torres, 2018, p. 2018). 24), which also analyzes the role of the University in the application of the ODS, where it is very important the connection of the University to instruct and guide each one of the students focused on the fulfillment of these objectives, where it is sought to have a sustainable development in all the companies and in their operations, where the students see through the creation of the alliances that the country has as the development in commerce has been thanks to the implementation of these objectives, and focus on improving and increasing them.

Finally, it should be remembered that: "Companies cannot prosper unless people and the planet prosper... ODS are universal and transcend borders and are applied in the market, in the workplace and in the community, so we must prioritize, learn, act and measure", acting responsibly allows us to find new opportunities. (UN, 2017).

By way of conclusion, the analyzed authors raise the importance of applying the principles of the ODS in the companies, but there are still difficulties for their dissemination, appropriation and application within the companies, especially the SMEs, since these do not have measurement or monitoring instruments at their operational level, production and growth; in Colombia efforts are being made mainly from the large company to improve its image, its operational processes and access to international resources. It is therefore important to verify the level of knowledge that the companies have of the ODS especially of Objectives 9 and 17 that are related to the innovation of the company, productivity, access to financing and level of exports.

1.2 Problem Statement

In Colombia, small and medium enterprises are responsible for an important part of the economy, employing about 80% of the country's labor force, contributing 40% of GDP in 2016 (OECD, 2018). By 2017, the manufacturing industry had a share in the GDP of 11.3%, generating 12% of the country's employment, being the sector with the greatest growth (Herrera Araújo, 2018). In spite of these advances, Colombia still has much to develop in this aspect since, in front of other countries it continues to decline, this implies a challenge for the growth and strengthening of these companies, especially from processes of innovation and development of new markets. (Herrera Araújo, 2018)

Small enterprises are a fundamental part of industrial development in developing countries such as Colombia, with a small amount of capital investment and a locally dominant resource base, they generate a significant number of jobs, but face major challenges to their day-to-day business activities due to the low use of innovation processes and platforms for access to new resources and markets. For these companies to grow, it is necessary to apply processes of industrial development and financing that allow them to innovate and improve their processes with greater efficiency oriented towards expansion in new markets and the generation of more employment, aspects under which ODS 7 and 9 are oriented. (UNIDAS, 2019). Inclusive and sustainable industrialization, together with innovation and infrastructure, can unleash dynamic and competitive economic forces that generate employment and income for SMEs. (UN, 2018)

With respect to ODS 9 "Industry, Innovation and Infrastructure" and ODS 17 "Alliances to achieve the objectives", they seek in common the creation of alliances that allow industrial and economic development, as well as human welfare. The first objective mentioned seeks to improve the infrastructure conditions of a territory, as well as the participation of industry in GDP and the application of technological innovation processes. For its part, the second seeks to significantly increase the exports of developing countries, with a view to doubling their share of world exports. (UN, 2015); objectives that are key to the development of SMEs in Colombia.

For example, in Europe and North America, 2.21% of GDP was invested in R&D, while in Colombia approximately 0.25% of GDP is invested (Figure 1). These disparities indicate the continued need for strong policy support to increase R&D funding in developing regions such as Colombia. (UN, 2018).

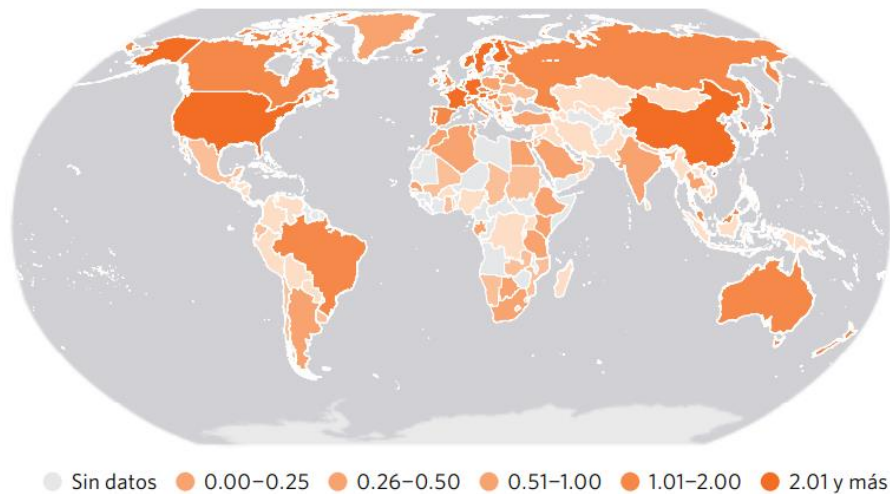


Figure 1. Internal expenditure on R&D as a proportion of GDP 2016
Source Sustainable Development Goals Report, UN, 2019

On the other hand, Official Development Assistance (ODA) has been declining in recent years. (UNIDAS, 2019) In spite of this, Colombia mobilizes a significant amount of resources from international cooperation, both bilaterally and by private parties and NGOs, as well as remittances and exports, which indicates that it is in a privileged position vis-à-vis other countries. (UNIDAS, 2019).

Finally, industrial development implies a structural transition from activities based on the transformation of resources and low technology to high and medium technology (MHT) activities, based on innovation processes that allow it to increase the benefits generated as a result of the minimization in the use of the resources available to the company (UNIDO, 2018); it is important to control and increase the indices of innovation in the country, since they are the fundamental pillar for development and this can be achieved through alliances that drive improvements in technological, technical, or financial resources for these companies. Verifying the progress made in the country on these aspects will allow to know the state of commercial progress of SMEs from the use of international pacts for the export of products and innovation programs offered for this type of companies.

What is the impact that the ODS 9 "industry, innovation and infrastructure" and 17 "Alliances to achieve the objectives" have generated in SMEs in Colombia in the last 3 years?

1.3 Aims and Objectives

1.3.1 General Objective

Evaluate the impact and level of ownership of the ODS 9 "industry, innovation and infrastructure" and 17 "Alliances to achieve the objectives" in SMEs in Colombia, from 2015 to 2019.

1.3.2 Specific Objectives

- Identify the programs that are carried out in the country for compliance with ODS 9 and 17 and that involve SMEs.
- Characterize Colombia's role in the ownership and implementation of ODS 9 and 17.
- Identify the public policies in relation to the ODS, included in the national development plan of the last national and municipal governments.
- Identify the degree of inclusion of ODS 9 and 17 in some SMEs in the city of Medellín.

1.4 Theoretical justification

This research is carried out with the purpose of contributing to the existing knowledge on the progress and application of the goals of the ODS 9 and 17 in the SMEs of Colombia and the implications that these have had in the processes of innovation and export these. this will contribute to the few existing data on the fulfillment of the goals proposed for the year 2030 at world level.

Companies play an important and decisive role in sustainable development.

1.4.2 Social and/or business justification

The incorporation of the ODS principles in SMEs in Colombia will allow them to be more competitive in the market with economically and environmentally sustainable processes, as well as respond to a market that increasingly demands sustainability in the companies with which it trades.

For businesses, the successful implementation of ODS will enable them to find a supportive environment to do business and create markets around the world. (SDG Compass, 2019), applying innovative technologies and ICTs to increase their efficiency, and reduce the negative impact on the environment in their business processes, reducing costs and risks when doing business.

The UN Global Compact calls for companies to first do business responsibly and then find opportunities to solve social challenges through innovation and business collaboration, both of which are important contributions to the ODS, especially the 9th and 17th related to innovation and the strengthening of relationships respectively. (United Nations Global Compact, 2015).

The application of innovation in the value chain of SMEs will allow you to manage and control the different critical points that can affect the company both negatively and positively. On the other hand, networking will allow you to improve your production times and market response, as well as according to the case increase the volume of your exports from the conquest of new markets.

Hence the importance of verifying the appropriation of ODS in the SMEs of Colombia and the impact that the programs around ODS 9 and 17 have had on companies in the city of Medellin.

1.4.3 Personal Justification

This research allows us to understand the importance of ODS in the international business environment, and how these objectives benefit SMEs in the country, the development of these objectives are generated through treaties or negotiations, in addition to how important it is for Colombia and for all companies in the country that these are developed in a correct way, It was mainly decided to focus on ODS number 9 "industry, innovation and infrastructure" and number 17 "Alliances to achieve the objectives" as they are primary objectives for the advancement of a developing country like Colombia and for the growth of SMEs in the country where it seeks its growth and expansion in the globalized market.

It will allow to increase the knowledge that is had as for the development of these two ODS, and how a greater progress in these objectives can be generated in the SMEs, focused in the sustainable development, in the good utilization of the resources of the country and of the care of these, in addition as from this good administration of the resources and of technological developments and important innovations an increase in the international relations of Colombia can be generated, besides the increase in the purchasing capacity of the people, and the increase of the development of the country in general.

In addition to how is the current process of these ODS in the country's SMEs and what can be the projection that is expected at the end of these objectives in 2030, as well as how these objectives are strengthening development in the country, and promoting the training and improvement of people looking for a sustainable and environmentally friendly industry, due to the large number of ecological crises that are currently going through, and which are important to mitigate in order to maintain a healthy and safe environment for all Colombians, and the world in general.

1.5 Theoretical Framework

ODS, also known as global goals, are "a universal call for action to end poverty, protect the planet and ensure that all people enjoy peace and prosperity" (UN, 2000). The purpose of this study is to focus on ODS number 9 "Industry, Innovation and Infrastructure" and number 17 "Partnerships to Achieve the Goals".

Objective *9 industry, innovation and infrastructure* seeks to ensure that everyone has the necessary infrastructure to connect with the rest of the world by building resilient infrastructure, promoting inclusive and sustainable industrialisation and encouraging innovation. (UCLG, 2015).

Now, goal number *17 partnerships to achieve the goals* promotes the development of coherent policies to address key challenges such as poverty reduction and sustainable development. (CGLU, 2015)its execution is essential for the fulfillment of the other objectives.

On the other hand, according to (UCLG, 2015) In order to comply with ODS 9, it is important for governments to develop promotion strategies and development programs in their economic development plans, which are oriented to small industry and start-ups, taking into account local resources, needs and markets; therefore, this paper will analyze the programs developed in Colombia to strengthen SMEs and startups with emphasis on international cooperation projects.

Another aspect by which the impact of ODS 9 can be measured is access to financial services for SMEs in the country, since, as it is stated (UCLG, 2015)

"It also seeks to increase the access of small industrial and other enterprises in developing countries to financial services, including access to affordable credit, and their integration into value chains and markets.

For the UN, access to ICTs in a country is an indicator of compliance with ODS 9, so countries should identify the lack of access to ICTs and also take steps to address them, especially through the provision of these services in public spaces. (UCLG, 2015).

Now, in order to monitor compliance with ODS 17, the cooperation mechanisms and alliances agreed upon for the mobilization of resources and capacities are used as a basis; in this case, the UN categorizes these capacities as technical, economic, technological and financial, while alliances can be international treaties, cooperation pacts and other legal mechanisms. Since local governments should encourage and facilitate cooperation between public agencies, the private sector and civil society communities, especially between developing and developing countries in order to improve capacities. (CGLU, 2015).

In order to generate greater reliability in the information generated on compliance with the DSOs, a series of statistical indicators defined by each country is used as a basis. These indicators must be open, reliable and of high quality, as well as allowing the GDP of a country to be measured; these must be divided into groups by income, gender, age, race, etc. (UCLG, 2015). Despite this, there are indicators that are subjective, since companies can develop philanthropic actions that contribute to the improvement of the social and environmental conditions of the environments in which the company operates or not and represent a reputational benefit that cannot be measured statistically.

The fulfillment of the global results is analyzed by means of control boards per country, by the organization Bertelsmann Stiftung and the statistical commission of the UN, these boards have around 230 indicators and are presented by each country as voluntary reports.

In order to analyze compliance with the ODS, the following steps must be followed:

- Understanding ODS: Analysing their benefits and what you can contribute
- Define priorities: Identify impacts and risks, consult stakeholders, indicators, establishing the main focuses.
- Review of targets: review of monitoring indicators and commitments.
- Communicational actions or reports made: reports generated

1.5.2 Conceptual Framework

Sustainable Development Goals (SDS): can be defined as a commitment that nations (170) made in 2015, to work together to end poverty, health, progress, protection of the planet and peace by 2030. This commitment is reflected in 17 objectives related to this theme. (UN, 2000),

ODS Goals: These are the milestones that we want to achieve in order to fulfill the objectives. There are 169 goals that differ in each objective. (UN, 2000),

Indicators: This is the way in which compliance with the ODS is measured; for each objective, a series of these are established in total for the 17 objectives there are 231 and a third of these are not clear how it should be measured. (UN, 2000),

Development plans: This is the roadmap established by the different governments for the prioritization of actions, programs and economic resources. (DNP: National Development Plan)

SMEs: classification given to micro, small and medium enterprises

SDG compass: Guide developed by the United Nations Global Compact so that companies can align their strategies with the ODS and the contribution of these can be measured. In this document 5 steps ranging from understanding the ODS to reporting the actions taken within the company.

1.6 Methodological Framework

For the development of the research, information was consulted from different official sources in the country and international organizations related to compliance and the guidelines for the ODS. In addition, a survey focused on SMEs was carried out in order to know how familiar the companies are with the existence of the objectives or the application that is being given within the companies to improve processes and achieve compliance with the objectives that have been drawn up for the year 2030, This was measured through a survey of fifteen companies, from different commercial sectors, and from different parts of the country but mainly focused on companies in the city of Medellín, where the study also showed that little or nothing is known by SMEs about alliances or treaties that currently benefit the development of their companies, where they could take advantage of these alliances and improve their commercial and business processes.

1.6.2 Investigation Method

Given that the impact of the actions carried out by SMEs in the city of Medellín to comply with ODS 9 and 17 on the country's economy is not currently known, an initial exploration of the treaties and programs developed in the country is required, as well as the indicators currently used to measure their compliance, in order to subsequently delve deeper into particular economic indicators or specific international treaties.

- **Research Approach**

A qualitative approach will be used for the research, since it is intended to make an approach from literature and through open surveys, which will allow to know the progress that the country has with respect to the fulfillment of ODS 9 and 17 and the impact on SMEs, as well as the perception of these with respect to the ODS and their application in the country.

- **Type of study**

Exploratory and descriptive, allowing to know the advances between 2015 and 2019 and the current perceptions regarding the advances of ODS 9 and 17 through bibliography, reports and information sources.

1.6.3 Research Methodology

- **Data collection techniques and tools**

The technique to be used in this research will be Documentary Analysis, where data will be collected from secondary sources such as: books, magazines, theses, pamphlets and newspapers where ODS 9 and 17 are analyzed. The instrument used will be the data record card. Since this technique will be used, it is not necessary to define a particular sample.

On the other hand, in order to know the knowledge about ODS in Medellín's SMEs, a survey is proposed.

- **Information selection and analysis**

First, a selection will be made of the sources of information and the usefulness they generate based on economic indicators and trade agreements, support programs for business creation and entrepreneurship promotion. The information will be taken to expository notes and reflections on the results presented by the authors, to identify relationships.

- **Bias control**

Only official sources of institutional, state and international accredited reports will be used for these reports.

No value judgments will be made on the opinions presented by the authors, only personal appraisals will be made.

1.7 Scope

To investigate and recognize the actions carried out in the country and in the city of Medellín to comply with ODS 9 and 17 involving SMEs, as well as the knowledge and application of ODS by SMEs, in a sample determined randomly for convenience.

2 Development of research

2.4 First specific objective: To identify the programs that are carried out in the country for the fulfillment of ODS 9 and 17 and that involve SMEs.

One of them is the SDG CORPORATE TRACKER initiative implemented in collaboration with the United Nations Program UNDP and the GRI that measures and analyzes the contribution of the private sector to the 17 ODS in the country, based on the GRI standards but ODS 9 and 17 are not evaluated directly, this allows to identify contributions and establish concrete commitments with unions and associations, (DNP, 2018). The academy, on the other hand, from the National Network of Knowledge for Sustainable Development evaluates the appropriation of ODS in society and companies based on the SDSN model. (DANE, DNP, 2017).

By means of a decree called 280 of 2015, a high-level inter-institutional commission was created to lead the process and the correct implementation of the ODS in the country, where the articulation between the government, the private sector, academia and civil society was constituted.

According to a study carried out on 128 Territorial Development Plans (PDT), it was identified that objective 9 occupies sixth place, with respect to the number of programs incorporated in these plans that can directly impact SMEs or infrastructure development, and objective 17 is not in the first 10 prioritized objectives, is a very worrying point since it is known that to meet any objective is important to have alliances that help strengthen all development plans. (ECLAC, 2018). The main ODS found in these plans are: peace, education and health.

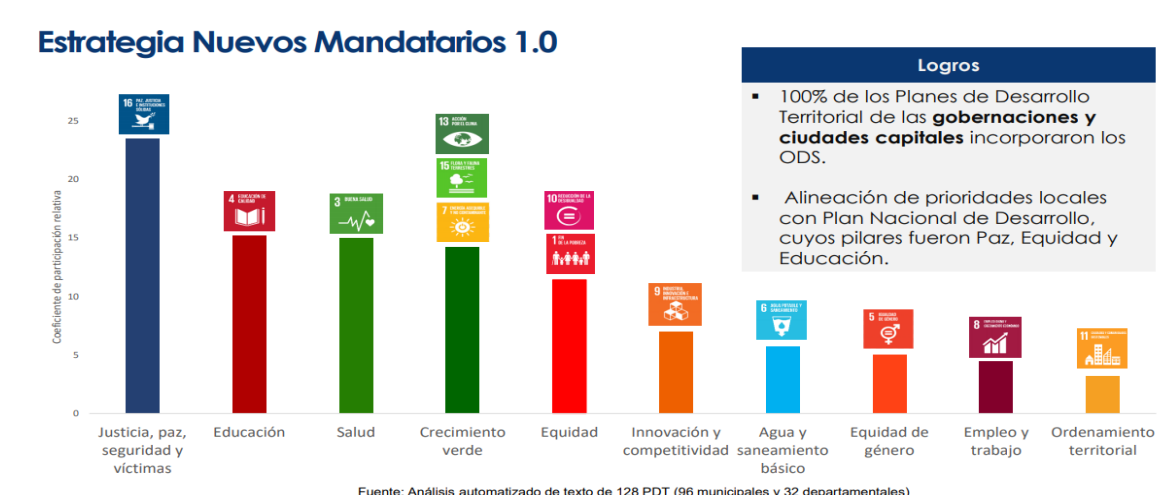


Figure 2. Analysis of PDT in Colombia

Source Conference_territorialization_of_the_agenda_2030 DNP. August 2018

In reviewing Colombia's National Development Plan 2018-2022, with respect to ODS 9, it seeks to build resilient infrastructure by fostering innovation. It is expected that by 2030 the contribution of industry to employment and GDP in the country will increase significantly, where companies can increase their participation, the integration of SMEs in value chains and markets in general, also modernize infrastructure and recreate industries so that they are sustainable, using resources in a more efficient manner, clean industrial technologies and processes that are environmentally friendly and that aim at sustainability and ecological, and environmental development. (DNP, 2018).

With respect to ODS 17, the PND seeks to strengthen institutional capacities to combat corruption, strengthen legality and collaborative relations with citizens, implement investment promotion regimes, favoring the mobilization of internal and external resources, seek to increase cooperation and access to science, technology and innovation where regional and international cooperation is improved; also seeks to increase the level of exports and that these are duplicated. (DNP, 2018).

Now as far as programs are concerned they are identified:

First, programs for the peace agreement: it seeks to improve the infrastructure conditions of the producers, as well as their productivity. They are supported by NGOs and SENA.

Second, EAFIT University prioritized 5 ODS in its institutional plan 2030, which include 9 and 17, for the first seeks to develop actions that encourage innovation and meet the needs of industry, with respect to the second seeks to increase collaboration and participation with other countries, promoting best practices and the publication of data from all entities to have a better measurement of these ODS. (EAFIT, 2019). Similarly, UPB seeks to encourage partnerships and environmental sustainability in its processes and business accompaniment programs. (UPB, 2019) Another university that leads the creation and execution of programs to accompany its businessmen in the city of Medellín is the Salazar and Herrera IUSH Institution that promotes environmental sustainability, innovation in processes and articulation with international networks.

Third, PROANTIOQUIA, a private business foundation created in Antioquia with the purpose of giving progress to the Department, implementing projects that are adequate to economic and social realities through the generation of alliances with the public, private and social sectors, supported the creation of the "Sustainable Antioquia" program in 2016, which promotes the appropriation and location of the 17 Sustainable Development Objectives in Antioquia, through the empowerment and alliances of intersectoral actors and the measurement of their contributions in indicators for the construction of a socially responsible territory. This project was recognized by the United Nations Development Program (UNDP) as "The best practice of localization of ODS at the national level, as it promotes ownership, vision and action in a territory in this program, although all the objectives are announced, the actions are prioritized in objectives 1, 4, 8.9 and 17. For each sub-region of the department, different initiatives are led according to the territory, integrating the actors of the ecosystem and the potentialities of the zone as shown in Figure 3. (PROANTIOQUIA, 2019).



Figure 3. ODS appropriation model in Antioquia. Proantioquia

Source Report on the progress of a model for the dynamisation of territorial sustainability. Sustainable Antioquia. 2019

Fourth public entrepreneurship programs: Among them are at the national level "Fondo Emprender" created by the National Government to finance business projects of all economic sectors and cultural enterprises; local level, "Parque E" program of the Mayor's Office of Medellin and the University of Antioquia for business strengthening and commercial growth of innovative SMEs that promote principles of sustainability, "Chambers of Commerce" these promote in enterprises the development of Good Practices of Sustainable Development, for these institutions the ODS 17 focuses on supporting the strengthening of the means of implementation and revive the global alliance for sustainable development. That is why this ODS is considered key and cross-cutting to all ODS. Finally, other entities such as "Procolombia" that promote innovation, alliances and increased export levels of entrepreneurs in Colombia.

Fifth private programs: Impact Hub Medellín's "Impact 2030", Impact 2030 It is an incubation program for up to 50 early stage ventures with impact on the UN's Sustainable Development Objectives (ODS) that has a permanent open call for the development of their business models and ways to measure the impact that these companies generate on the environment (ImpactHub, n.d.). Another initiative is "encampo" The Bancolombia Foundation in alliance with Portafolio verde, which encourages companies that help sustainable development in the rural sector (agriculture and rural tourism) contributing to the

improvement of the value chain of this sector with innovative and relevant proposals. with a total of resources worth \$1000 million pesos. (BANCOLOMBIA, 2019)

Sixth programs led by aggregations: "*Andi del futuro*" a group of young entrepreneurs seeks to promote the application of sustainability principles and the measurement of impacts within companies through the dissemination and appropriation of the SDG compass; "*CicloSiete*" is an initiative also known as the Olympics for Sustainability in Ibero-America, which shows the world through different experiences that can generate awareness and a strong call to action that will positively impact the ecosystems of Ibero-America, cities, organizations, schools, universities and all people interested in Sustainable Development. ("CycleSeven," n.d.). Another program promoted by various organizations is "*Lowcarboncity*" community that promotes solutions to address climate change from environmental sustainability in business and everyday life. (Lowcarboncity, 2018)

2.5 Second specific objective: To characterize Colombia's role in the appropriation and implementation of ODS 9 and 17.

In Colombia, there are strategies for reporting progress with ODS at the national level, such as ods.gov.co, which reports on the progress of each department. According to a study carried out by DANE in 2017, it indicates that only 54% of the objectives have information available, as well as indicators to evaluate their progress, 30% require improvements and 16% do not have indicators to measure their progress. (DANE, DNP, 2017).

With respect to the barriers that the country has for the fulfillment of the ODS these are: distribution of competencies, restrictive contractual practices, lack of coordination of the nation with the regions, lack of knowledge of regional dynamics and stakes, inflexible policies and programs not very relevant to the regional context, disarticulation between the urban and rural areas both in the implementation of the ODS and in the collection of data from both areas, Lack of integrity of the policies that focus on the fulfillment of these objectives, lack of continuity of the policies and programs between the governments, since

many governments begin executing plans for the development of certain ODS and the following government re-formulates them, or worse still it does not even take them into account in its government plan. At the regional level, the main barriers to compliance with the ODS are the absence of appropriate instances for productive development, the dispersion and duplication of functions, the low technical capacity and the deficiency in the instruments for adequate intervention, and the weak articulation in the public-private sectors, and the weak articulation in the business sector, due to deficient monitoring and follow-up systems, in addition to the fiscal restriction where the operative and contractual are prioritized over the strategic. (CONPES, 2017)

"According to the OECD, it is estimated that to reach the ODS by 2030 there is a deficit of at least 2.5 trillion dollars per year, which poses multiple challenges for the financing of initiatives that generate social impact and in which greater participation of the private sector is expected" (Portfolio, 2019). The ODS 9 was the most financed in 2018 with 86 million dollars whose main recipients were the Fondo emprendedor programs of SENA and Innpulsa.

Principales oferentes para emprendimiento



Figure 4. Programmes receiving resources for funding. Innpactia 2019

Source POAD 2019

When analyzing the management of resources in Colombia to finance compliance strategies for ODS, the main ones are 9 (86 million), 8 (76 million) and 16 (81 million). (Innpactia, 2019)

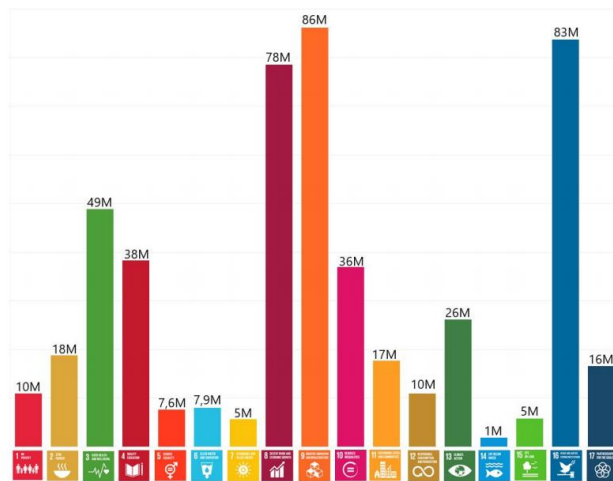


Figure 5 ODS funding amounts in Colombia 2018
Source POAD 2019

According to the CONPES report (National Council for Economic and Social Policy of the Republic of Colombia of the National Planning Department), 38% of the territory's departments have a degree of inclusion in their development plans and "medium" appropriation strategies, among them Antioquia identified on the map with the color yellow, while regions such as Cundinamarca have a high level of ODS appropriation and border departments such as Chocó, Vichada and part of the Amazon have a low level of ODS appropriation: as an additional aspect to be highlighted, there is a low level of appropriation and application of the ODS principles in SMEs both in the country and in the department of Antioquia. (CONPES, 2017)

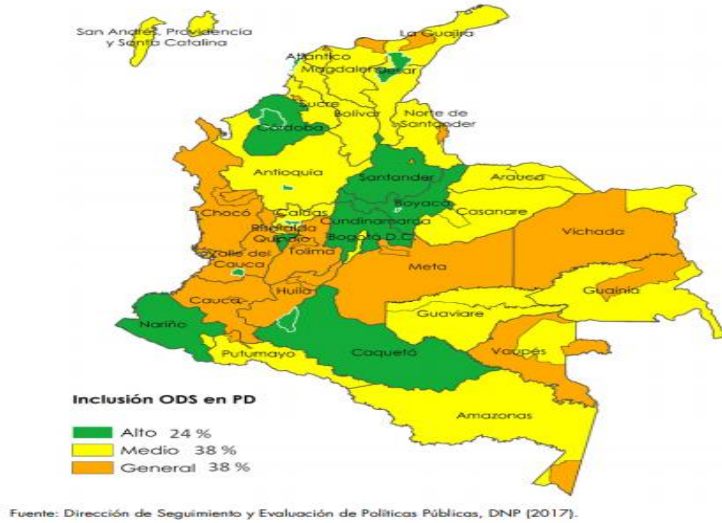


Figure 6. Incorporation of ODS in the PDTs, 2016-2019

Source CONPES strategy for the implementation of the objectives of sustainable development (ODS) in Colombia. 2017

2.6 Third specific objective: To identify public policies in relation to ODS, included in the national development plan of the last national and municipal governments.

First the national development plan is analyzed, according to the report of the director of decentralization and regional development and the DNP the strategy that the country has since 2018 is more centralized in peace, education and health, while the ODS that are investigated in this work are a lower order of priority, Despite their importance for the economic development of the country, they have a low level of priority, with respect to objective 17, which corresponds to partnerships, is not even found within the strategies, which is a very worrying point since it is known that in order to meet any objective it is important to have partnerships that help to strengthen all the development plans of the countries.

In the PND, the government sets goals such as: investment in science and technology which is also one of the strong pillars in this ODS, the government set itself to double both public and private investment in this field seeking a percentage of 1.5% of GDP by 2022, in terms of productivity factories is expected by 2022 to support about 4,000 companies that

have productivity factories, compared with 200 that are currently owned, seeking to generate a more inclusive, dynamic and sustainable economy in the special for SMEs.

The Ministry of Environment for the goals that have as ODS number 9 related as the percentage of investment in research and development to GDP, recorded a growth but is still not far from reaching the projected for 2030 0.8%, by 2015 there was 0.29%, and by 2018 there was already 0.4% with a growth of 0.1.1% in these 3 years, although it is a constant advance must be invested more in research and development to achieve the goal to 2030, SMEs must work together to increase this percentage and improve investments in the country. (CONPES, 2017).

It is important to point out that Colombia is one of the countries with the highest corruption index, being this one of the main impediments for the development of the country and the execution of policies, failing to comply with the principles of the ODS that seek justice and the sustainable and equitable development of the country and its inhabitants in general.

Finally, the municipal plan of Medellín is analyzed, where the ODS are grouped into 5Ps for sustainable development, such as: people, planet, prosperity, peace and alliances, which synthesize the scope of this agenda and group those objectives that support it, this indicates a commitment of the city for the implementation of the ODS and the improvement of the quality of life of its inhabitants. ODS 9 is reflected in the axis of prosperity, which seeks to ensure economic, social and technological progress in harmony, which includes issues such as sustainable energy, equitable distribution, and quality employment to meet the needs of citizens, and industrial development focused on innovation and overcoming inequity, increase the level of education and improve public spaces for all citizens. And ODS 17 focuses on the most vulnerable needs of the city. It is proposed that all actors from the private and public sectors, the media, academia and the general public be involved in order to establish better alliances and take advantage of all intersectoral work in the city aimed at achieving these objectives. (Municipal Planning Medellín, 2018)

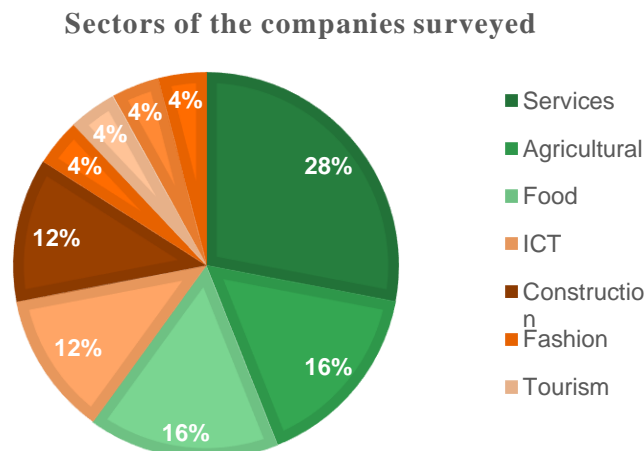
2.7 Fourth specific objective: To identify the degree of inclusion of ODS 9 and 17 in some SMEs in the city of Medellín.

In order to identify the degree of knowledge and inclusion of ODS 9 and 17, a random survey was conducted among small entrepreneurs in the city of Medellín, distributed through entrepreneurship programs, groups of entrepreneurs, social networks and close contacts, during October 5-10, 2019. Total number of entrepreneurs surveyed: 25

This survey investigates the knowledge, importance and inclusion of ODS in their companies, with respect to ODS 9 and 17 it was investigated for the inclusion of new technologies, perception as opposed to facilities for exporting and knowledge of international treaties. The results obtained are presented below.

2.8 Overall results

With respect to the sector of the companies surveyed, the most representative was: Services with 7 companies, followed respectively by the agricultural and food sectors with 4 companies in each category.



Sectors in which the activity of businessmen is developed.

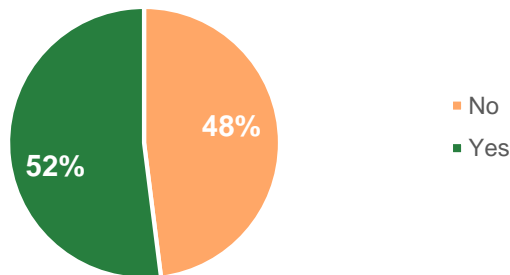
Source Own elaboration (October 2019)

2.9 Knowledge and application of ODS

In order to know the level of knowledge and appropriation of the ODS in the SMEs surveyed, questions were asked about their appropriation and destination, and the results are presented below:

Regarding the knowledge that entrepreneurs have about the ODS, very similar results were found regarding the Yes and No, where a little more than half of those surveyed said that if they know it, it is important to point out that those who do not know the ODS are located in the following sectors: Agriculture, Food, Construction and Fashion and Tourism, and when they investigate the application of the principles of sustainability, they state that, if they do so, what can be evidenced is that there is no clarity or they contemplate sustainability as solely environmental processes. While the companies in the Services and ICT sector are the most familiar with the ODS and apply in different ways not only environmental aspects.

Do you know the ODS (Sustainable Development Goals)?



Graph 1. Entrepreneurs' knowledge of ODS. October 2019

Source Own elaboration (October 2019)

For the companies surveyed, the importance of ODS lies to a large extent in altruistic purposes that benefit the environment, thus entrepreneurs used answers such as "benefit the planet", "reduce poverty", "reduce hunger". It should be noted that for other entrepreneurs the principles of sustainability are more strategic and aligned with the mega, business purposes and efficient management of resources.

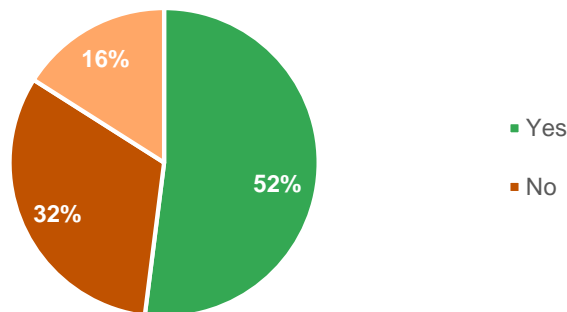


Figure 2. Importance of ODS for entrepreneurs

Source Own elaboration (October 2019)

With respect to the application of sustainability principles in the value chain of companies, 52% of the companies reported that, if they applied it, and they did so through improvements in their production processes and employee management, in addition to more sustainable software, machinery and materials. While those businessmen who stated that "they did not apply sustainability principles" mentioned that they consider the digitization of processes and the lower consumption of paper to be an element of innovation and application of ODS.

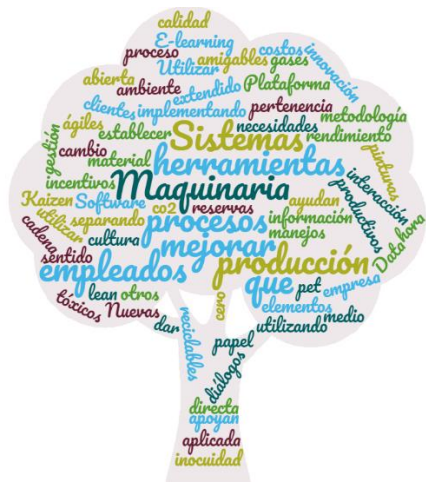
Application of the principles of sustainability in the value chain



Graph 3. Application of ODS principles in SMEs

Source Own elaboration (October 2019)

Entrepreneurs consider as elements of innovation those mainly related to machinery and technology, few consider waste and resource management.

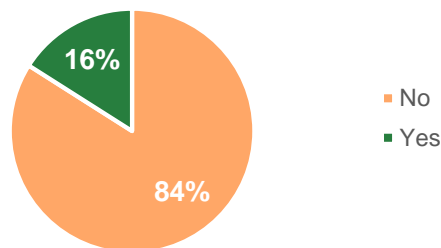


Application of innovation processes - ODS 9

Source Own elaboration (October 2019)

When the businessmen were asked about their participation in business accompaniment programming promoted by the ODS for the improvement of these, it was found that 84% have not participated in these and do not know.

Have you participated in a business accompaniment program that promotes ODS?



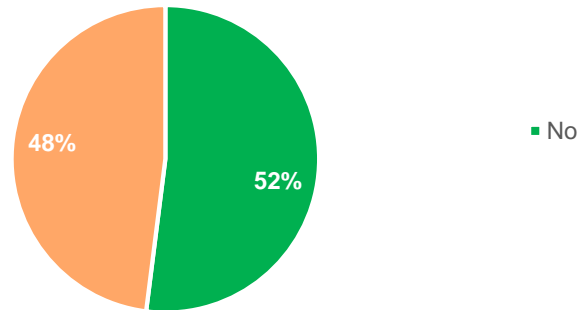
Graph 4. Participation in business accompaniment programs that promote ODS. October 2019

Source Own elaboration (October 2019)

Inquiring about the knowledge of institutions that worked to improve innovation in the sector in which it carries out its economic activity, it was found that 48% knew of programs that worked

towards this objective, among them the IDB, the Chambers of Commerce, Fenalco, Universities, Parque E, Ruta N, among others, as can be seen in graph 8.

Belongs to or knows institutions working for innovation and growth sector



Graph 5. Knowledge of institutions that work for innovation and growth of their sector.

Source Own elaboration (October 2019)



Graph 6. Programs that promote ODS in Medellín

Source Own elaboration (October 2019)

Finally, questions were asked related to objective 17, where they were asked about the treaties and the ease of carrying out export processes.

Faced with this, 44% of businessmen state that in recent years there is greater ease in carrying out export processes and 40% say that perhaps what could indicate a lack of knowledge about export processes and the requirements that must be met for this.

Ease of use in export processes

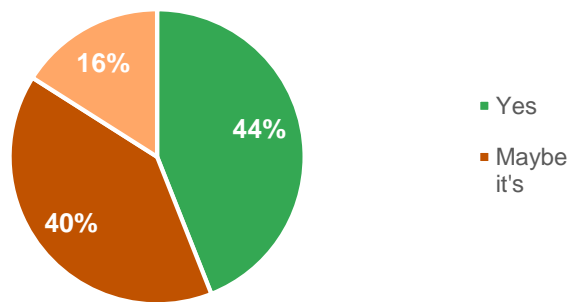


Figure 7. Perception of ease of export processes ODS 9 and 17

Source Own elaboration (October 2019)

Now, regarding the knowledge of the treaties that can help the growth of their company, 88% said that they do not know them, and those who responded that "Yes" said that treaties such as Pacific Alliance and PCT. This demonstrates a strong work required to publicize the opportunities that exist for small entrepreneurs and the conditions they must meet to be beneficiaries.

Do you know the treaties or alliances that currently exist in the country that can help your company grow?

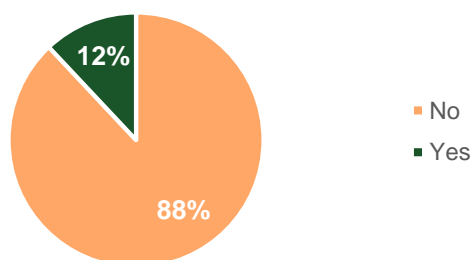


Figure 8. Knowledge regarding treaties or alliances that benefit entrepreneurs

Source Own elaboration (October 2019)

3 Conclusions and Recommendations

3.4 Conclusions

- Both at the national and regional levels, there is a lack of knowledge and application of the ODS in companies, although the importance of these in the environmental sustainability of the planet is not perceived as an essential element to improve the productivity of companies, data that could be identified in the surveys and the review of appropriation of the ODS.
- If we take into account that ODS 9 and 17 seek the generation of treaties and alliances that encourage economic development, increased exports and appropriation of new technologies, there is a lack of knowledge on the part of companies about treaties or alliances that could benefit them to have a better performance in the market and its productive chain.
- With regard to the appropriation of ODS 9, which encourages innovation in SMEs, this is at a very low level despite national and international efforts. Greater inclusion of new technologies is still required to improve the country's productivity.
- Although the main objective that receives the greatest foreign investment is ODS 9, it requires disclosure and knowledge of the goals that this objective has, as well as how to apply and appropriate it in companies.
- Although they design national and local programs aligned with the ODS, the citizens have a low knowledge of these programs since they do not promote them directly, they only report before international entities how their plans are aligned with the 2030 agenda.

- The research identified that the main business support programs in the city of Medellin such as Fondo emprendedor, Universidades, Parque E, among others at the national level benefit from the resources allocated for compliance with ODS 9 and 17, but do not provide support to SMEs promoting the inclusion of sustainability principles in order to improve their processes, as well as knowledge of ODS. It is essential that these programmes include the definition and validation of innovative business models that combine benefit and impact on development in general.
- In order to promote development in the city and to respond to Agenda 2030, it is key to improve levels of innovation, promote global and departmental alliances articulating the education sector, business, and the general public.

3.5 Recommendations

- There should be greater promotion and dissemination of ODS in the country, raising awareness of their importance, and the valuable role they play in all companies; articulating academia, business accompaniment programs and entrepreneurs; these in turn should publicize and promote ODS with their employees.
- SMEs must design their competitive strategies focused on increasing levels of innovation and application of new technologies that allow them to reduce the negative impacts generated in the environment and improvements in its value chain.
- Companies can measure their contribution to ODS especially at 9 and 17 through SDG compass which is a tool that allows them to measure and manage their contribution to compliance with ODS.
- Companies should be informed about the national, international and sectorial treaties and alliances that can benefit their project, this through a periodic environment monitoring that allows you to detect opportunities, apply for tax benefits and obtain resources to improve productivity levels in your company.
- Innovation should be promoted in all industries to help create new models of production, improvements in the country's infrastructure to meet the challenges posed in the ODS.
- It is recommended that companies participate in conferences and workshop events where good practices regarding ODS are shared among all sectors, where through investments between countries and other productive sectors the knowledge and focus on sustainability is expanded.

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Survey applied to SMEs and entrepreneurs

Application of ODS in companies

Companies today play an essential role as partners in sustainable development, which is why this survey seeks to learn a little about the participation of companies in Colombia to meet the ODS proposed for 2030 (sustainable development objectives).

1. You are familiar with the ODS (Sustainable Development Goals).

Yes ____ No ____ No

2. What do you think your company/business could benefit from knowing the ODS?

3. Have you participated in a business accompaniment program that promotes ODS?

Yes ____ No ____ No

4. Do you think it is easier to carry out export/import processes today?

Yes ____ No ____ No Maybe ____

5. Integrates sustainability principles and processes into your company/business value chain

Yes ____ No ____ No Maybe ____

6. What innovative elements or new technologies have you incorporated in your company to improve your productivity in the last 3 years?

7. Do you belong to or do you know of associations that are working to improve performance and innovation in your sector?

8. If you know one, you can mention it.

9. Do you know the treaties or alliances that currently exist in the country that can help your company grow?

Yes ____ No ____ Maybe ____

10. What treaties do you know and what benefits could your company perceive? (Answer this question if your previous answer was Yes)

11. Finally, you could tell us briefly what does your company or enterprise do?
