

Sectors Bringing  
**Future** Prospect to  
the State of

# ESPÍRITO SANTO 2035

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**Future** Prospect to  
the State of

**ESPÍRITO**

**SANTO**

2035



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# Foreword

The state of Espírito Santo has gained notoriety as a latecomer to industrialization when compared with other regions in the country. However, from the 1960s, through the rise of new actors, such as the Federation of Industry of the State of Espírito Santo (Findes), and its interaction with other political forces (government and agriculture sector), there has emerged a search for greater insertion of the state into the process of national industrial development. In the first years of the Federation, that has been achieved by means of technical studies that bolster the strategic planning of the government, or why not say, of the state.

The following decades, from 1970 to 1990, saw the strengthening of the Espírito Santo economy, boosted by industrial activity. From the mid-1990s to the early 2000s, Espírito Santo experienced a serious moral, ethical and fiscal crisis, to the point of being nationally known as a “lawless state”.

In 2006, after having recovered from the crisis and reestablished fiscal and financial balance, the state government turned to the elaboration of a strategic plan, the Espírito Santo Development Plan 2025 (ES 2025), supported by four pillars: eradication of poverty and the reduction of inequality toward social inclusion; state human capital development according to international standards of excellence; economic diversification, value addition to production and consolidation of the supply chain; and the development of social capital and absolute devotion to republican ethics by public institutions.

In 2013, the state elaborated a new Development Plan, the ES 2030. This was an update to the ES 2025, carried out by means of a partnership between the government (the

Secretariat of Economic Planning and the Jones dos Santos Neves Institute), the Forum of Entities and Federations (FEF), Espírito Santo em Ação and Petrobras. The ES 2030 was a collective work of assessing the present and laying out a new vision for the future of the state, aimed at building a fairer, more modern, developed, harmonious society and also capable of offering to its citizens, in all regions, safer opportunities of professional, personal and social growth. The vision for the future defined for the state up until 2030 was “An innovative, dynamic and sustainable state”.

We can assert, with this brief account, that the state has learned to plan for and devise the desired future. It is against this backdrop that the Federation of Industry of the State of Espírito Santo has taken the lead in planning the development of the Espírito Santo economy. This is the private sector performing its role to transform Espírito Santo into an innovative, dynamic and sustainable state. In that aim, the roadmap of the 2017-2020





Findes administration depicts the prospect of the Educational and Industrial Development Institute of Espírito Santo (Instituto de Desenvolvimento Educacional e Industrial do Espírito Santo - Ideies), in concert with the Social Service of Industry (Serviço Social da Indústria - Sesi) and the National Service for Industrial Apprenticeship (Serviço Nacional de Aprendizagem Industrial - Senai), entities associated with Findes, to conduct the project of Industrial Development of Espírito Santo, named **Industry 2035**.

Within this context, where information commands, increasingly, more importance in decision-making and in which Industry 4.0 is already a reality among us, the project **Industry 2035** holds more relevance as it considers those new directions in a process of digital transformation, flexibility and customization in the new industrial manufacturing paradigms.

The following pages will bring the first phase of **Industry 2035**, which consists in identifying

the Sectors Bringing Future Prospect to the State of Espírito Santo. For the elaboration of this document, nearly 180 specialists were consulted from several segments of the economy and society. It is a collective intelligence construction aimed at conducting Espírito Santo into a new development cycle. The subsequent phase will be the Strategic Routes contemplating the Sectors Bringing Future Prospect to the State of Espírito Santo.

Therefore, by 2035, in the celebration of the 500th anniversary of the colonization of Espírito Santo's soil, we hope to have paved a new socioeconomic development cycle for the state. This is our aim. Enjoy your reading.

**Léo de Castro**

*President of the Espírito Santo State Federation  
System of Industry — Findes System*

# Sectors Bringing Future Prospect to the State of Espírito Santo 2035

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# Introduction

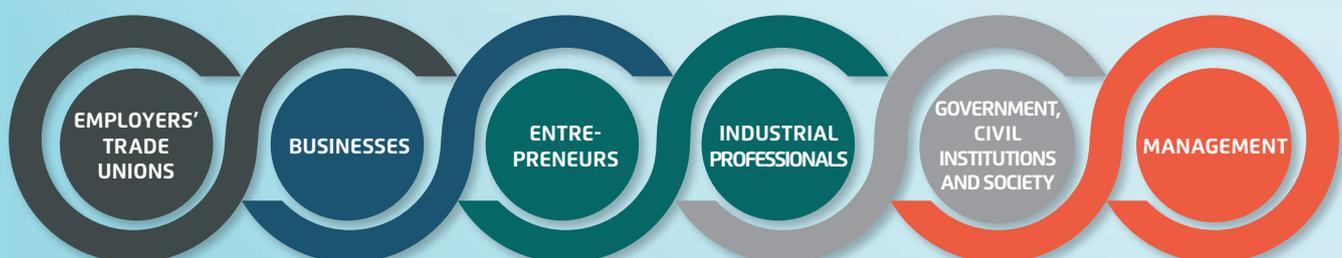
The strategic planning of the 2017-2020 administration of the Espírito Santo State Federation System of Industry (Findes) was elaborated, in 2017, with the intention of promoting subsidies for the development and competitiveness of the state of Espírito Santo. That program has been established on the following mission:

**Strengthen the Espírito Santo industry through the integration between industrial and social interests, promoting its competitiveness in a sustainable environment**

This is an initiative that aims to perform activities that allow for the synergy between social and industrial interests in a sustainable environment, providing for industrial growth and placing it in a prominent position within the national and international economy. With the purpose of assisting the elaboration of the program and projects for the industrial development of the state, the following **vision** has been instituted:

**Play a leading role in the transformation of the Espírito Santo industry, contributing to place it among the three most productive in Brazil by 2030**

The initiative has been structured in a **Roadmap** with 6 axes considered as the foundation for the projects' development, which are:





Based on the 2017-2020 Roadmap, **Industry 2035**<sup>1</sup> arises as an important project for promoting competitiveness in the state of Espírito Santo, placing it in a prominent position in the national and international setting. **Industry 2035** contemplates two extensive objectives:

- 💡 Promote a strategic agenda of sustainable development for the Espírito Santo industry, taking 2035 as a time horizon, in the light of its potentials, aiming at its prosperity, development, and greater presence in the national and global supply chains.
- 💡 Structure and automate information on Espírito Santo's industrial sector, in an integrated and easily manipulated environment, to guide the decision-making process of entrepreneurs and several other actors in society.

From this, the Findes System started a partnership with the Paraná State Federation System of Industry (Fiep), by means of the Fiep System Observatory<sup>2</sup>, given its notoriety in developing future studies since 2004. The partnership has been established for the elaboration of two strategic prospective projects, known as:

📍 **Sectors Bringing Future Prospect to the State of Espírito Santo 2035:** identification of the most promising sectors, segments and industrial areas for the Espírito Santo industry in the 2035 horizon.

🏗️ **Strategic Routes for the Future of Industry in Espírito Santo 2035:** elaboration of visions for the future, identification of barriers and critical factors, and advancing a converging agenda of actions for the Sectors Bringing Future Prospect to the State of Espírito Santo.

In order to explore the opportunities identified in the future studies and support the attainment of Industry 2035, the **Espírito Santo Industry Observatory** will focus on the coordination of the **Sectors Bringing Future Prospect to the State of Espírito Santo 2035** and the governance of the **Strategic Routes for the Future of Industry in Espírito Santo 2035**, by means of an analytical intelligence system with strategic information.

<sup>1</sup>The project is part of the "Development Plan of the Espírito Santo Industry" stage, which is contained in the program for "Strategic Development of Industry", of the "Businesses" axis in the Roadmap. More information is available at <https://sistemafindes.org.br/gestao-estrategica-e-de-projetos/>.

<sup>2</sup>The Fiep System Observatory is a plan of action within the National Service of Industrial Apprenticeship of Paraná (Senai/PR) that provides Prospective Services, Planning, Research and Coordination seeking to improve the development of industry and the society. The Fiep System Observatory has 14 years of experience carrying out projects with businesses, governmental institutions and social, educational and technological entities in Paraná and Latin America. For more information, visit: <http://www.fiepr.org.br/observatorios/>.

Project aimed at the collective construction of **guiding paths for the desired future**, out of visions, the identification of barriers and critical factors, and the elaboration of a converging agenda of actions for the most promising sectors, segments, and areas in the horizon of 2035.

Resulting from a process of collective intelligence, the project is responsible for the identification of the most promising **sectors, segments, and areas** for the Espírito Santo industry in the 2035 horizon.

The diagram consists of two white circular nodes with blue borders. The top node is labeled 'Strategic Routes' and the bottom node is labeled 'Sectors Bringing Future Prospect'. A blue arrow points from the bottom node to the top node, and another blue arrow points from the top node to the right, suggesting a flow or relationship between these concepts.

**Strategic Routes**

**Sectors Bringing Future Prospect**



## Industry Observatory

Responsible for the governance of the **Strategic Routes for the Future of Industry in Espírito Santo 2035**, through an analytical intelligence system with strategic information.

# INDUSTRY 2035

DEVELOPMENT  
PLAN OF THE

## ESPÍRITO SANTO

INDUSTRY

Project covered on the 2017-2020 Findes System Roadmap, **Industry 2035** arises as an important project for promoting competitiveness in the state of Espírito Santo, placing it in a prominent position in the national and international setting.

# The Project

## Sectors Bringing Future Prospect to the State of Espírito Santo 2035

The project Sectors Bringing Future Prospect to the State of Espírito Santo 2035 is the first initiative towards the attainment of **Industry 2035**. Developed in 2018 from a collective construction of long-term thinking, the project has as an **overall objective**:

**Identify sectors, segments, and areas bringing future prospect to the Espírito Santo industry that could place the state in a competitive position on the national and international level within a 17-year time horizon.**

In order to achieve the overall objective, the project was segmented into five **specific objectives**, which consist in:

- 1** Outlining the socioeconomic outlook through indexes for the Espírito Santo industry, economy and society.
- 2** Gathering social, technological and business trends that are likely to characterize the state's industrial development in the coming years.
- 3** Mobilizing entrepreneurs, decision-makers and opinion formers in a process of reflection on guidelines for sustainable industrial development.
- 4** Identifying sectors, segments and areas that drive development according to regional specificities.
- 5** Identifying sectors, segments and areas bringing future prospect to the state in a transversal perspective for the entire state.

The prospective reflection from the Sectors Bringing Future Prospect to the State of Espírito Santo is a contribution of the Findes System to the strengthening of the culture of anticipation and construction of desired futures for the public and private sphere in the state. It encompasses a guiding document for the pursuit of interests, investment attraction, public policies and training supply aimed at inspiring new cycles of development for the industry and the state of Espírito Santo.

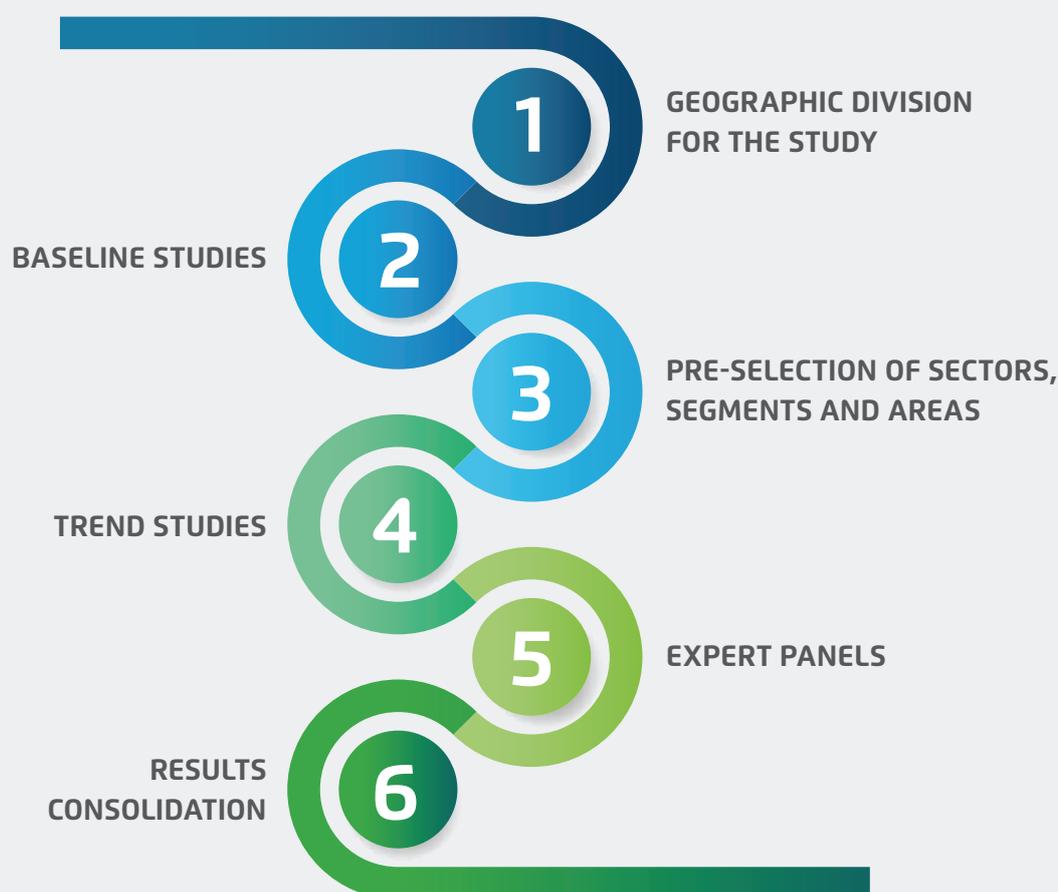
# Process Management

## Methodological Aspects

**S**trategic Prospective<sup>3</sup> – the methodological approach developed within the French prospective school of thought – considers the present as the protagonist of changes, under the need to adopt a proactive attitude toward building the future and, in this sense, there emerges the opportunity of working in strategic, long-term planning.

In this perspective, and comprehending that social and technological transformation happen exponentially, it becomes important to consciously construct this process by means of a detailed analysis of the past, a consistent study of the present situation, and the mapping of social, scientific, technological and business dynamics that are to change the way of living and producing in our society.

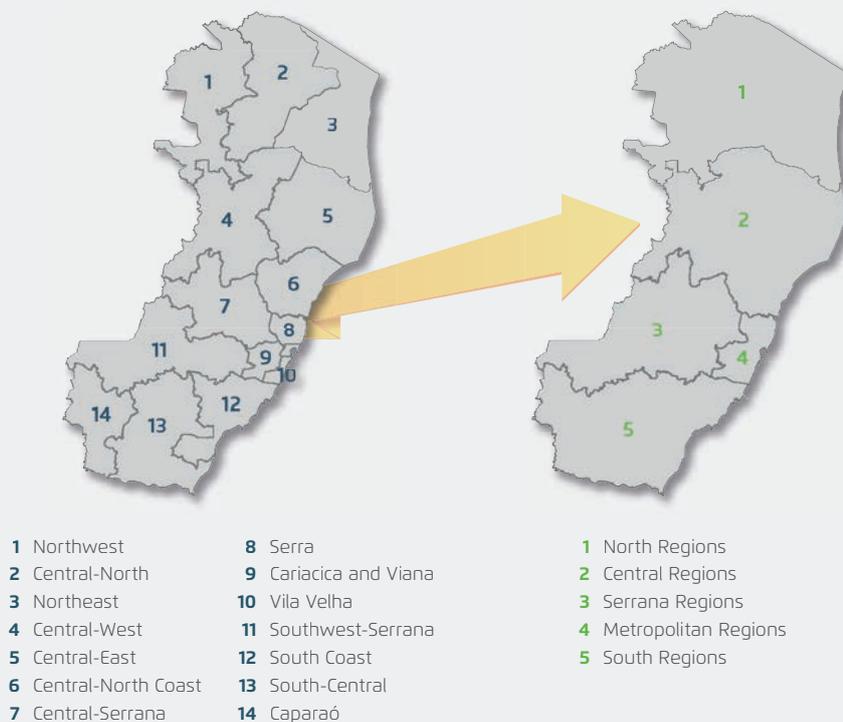
Based on the methodological premise of strategic prospective, one of building the desired future, the project Sectors Bringing Future Prospect to the State of Espírito Santo 2035 has been executed in six steps, which are detailed below:



<sup>3</sup> Michel Godet, Philippe Durance, Strategic Foresight for Corporate and Regional Development (Paris, 2011).

## 1 GEOGRAPHIC DIVISION FOR THE STUDY

The process of identifying the Sectors Bringing Future Prospect to the State of Espírito Santo was carried out by using the geographic division of the regional grouping employed by the Findes System, as shown in the following map.



## 2 BASELINE STUDIES

In the hope of obtaining subsidies for the following project stages, this step comprised the industrial outlook – containing socioeconomic analysis, gathering RDI, and a mapping of intentions of investment for the state of Espírito Santo and its regions

## 3 PRE-SELECTION OF SECTORS, SEGMENTS AND AREAS

The pre-selection of the sectors bringing future prospect was carried out from a set of indicators which originated in the baseline studies and the respective regions. During this phase, several groups of sectors, segments, and areas were listed which, once submitted to different analytical strategies, allowed for a customized reflection in the Experts Panels.

From these analyses, there emerged 25 sectors, segments or areas

**Agri-food** – involves food production, including agriculture, focusing on vegetable crops and animal husbandry; the food industry, responsible for transforming inputs into processed products; the production of alcoholic and non-alcoholic beverages; the wholesaling of beverages; the fishing and aquaculture activities in saltwater and freshwater; the manufacture and preservation of fish products.

**Automotive and Auto parts** – involves the industrial activities related to the manufacture of motor vehicles, cabins, bodywork and trailers, as well as parts and accessories, electrical and electronic material, seats and upholstery for motor vehicles and the trade that serves the segment.

**Biotechnology** – field of activity that employs living organisms or their parts in research and development, processes or specialized services. As an economic activity, it distinguishes itself from the classical industry, featuring transversality over various sectors and bearing application in multiple domains, such as agriculture, food and beverages, human health, animal health, environment, energy and computing, among others.

**Capital Goods** – covers industrial activities concerned with the production of other goods or services, including machinery, tools, equipment and various constructions used for manufacturing other consumer products.

**Chemical Products** – covers the transformation and supply of raw material for the most diverse industrial segments, consisting mainly in the production of basic and intermediary petrochemical products, industrial gases, fertilizers, resins and fibers, pesticides, disinfectants, cleaning supplies, paint and explosives, among others.

**Clothing, Textiles and Footwear** – comprehends the manufacturing of textile products and clothing accessories, including spinning, weaving, finishing and apparel, embracing the entire leather and footwear chains, encompassing activities such as tanning, leather and fur preparations, the manufacture of leather goods, leather substitutes, handbags and travel goods of any material, as well as the manufacture of footwear and their parts from any material.

**Coffee Industry** – involves the cultivation, roasting, and grinding of coffee, the manufacturing of coffee-based products and the wholesaling of coffee beans.

**Construction** – covers all activities involved in construction, including planning, design, surveying, execution, maintenance and restoration work in different segments.

**Creative Economy** – refers to the group of economic activities that involve the creation, production and distribution of products and services, using knowledge, creativity and intellectual capital as the main resources.

**Digital Economy** – comprehends the manufacturing and services related to technologies that interfere with and mediate the informational and communicative processes of society.

**Electro-electronics** – comprehends a group of industrial activities that involve the electric and electronic areas.

**Energy** – covers the production, transformation, storage, transportation, distribution, and commerce of energy, as well as prospecting and management of energy sources in their most varied forms.

**Environment** – consists of practices related to the conscious use of natural resources and conservation, environmental impact mitigation and treatment during the performing of economic activities, with the goal of reaching sustainable levels in production processes and in its relation with society.

**Health and Beauty Industry** – embraces industrial segments focused on the production of health and beauty solutions.

**Infrastructure and Logistics** – encompasses an array of structures and economic activities that are fundamental in matters such as transport, storage and distribution of raw materials and products, as well as people's mobility.

**Metal-mechanics** – covers all segments responsible for the manufacturing and transformation of metal into desired products, from goods production to intermediary services.

**Mining** – ranges the extraction of mineral coal, iron ore, non-ferrous metal minerals, supporting activities for the mineral extraction, except oil and gas.

**Nanotechnology** – field of activity that encompasses the activities that make use of manipulating matter on the atomic or molecular scale aiming to create innovative materials, products and processes. Working of the frontier of knowledge, it operates in convergence with other scientific fields, revolutionizing industry, its processes and products as it provides a high degree of innovation and value addition.

**Non-metallic Minerals** – encompasses the exploitation, extraction and transformation of minerals with no metals in its composition, including glass products, cement, plaster, among others.

**Oil and Gas** – comprehends the activities related to the exploitation, development and production of oil and gas to the transportation network of these hydrocarbons, the refining of crude oil, the distribution and commercialization of products derived from petroleum.

**Ornamental Rocks** – encompasses the extraction practices of stone, sand, and clay, as well as decorating stones and the wholesale trade involved.

**Pulp and Paper** – encompasses the agroforestry and industrial segments, including planting, wood production, pulp production, manufacturing paper, and derived products, trade and distribution.

**Rubber and Plastic** – comprehends the activities of manufacturing rubber artifacts and of manufacturing plastic material.

**Tourism and Leisure Economy** – embraces different economic segments focused on manufacturing products and supplying services for tourism and leisure.

**Wood and Furniture** – ranges from lumber production and solid wood products to the final manufacturing of furniture of any material.

## 4

### TREND STUDIES

Aiming to support the participants in the Expert Panels in their decision making, macro trends, trends and key technologies were researched, systematized and presented for each of the pre-selected 25 sectors, segments and areas. The concept developed and adopted by the Fiep System Observatory considers that these trends are “social or technological phenomena of the high power of impact, whose development, often already ongoing, indicates persistence in future time horizons<sup>4</sup>.”

## 5

### EXPERT PANELS

From the careful selection of experts, panel dynamics were applied in order to promote an activity of reflection and assessment of the most promising sectors, segments, and industrial areas in Espírito Santo within the coming 17 years.

In this occasion, industry businessmen, academics, and representatives of the third sector and government were selected who possess systemic vision, technical and scientific knowledge, decision-making, opinion formation, leadership, and capacity to reflect on the future. The panels were held in August 2018 and brought together 179 participants from different sectors, segments, and areas.

The dynamics were performed in the five regions of the state. Firstly, the experts were encouraged to reflect on the current state situation and the respective regional situation – through the baseline studies – and to envisage the future based macro trends, trends, and key technologies. The combination of the panelists’ expertise and the baseline studies provided a prioritization exercise.

In order to identify the sectors bringing future prospect, a multiplatform computerized system (smartphone, tablet, PC, etc.) developed by the Fiep System Observatory was employed. Each participant made use of a tablet specially configured for the prioritization exercise.

At the end of the Panel, the preliminary results were presented in real time and there was a moment dedicated to the consensus on the set of sectors, segments, and industrial areas selected in each of the regions.

## 6

### RESULTS CONSOLIDATION

The results produced in the five regions of Espírito Santo were compiled, originating a combined vision of the Sectors Bringing Future Prospect to the State of Espírito Santo 2035. The sectors, segments, and areas were assigned to three large axes: Structural, Emerging, and Transversal. In addition, the Regional Specificities were preserved.

<sup>4</sup> Fiep System Observatory. Theoretical model of trends basis from Fiep System Observatory (Curitiba, 2014).



# Espírito Santo Outlook

**T**he Espírito Santo is a Brazilian state located in the southeastern region. It is the fourth smallest state in the country, its land area covers forty-six square kilometers, representing 0.54% of the country's land area. The territory of Espírito Santo is divided into 78 municipalities and its capital is the city of Vitória. The state population estimate for 2018 is 3.97 million, the 15th most populous state among the 27 units of the Federation. Around 43.5% of the inhabitants live in the fourth largest municipalities located in the state's metropolitan area: Serra, Vila Velha, Cariacica and Vitória. Together, these municipalities are home to 1.73 million inhabitants.

The most populous city in the state is Serra, with 508 thousand inhabitants. The least populous municipality is Divino São Lourenço, in the south of the state, with just over 4 thousand people. Vitória is the second least populous capital in Brazil, with 358 thousand inhabitants.

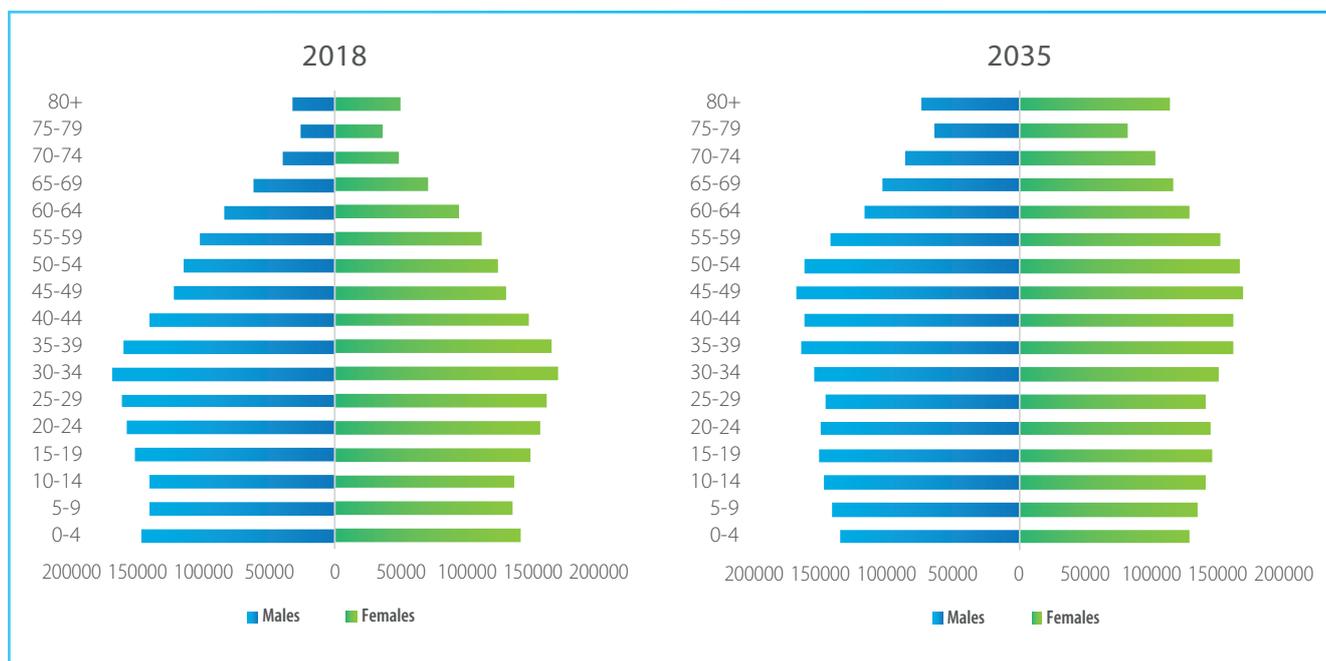
The population structure of a place is linked with its development. In Espírito Santo there is an ongoing demographic transition, coexisting with

social and economic progress. Considering the estimate and the projection of the age pyramid of Espírito Santo in 2018 and 2035, respectively, the ageing of the population is observed, with the elderly population outnumbering that of children and young individuals.

The elderly population is expected to increase from 542 thousand in 2018 to more than 986 thousand in 2035 – that is, the population at 60 years or older will overtake that of children and young individuals in the coming years. Currently, this group (0 to 14 years old) represents 21.1% of the population, or 839 thousand, and is expected to decrease to 18% (829 thousand).

The change in the age pyramid structure is a countrywide trend. Brazil, according to projections of the Brazilian Institute of Geography and Statistics (IBGE), will have 40.8 million children (17.8% of the population) and 47.9 million elderly adults (20.9%) in 2035. In 2018, the population aged 14 years old or younger is estimated at 44.5 million (21.3%) and that of adults aged 60 or older at 28 million (13.4% of the total population).

**Chart 1 – Espírito Santo Age Pyramid, 2018 and 2035 (in thousands)**



Source: IBGE  
Elaboration: Ideies/Findes System

The increase in the elderly population demands changes in society. Public health policies, social assistance and security must be adjusted. Examples that stand out are the training of human resources for geriatric care professionals, as well as measures related to social security, which will need to be adapted to the new demographic setting. Another fundamental factor is the improvement of medical care networks, adjusting them to the new population format.

This new population configuration affects the dependency ratio, which is represented by the ratio of the population considered economically dependent (people aged under 15, as well as 65 or over, years of age) to the potentially productive age bracket (15 to 64 years of age). This ratio shows the proportion of the population that depends on the social contributions of the economically active population.

From 2015 onwards, Espírito Santo and Brazil have gone through the demographic dividend, when there is a smaller share of dependent (children and elderly) individuals in the economy. Nevertheless, from 2030 on, the dependency ratio is set to increase, spurred by the growth of elderly population. For 2035, it is estimated that for every 100 working-age people, 43.4 will be dependents, of which nearly 20 will be elderly adults.

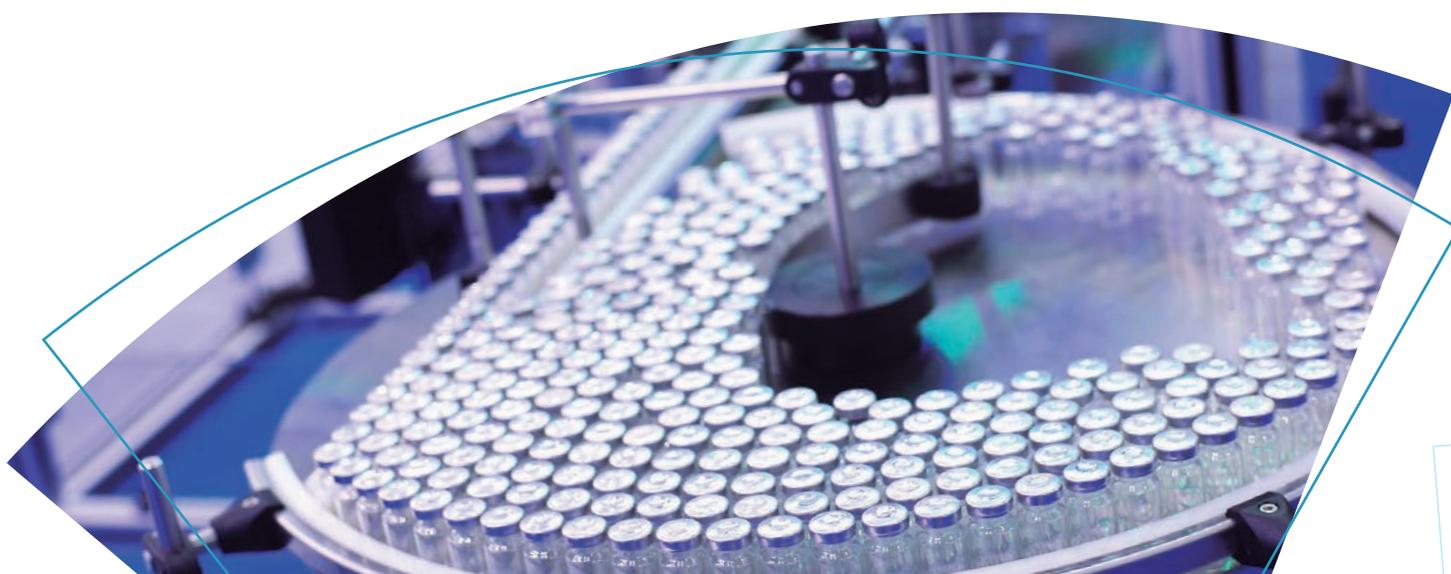
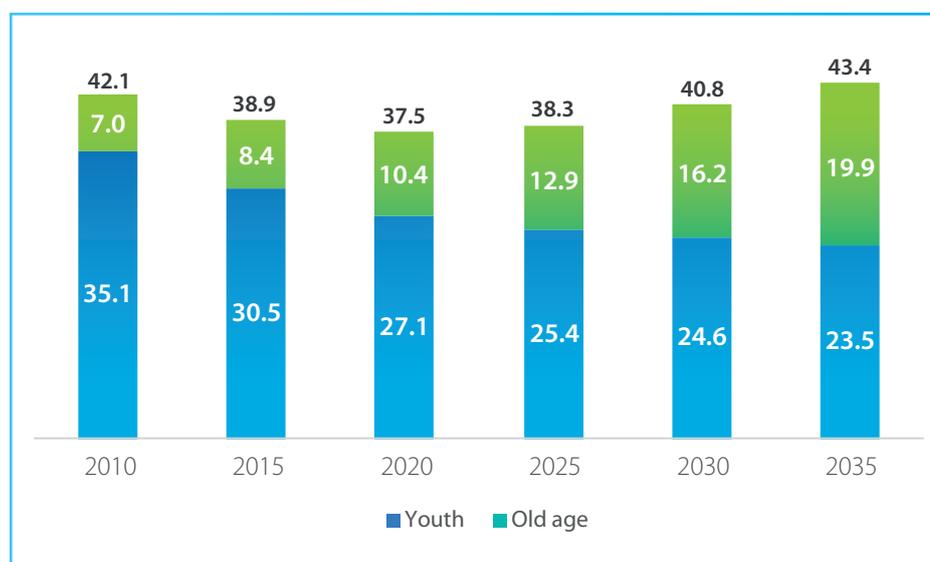


Chart 2 – Dependency Ratio in Espírito Santo



Note: Youth: population ages 0-14/ population ages 15-64; Old age: population ages 65 or over/population ages 15-64;  
 Total: population ages 0-14+ population ages 65 or over/population ages 15-64  
 Source: IBGE  
 Elaboration: Ideies/Findes System

Considering the socioeconomic indicators, Espírito Santo ranks at an intermediate level, compared with other units of the Brazilian federation. It is placed 11th in average household income per capita, at R\$ 1,207 per person. Social inequality, measured by the Gini coefficient, is lower than the Brazilian average, 0.514 compared with 0.549. The state ranks 9th in years of schooling of the population aged 25 or older (9.2) and it holds the 7th highest HDI (0.740) amongst the states.

Table 1 – Socioeconomic indicators, Espírito Santo and Brazil

Indicator	Year	ES	BR	ES rank among the Brazilian states
Average monthly household income per capita <sup>1</sup> (R\$)	2017	1,207.00	1,112.00	11th
Gini coefficient <sup>2</sup>	2017	0.514	0.549	10th
Average years of schooling of the population aged 25 or above	2017	9.2	9.1	9th
HDI	2010	0.740	0.724	7th

<sup>1</sup> Labor income effectively paid in the month of reference is earned only for individuals aged 14 or over.

<sup>2</sup> Measures social inequality. It varies from 0 to 1, where 0 corresponds to absolute income equality and 1 corresponds to absolute income inequality.

Source: IBGE; Pnud

Elaboration: Ideies/Sistema Findes

## Economic outlook of the state

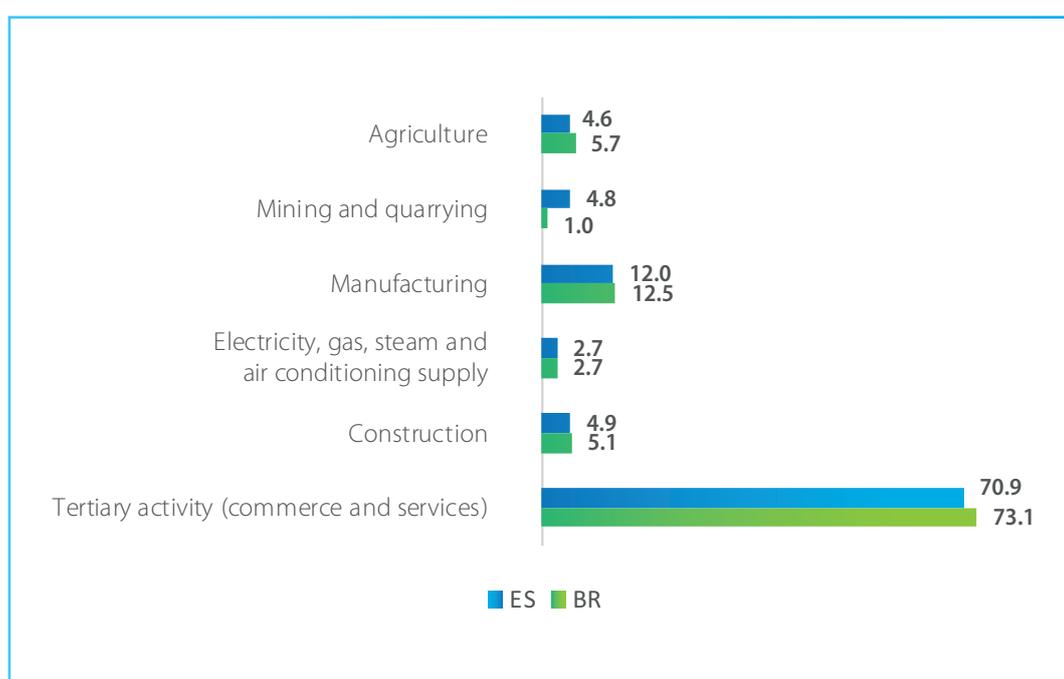
Most of the Espírito Santo economy is concentrated in activities of the service sector, a configuration similar to that of Brazil. Based on the year 2016, the last year in which information about the Gross Domestic Product (GDP) was broken down by economic sector at the state level, 70.9% of the Value Added of the state economy originated in the tertiary sector. For Brazil, this rate was even larger, 73.1%. The GDP of Espírito Santo represents 1.7% of the national GDP.

Espírito Santo's manufacturing sector, including construction and electricity, gas, steam and air conditioning supply, accounts for 24.5% of the value added in the state's economy; and the primary sector, which comprises agriculture, mixed farming and forestry and logging, account for 4.6% of the state's value added. This configuration of the Espírito Santo economy maintains the state as one of the most industrialized in the country. Nevertheless, as it will be seen below, the high participation of manufacturing in the economy results from the mining and quarrying activities.

In per capita terms, the state's GDP is the 9th largest in Brazil, at R\$ 27.4 thousand per person, whereas the Brazilian average stands at R\$ 30.4 thousand.

For 2017, the GDP for Espírito Santo is estimated at R\$ 120.9 billion, a level lower than that of 2014 (R\$ 128.8 billion). This amount follows from a 2.1% decline in GDP in 2015, a -5.3% slump in 2016 and an increase of only 1.8% in 2017.

**Chart 3 – Share of economic activities in Value Added, Espírito Santo and Brazil, 2016, in %**



Source: IBGE; IJSN  
Elaboration: Ideies/Findes System

## Historical context

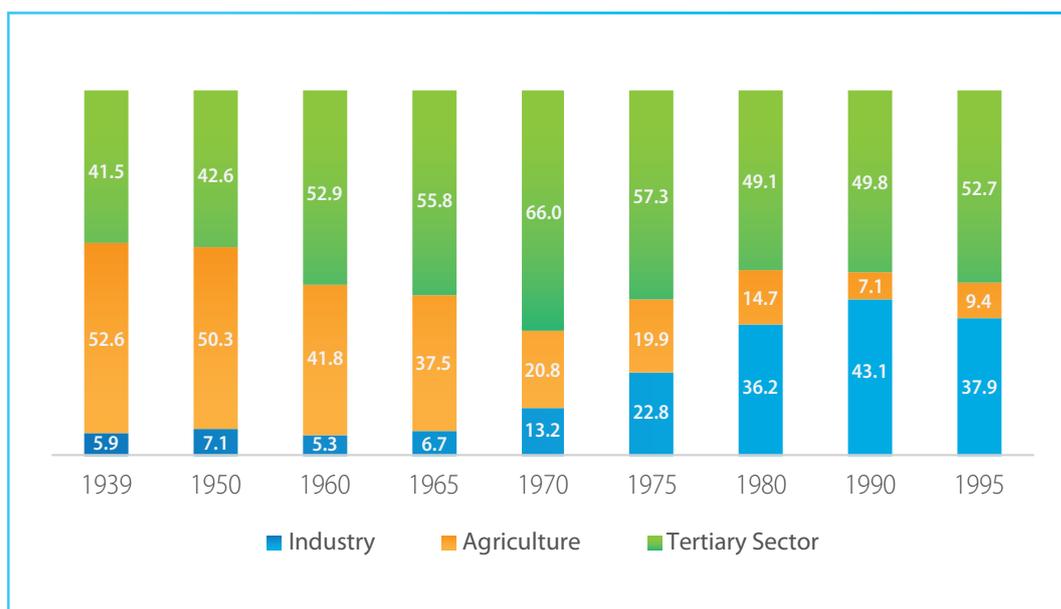
Until the 1960s, the economy of Espírito Santo gravitated around coffee exports. The shift from an agriculture export-led to an industrial economy took place from the second half of the 1970s. In 1960, nearly 42% of the value added in the local economy arose from agriculture, 52.9% from services (including public sector) and only 5.3% from the industry. Fifteen years later, the share of agriculture in the economy decreased to 19.9%, that of industry increased to 22.8% and the tertiary sector reached 57.3%.

This shift in the state's industrial structure is divided into two cycles: 1st) 1960 to 1975 – comprised of the growth and start-up of small and medium enterprises; 2nd) 1975-1990 – resting on the growth and start-up of large commodity producers.

The second cycle is marked by the start of the “Great Industrial Projects”, which include the Companhia Vale do Rio Doce (CVRD) (currently known as Vale), the Companhia Siderúrgica de Tubarão (CST) (currently known as ArcelorMittal Tubarão), Samarco, and Aracruz Celulose (currently known as Fíbria Aracruz). The CVRD was the first among them to be set up – the Ponta de Tubarão seaport was inaugurated in 1966 and five iron ore pelletizing plants were established between 1969 and 1979. Samarco became operational in 1978; Aracruz Celulose in 1979; and CST in 1983.

The establishment of these industrial plants in Espírito Santo resulted from the industrial policy implemented at the federal level with the Target Plan and the second National Development Plan. The implication for the state was the shift in the profile of the economy as well as of the previous industry. Starting in the 1980s, the industrial sector came to account for more than one-third of the value added in the economy and reached 43.1% in 1990.

**Chart 4 -Share of economic activities in Value Added – Espírito Santo, 1939 -1995, in %**



Source: IPEADATA  
Elaboration: Ideies/Findes System

## Recent industrial development

Over the decades from 1980 through 2000, the relevance of the industrial sector to the state heightened, mainly due to the establishment of the Great Industrial Projects, which influenced investments in infrastructure in the state and improve the distribution of production.

However, the productive structure of the state ended up specializing in the production and export of industrial commodities, with large-scale and natural-resource intensive production. This feature is emboldened from 2010 onwards, with the growth in production and extraction of oil and gas.

From 2002 to 2016, the manufacturing sector accumulated growth of 0.9% at an annual rate of 0.1%. In contrast, the mining and quarrying industries registered cumulative growth of 271,5% at

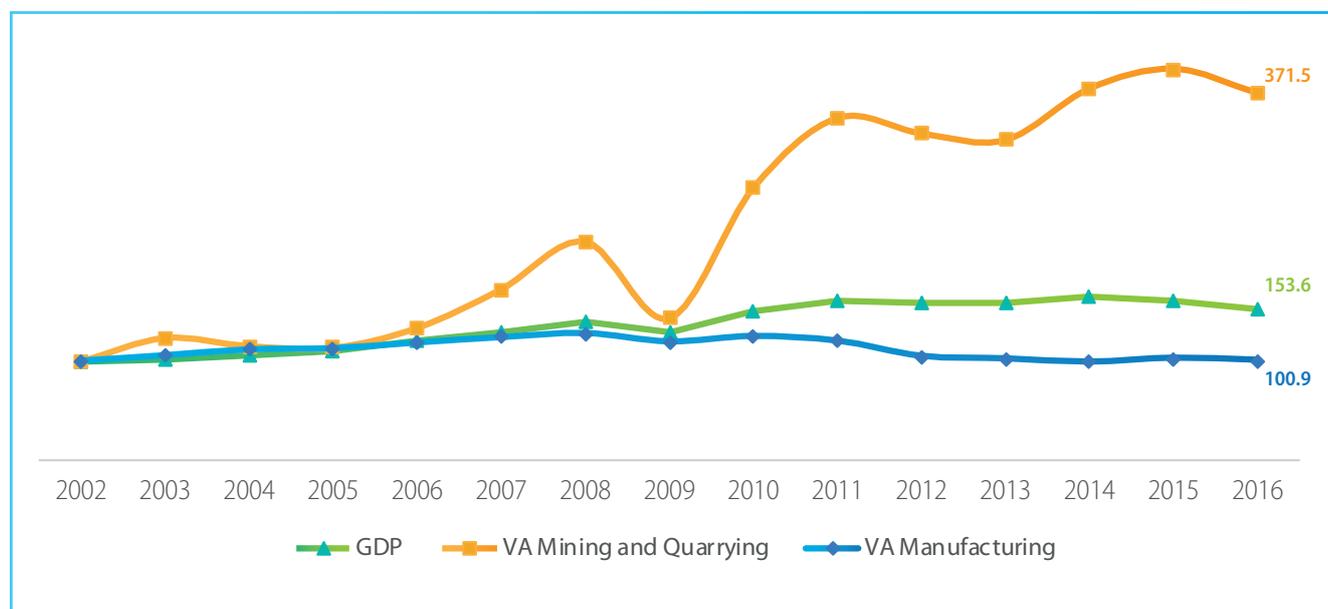
an average rate of 9.8% in the same period. Therefore, whereas the manufacturing sector was virtually stable during that period, the mining and quarrying industries reached high growth rates, surpassing the former in terms of value added.

The explanation for this shift lies, mainly, in the remarkable growth, from 2000 onwards, in the extraction of oil and gas, which peaked in the discovery of pre-salt oil, whose extraction began in Espírito Santo in 2010. From 2000 to 2016, the production of oil and gas, measured in Mtoe<sup>5</sup>, rose by 21.1% per year. The growth in the mining and quarrying industries was also aided when new iron ore pelletization plants became operational, which increased productive capacity in this industry in Espírito Santo.

The rapid growth of the mining and quarrying industries caused its share in value added to increase from 7.1% in 2002 to 23.3 in 2014. A contrary shift was registered in the manufacturing sector, which accounted for 17.8% of value added in 2002 and for only 9.0 in 2014. In 2015, the mining and quarrying industries reduced their output, impacted by the decrease in iron ore prices internationally and by the halt in Samarco's operations. For 2016, the impact was larger, when the mining industry decreased its participation in the GDP to 4.8% the lowest since 2002.

The manufacturing sector has been at a standstill in the state with, basically, the same structure identified in the 2000s, when the manufacture of basic metals, paper and paper products, non-metallic mineral products, food products and fabricated metal products, except machinery and equipment, featured among the most prominent industries.

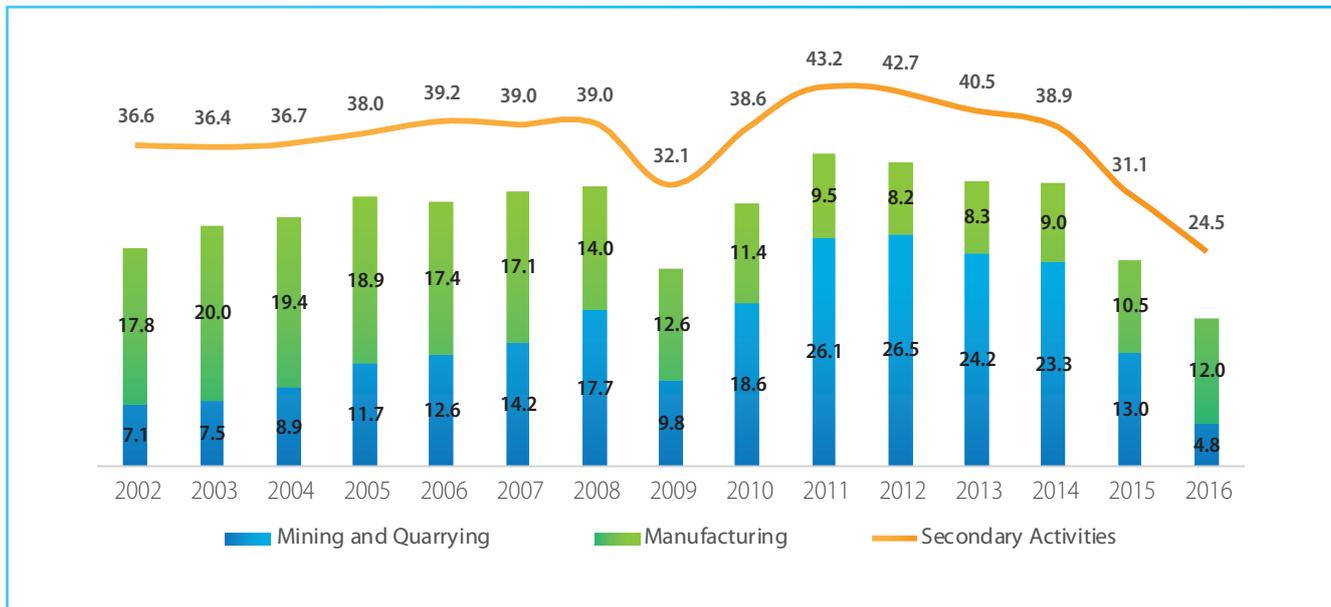
**Chart 5– Share of GDP, Gross Value Added of Mining and Quarrying and Manufacturing Industries, Espírito Santo, 2002 through 2016 (base year: 2002 = 100)**



Source: IBGE – Regional Accounts  
Elaboration: Ideies/Findes System

<sup>5</sup> Millions of tonnes of oil equivalent.

**Chart 6 – Share of secondary-sector economic activities in value added, Espírito Santo, 2002 -2016, in %**



Source: IBGE; IJSN  
Elaboration: Ideies/Findes System

## Agriculture in the state economy

Up until the policy of eradication of coffee plantations in the 1950s and 1960s, the state agriculture had coffee as its main produce, also yielding traditional commodities directed to subsistence, such as common beans, corn and cassava. Diversification in this sector took place only in the 1950s and 1960s, especially in the raising of cattle and the extraction of timber, which occupied the wastelands in the northern region. These activities influenced the creation of an industrial structure for businesses of sawmilling and planing wood, slaughtering cattle and dairy products. After the 1970s, there has been an expansion in silviculture influenced mainly by the production of bleached cellulose.

In spite of the crisis in prices and the policy of eradication of coffee plantations, coffee did not lose its relevance as main agriculture produce in the state. It was in the 1970s that its price recovery took place, spurring the production of Arabian coffee and also the introduction and dissemination of a new variety, the robusta coffee (also known as *canephora*). In 2017, of all

the state agricultural output, coffee accounted for 66.09%, of which 21.75% were represented by Arabian coffee and 44.34% were composed by robusta coffee.

More recently, fruit farming has gained prominence in agricultural production, especially in the growing of banana, followed by that of papaya, pineapple and cocoa. Banana farming accounted for 2.52% of agricultural production in 2010, leaping to 6.45% in 2017. In general, those results reached by fruit farming follow efforts in research and agricultural extension through the implementation of new technologies. It is worthwhile highlighting that fruits, unlike coffee and traditional cultures, are produced in large rural estates.

Another noteworthy produce in Espírito Santo is pepper, whose production rose significantly from 2010 through 2017, leaping from 1.25% to 6.40% of total agricultural output. In addition, its exports soared from US\$ 22.18 million in 2010 to US\$ 109.98 million in 2017, ranking third among the state's largest agricultural exports.

**Table 2 – Share of the main produces in output, Espírito Santo – in %**

	2010	2011	2012	2013	2014	2015	2016	2017
Coffee (grains) Total	58.52	69.51	70.38	65.30	65.08	63.30	62.21	66.09
Banana (bunch)	2.52	3.18	3.27	4.04	5.28	6.37	6.90	6.45
Black Pepper	1.25	1.24	1.48	1.87	2.75	7.46	5.43	6.40
Tomato	3.42	3.52	3.80	5.07	5.20	4.79	5.64	4.37
Papaya	14.93	6.82	7.00	7.16	5.94	5.82	6.95	4.23
Sugarcane	8.06	5.75	4.43	4.29	3.80	2.61	2.41	2.24
Coconut	1.86	1.42	1.86	2.31	2.03	1.60	1.43	1.58
Cassava	1.41	0.97	1.15	1.57	0.74	0.84	0.96	1.30
Pineapple	1.04	1.23	1.08	1.16	1.54	0.98	1.23	1.26
Cocoa (in almonds)	1.10	0.84	0.50	0.55	0.56	0.90	1.00	0.96

Source: IBGE  
Elaboration: Ideies/Sistema Findes

**Table 3 – Exports of main agricultural products, Espírito Santo**

Products	US\$ MILLION	
	2010	2017
Cellulose	1,063.82	1,029.49
Coffee (grains)	388.10	234.90
Black Pepper (not ground or powdered)	22.18	109.98
Instant coffee	29.70	51.44
Soya (except for seeding )	-	41.37
Fresh papaya	17.31	16.39

Source: MDIC  
Elaboration: Ideies/Sistema Findes

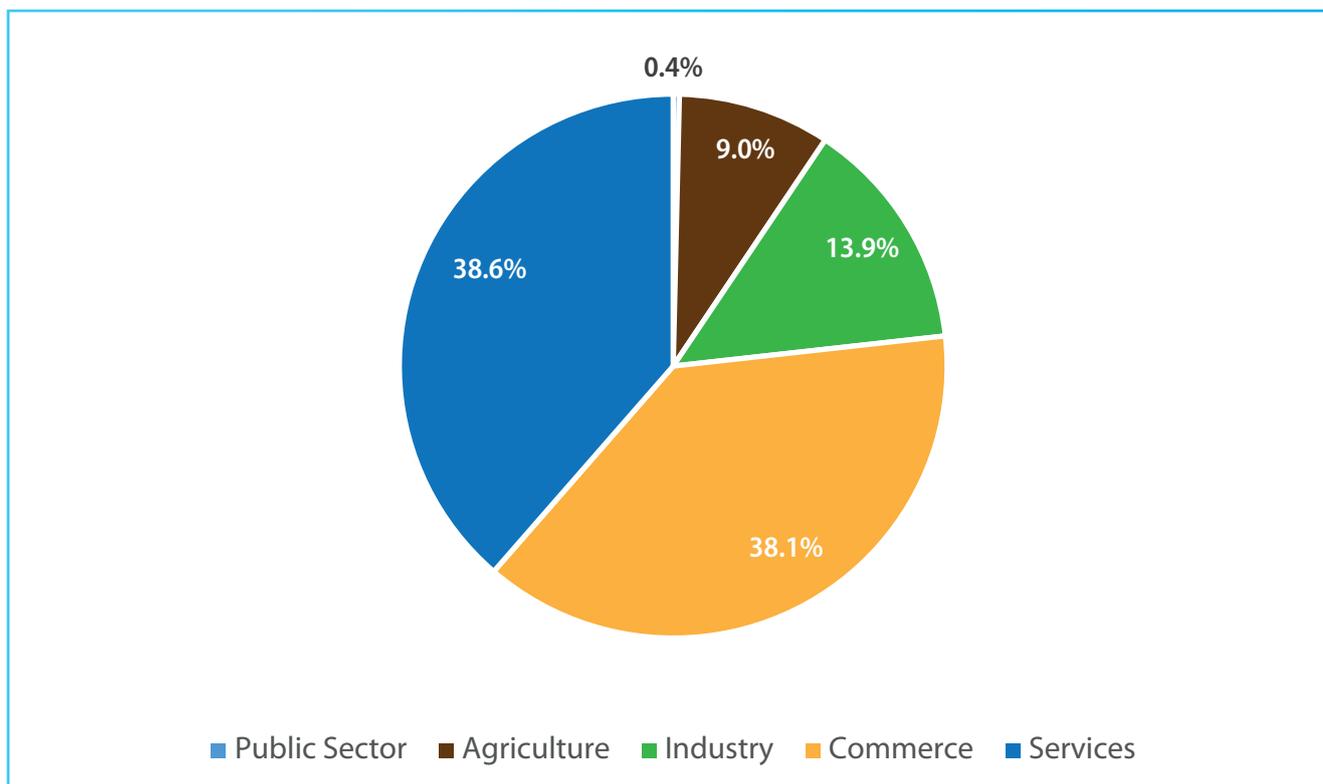
## Companies and Jobs in the state's economy

The economy of the Espírito Santo has 84,621 formal establishments (2017), of what more than 32.6 million belong to the services business and more than 32.2 million are commercial establishments. The industrial sector, in turn, concentrates 11.7 million establishments in the state. The share of micro-establishments in the states' economy is noteworthy. Of all establishments, 91.4% employ up to 19 people.

The more than 84.6 thousand establishments employ 874 thousand people, 36.0% of which are allocated in the services sector, 21.4% the commercial sector, 20.1% in the public sector and 18.8% in the industrial sector. When it comes to industrial activities, mining and quarrying businesses employ 1.3% of the workforce, whereas the manufacturing sector recruits 12.0% of all employees.

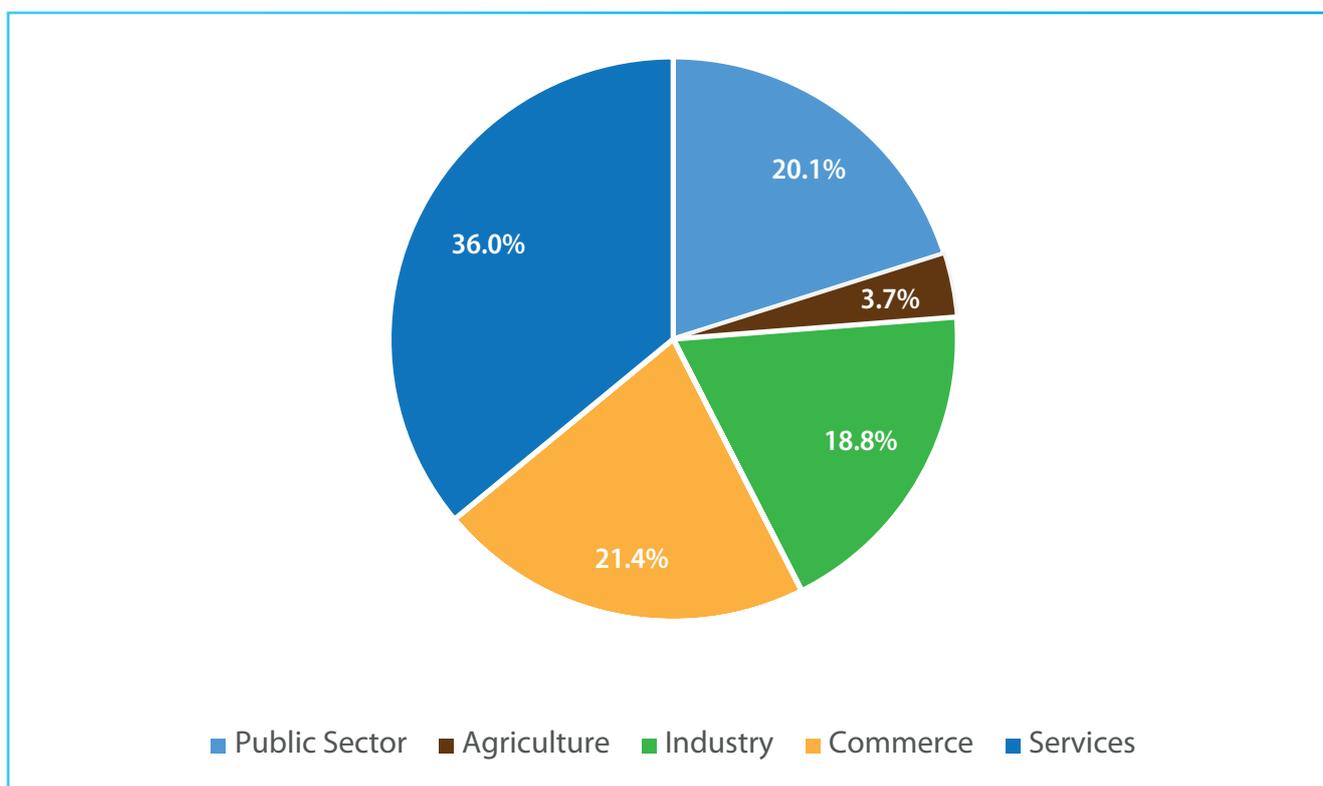
It is interesting to compare the capacity of the mining and quarrying activities and of the manufacturing sector to create jobs and, consequently, income for the population. Although the mining and quarrying industries show a higher contribution to value added in the economy, the manufacturing sector hires over nine times as many workers.

Chart 7 – Business establishments per sector, Espírito Santo, 2017 – in %



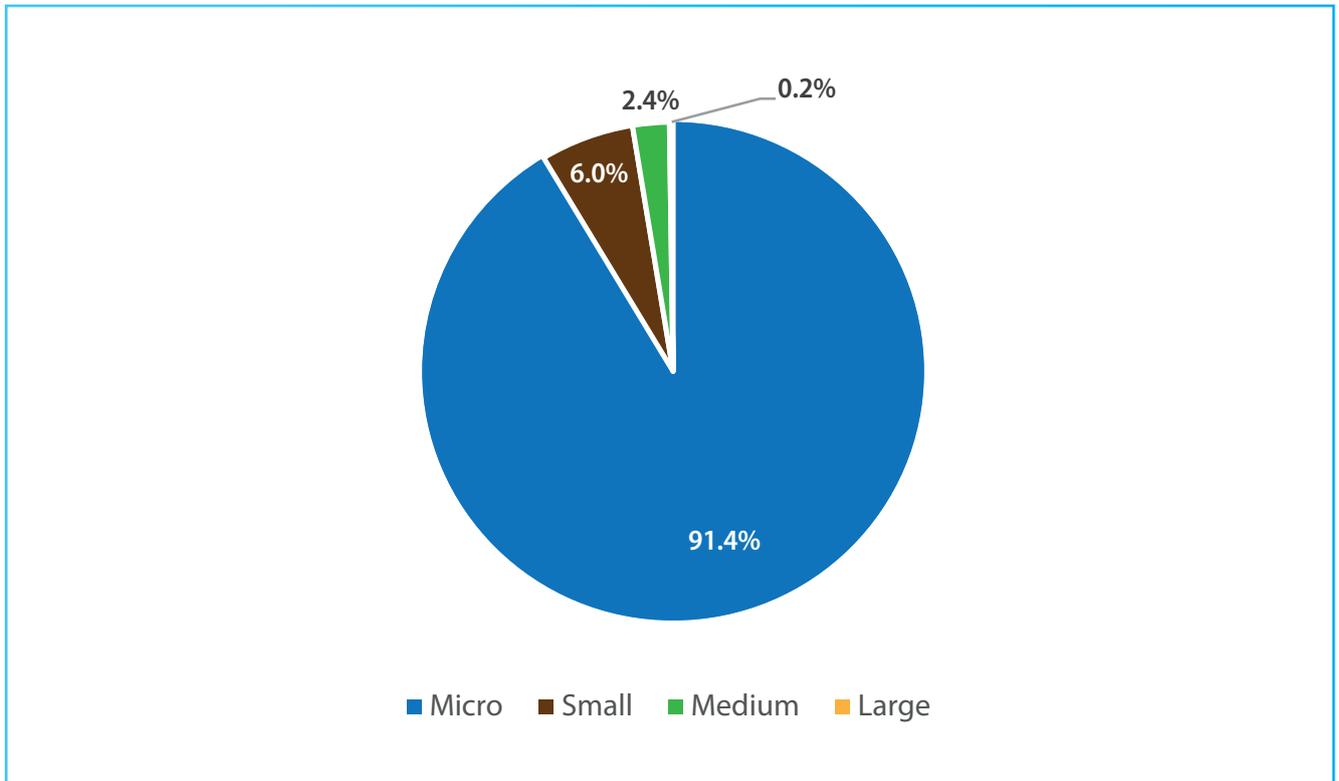
Source: Rais/MTE  
Elaboration: Ideies/Findes System.

Chart 8 – Employment by sector, Espírito Santo 2017 – in %



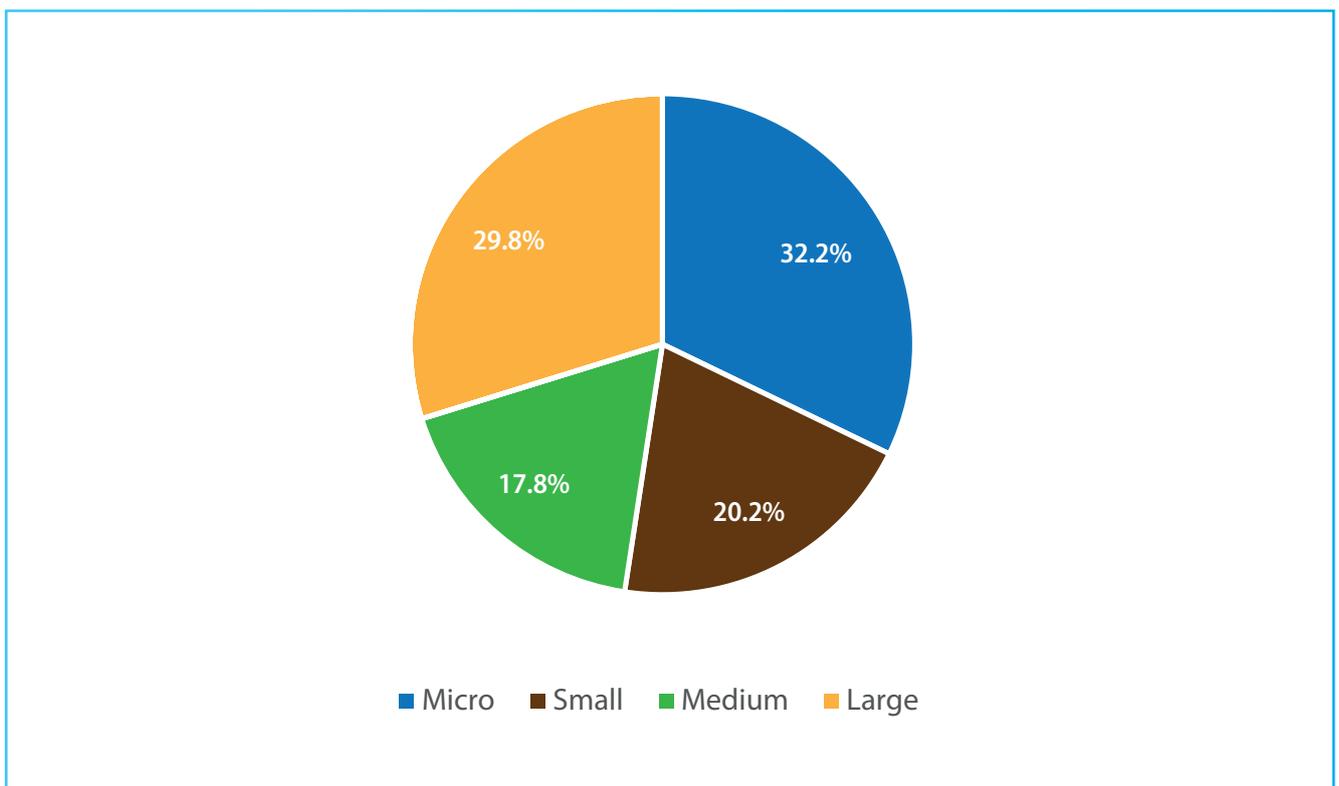
Source: Rais/MTE  
Elaboration: Ideies/Findes System.

**Chart 9 – Number of Business Establishments by Size, Espírito Santo**



Source: Rais/MTE  
Elaboration: Ideies/Findes System.

**Chart 10 – Employment by Business Establishment Size, Espírito Santo 2017 – in %**



Source: Rais/MTE  
Elaboration: Ideies/Findes System.

## The importance of International trade to Espírito Santo

International trade is an important economic activity to Espírito Santo, which is verified by the analysis of the degree of openness of the economy of the state. This indicator, based on total trade, calculates the share of the sum of imports and exports in GDP. At the end of 2017, the degree of openness of Espírito Santo was 36.3%, whereas the national average amounted to 17.7%.

On the whole, Espírito Santo exported US\$ 8.0 billion in 2017, the 10th largest volume among the Brazilian states or 4% of the country's total exports. More than one-third of the Espírito Santo exports (34%) are shipped to the United States, 6% to the Netherlands, 5% to China and 5% to Argentina. The economic activities with the largest shares in exports are metallurgy (30.3%), nonmetallic ores (27.0%) and pulp and paper (13.2%).

The industrial sector accounted for US\$ 7.6 billion, or more than 90%, of the total state exports. The mining and quarrying industries comprised 41.1% of the state's total industrial exports, whereas the manufacturing sector accounted for 58.9%.

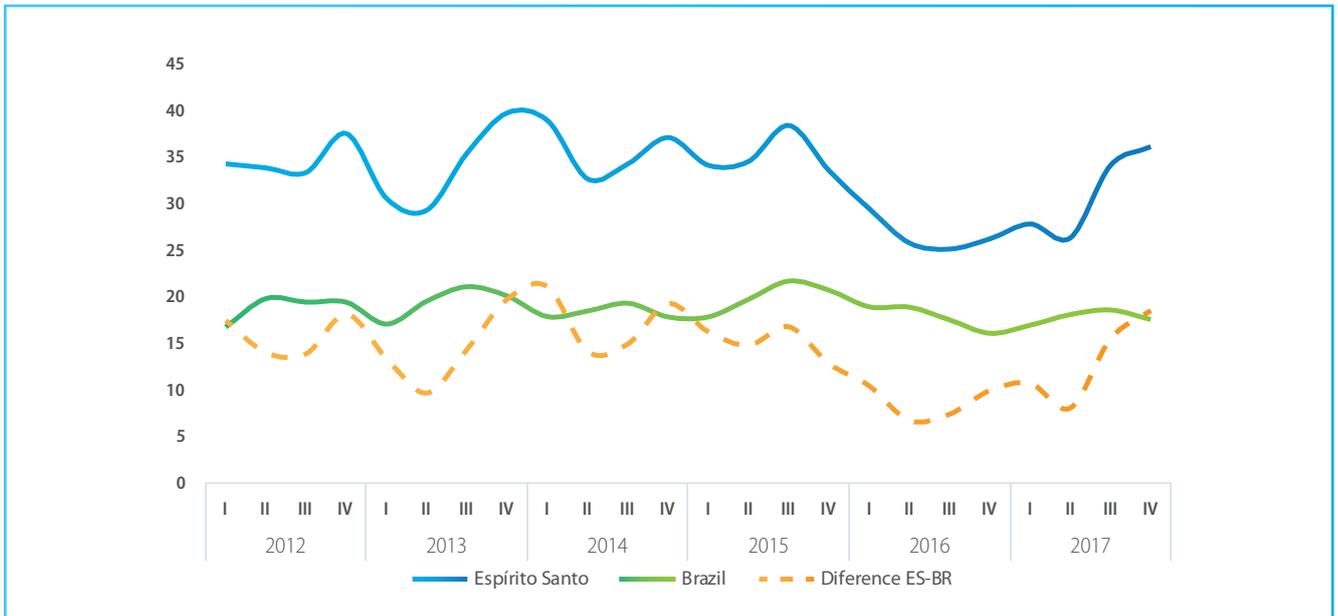
It is interesting to note the predominance, in the state's exports, of the commodities supplied by the businesses established during the Great Industrial Projects period. Bearing in mind that exports reflect a territory's economy, it is possible to assert that Espírito Santo maintains an industrial structure similar to that of the 1980s.

An additional remark regarding the share of commodities is that, because their prices are more susceptible to fluctuations in international markets, shifts in international trade and regulatory policies in importing countries, they have a significant impact on the economy of the State of Espírito Santo. That was the case in the 2009 international crisis, when the Espírito Santo GDP dropped by 6.9% and the Brazilian output fell by only 0.1%.

Three single products concentrated 54.0% of the state's exports in 2017: iron ore (26.1%), semi-finished iron and steel products (15.1%) and cellulose (12.8%). Imports are less concentrated, emphasizing non-agglomerating coal (26.1%), passenger car (7.1%) and airplanes (6.4%), which together amounted to 39.6%.



Chart 11 – Degree of Openness, Espírito Santo and Brazil, 2012 to 2017, in % of GDP



Source: IJSN  
Elaboration: Ideies/ Findex System



**Table 4 – Espírito Santo's exports, in 2017**

	<b>Products (Classification)</b>	<b>US\$ FOB (million)</b>	<b>Share (%)</b>
1st	Iron ores and its concentrates (B)	2,096	26.10%
2nd	Semi-finished iron or steel products (S)	1,213	15.10%
3rd	Celullose (S)	1,029	12.80%
4th	Crude oil (B)	920	11.40%
5th	Plated iron or steel products (M)	693	8.60%
6th	Marble and granite	663	8.20%
7th	Flexible tubes of iron or steel (M)	356	4.40%
8th	Coffee beans (B)	235	2.90%
9th	Other manufactured products (M)	154	1.90%
10th	Pepper grain (B)	110	1.40%

Legend: B = Basic; M = Manufactured; S = Semi-Finished Products

Source: Funcex

Elaboration: Ideies/Sistema Findes

**Table 5 – Espírito Santo's imports, in 2017**

	<b>Products (Classification)</b>	<b>US\$ FOB (million)</b>	<b>Share (%)</b>
1st	Coal (not agglomerated) (B)	1,204.25	26.10%
2nd	Passenger vehicles (M)	327.24	7.10%
3rd	Airplanes (M)	292.78	6.40%
4th	Other manufactured products (M)	243.77	5.30%
5th	Fabrics (woven, synthetic or artificial) (M)	166.49	3.60%
6th	Apparatuses for transmission or reception (others)(M)	155.79	3.40%
7th	Milk and cream, not concentrated, not containing added sugar or other sweetening matter (M)	111.85	2.40%
8th	Unwrought Aluminum (S)	99.14	2.20%
9th	Perfumery, cosmetic and toilet preparations (M)	81.06	1.80%
10th	Wine (from grapes) (M)	75.46	1.60%

Legend: B = Basic; M = Manufactured; S = Semi-Finished Products

Source: Funcex

Elaboration: Ideies/Sistema Findes

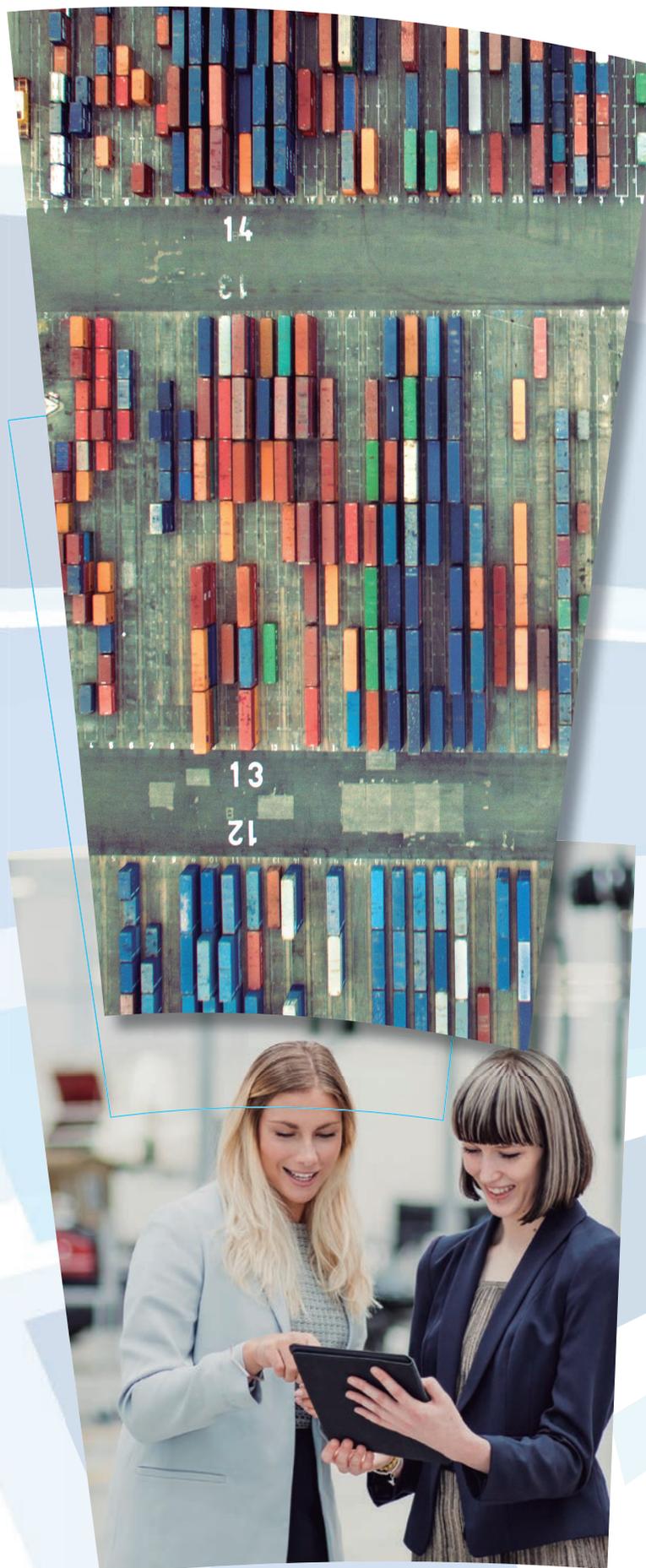
## Considerations

This brief overview of Espírito Santo aimed to portray the state's economy by making use of traditional indicators and a small historical background. The eradication of the coffee plantations in the mid-20th century deeply marked the state's economic history. It is impossible to go through the state's history without mentioning the fact<sup>6</sup>. However, a deep examination of the matter was not the objective of this analysis.

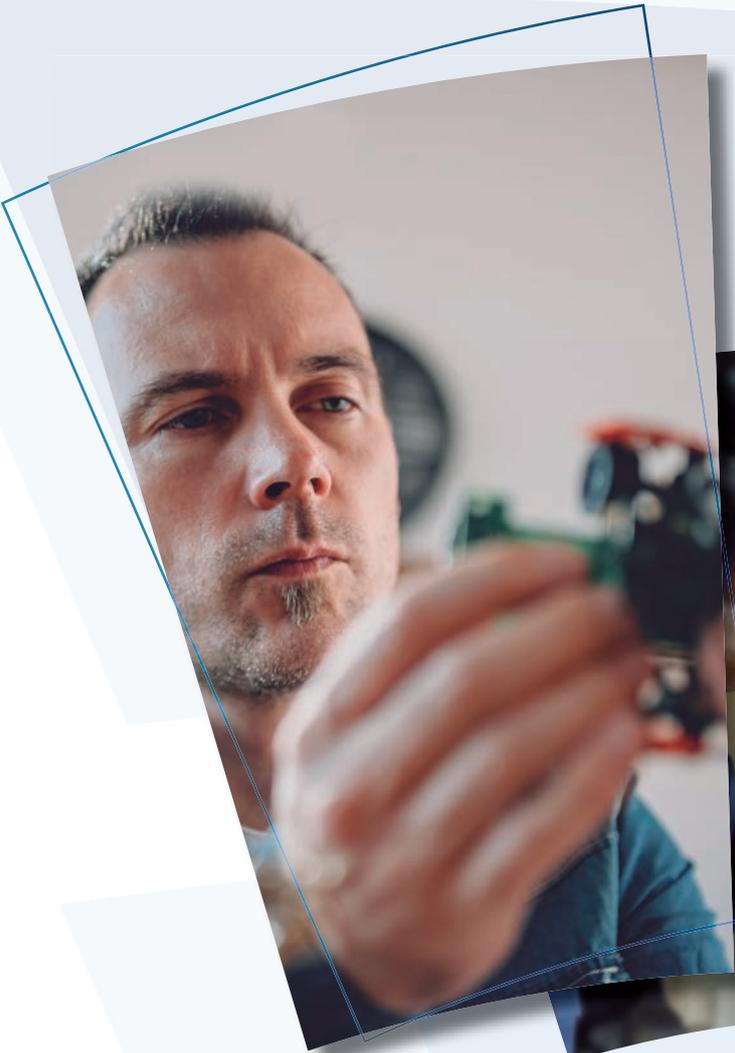
Boosting development in the manufacturing sector by means of an industrial process with planning and execution will be fundamental to raise income, employment and productivity in the economy. The industrial sector, due to its specific increasing returns to scale, deployment of innovation, division of labor and addition of value in production steps, stands out as the most powerful driver of development in the region. Therefore, understanding Espírito Santo's industry is fundamental to understand its restrictions and to point and plan the paths to be followed.

An effort has been made to present the latest available data for each variable, some of which have a lag of up to three years (eg. 2016). However, that does not downplay the main point of this overview, which is to bring a reflection of the present state of affairs in Espírito Santo. The most recent data, when released by the institutions that calculate them, will be available on the Ideies website at [www.ideies.org.br](http://www.ideies.org.br). For more information on Espírito Santo's industry, the Industrial Overview of Espírito Santo, also available on the Ideies website, is recommended.

<sup>6</sup> To have a deep knowledge of this fact, it recommends the reading: ROCHA, Haroldo Correa; MORANDI, Angela Maria. *Cafeicultura e grande indústria: a transição no Espírito Santo 1955-1985*. 2. ed. Vitória, ES: Espírito Santo em Ação, 2012. 173 p.



# Results by Regions



**T**he identification of the Sectors Bringing Future Prospect to the State of Espírito Santo, in the 2035 horizon, was performed by means of a panel of experts. These meetings took place in August 2018 and relied on 179 participants, who had the opportunity to evaluate the information stemming from the industrial outlook of the state and reflect upon the macro trends, trends and key technologies for each of the state's regions.

The thoughtful selection of experts ushered in the convergence between technical knowledge and the information shared during the presentations, comprising the basis for the choice of sectors for each region. In the present section, the results obtained are presented, as well as the panel meeting dates and locations. The list of experts and the institutions they represent are available at the end of this publication.

# Serrana Regions



PANEL  
MEETING  
DATE

01<sup>st</sup> August  
2018



NUMBER OF  
EXPERTS

26

## SECTORS, SEGMENTS, AND AREAS PRIORITIZED:

- AGRI-FOOD
- COFFEE INDUSTRY
- CONSTRUCTION
- CREATIVE ECONOMY
- ENERGY
- ENVIRONMENT
- INFRASTRUCTURE AND LOGISTICS
- PULP AND PAPER
- TOURISM AND LEISURE ECONOMY
- WOOD AND FURNITURE



# South Regions



PANEL  
MEETING  
DATE

02nd August  
2018



NUMBER OF  
EXPERTS

45

## SECTORS, SEGMENTS, AND AREAS PRIORITIZED:

- AGRI-FOOD
- CLOTHING, TEXTILES AND FOOTWEAR
- CONSTRUCTION
- CREATIVE ECONOMY
- DIGITAL ECONOMY
- ENERGY
- ENVIRONMENT
- INFRASTRUCTURE AND LOGISTICS
- OIL AND GAS
- ORNAMENTAL ROCKS
- TOURISM AND  
LEISURE ECONOMY

## REGIONAL SPECIFICITIES

- CAPITAL GOODS
- CHEMICAL PRODUCTS
- MINING
- NON-METALLIC  
MINERALS



# North Regions



PANEL  
MEETING  
DATE

15<sup>th</sup> August  
2018



NUMBER OF  
EXPERTS

31

## SECTORS, SEGMENTS, AND AREAS PRIORITIZED:

- AGRI-FOOD
- CLOTHING, TEXTILES AND FOOTWEAR
- COFFEE INDUSTRY
- CONSTRUCTION
- CREATIVE ECONOMY
- ENERGY
- ENVIRONMENT
- INFRASTRUCTURE AND LOGISTICS
- METAL-MECHANICS
- OIL AND GAS
- ORNAMENTAL ROCKS
- PULP AND PAPER
- TOURISM AND  
LEISURE ECONOMY
- WOOD AND FURNITURE

## REGIONAL SPECIFICITIES

- AUTOMOTIVE  
AND AUTO PARTS



# Central Regions



PANEL  
MEETING  
DATE

16<sup>th</sup> August  
2018



NUMBER OF  
EXPERTS

48

## SECTORS, SEGMENTS, AND AREAS PRIORITIZED:

- AGRI-FOOD
- CLOTHING, TEXTILES AND FOOTWEAR
- COFFEE INDUSTRY
- CONSTRUCTION
- DIGITAL ECONOMY
- ENERGY
- ENVIRONMENT
- INFRASTRUCTURE AND LOGISTICS
- METAL-MECHANICS
- OIL AND GAS
- ORNAMENTAL ROCKS
- PULP AND PAPER
- TOURISM AND  
LEISURE ECONOMY
- WOOD AND FURNITURE

## REGIONAL SPECIFICITIES

- ELECTRO-ELECTRONIC



# Metropolitan Regions



PANEL  
MEETING  
DATE

17<sup>th</sup> August  
2018



NUMBER OF  
EXPERTS

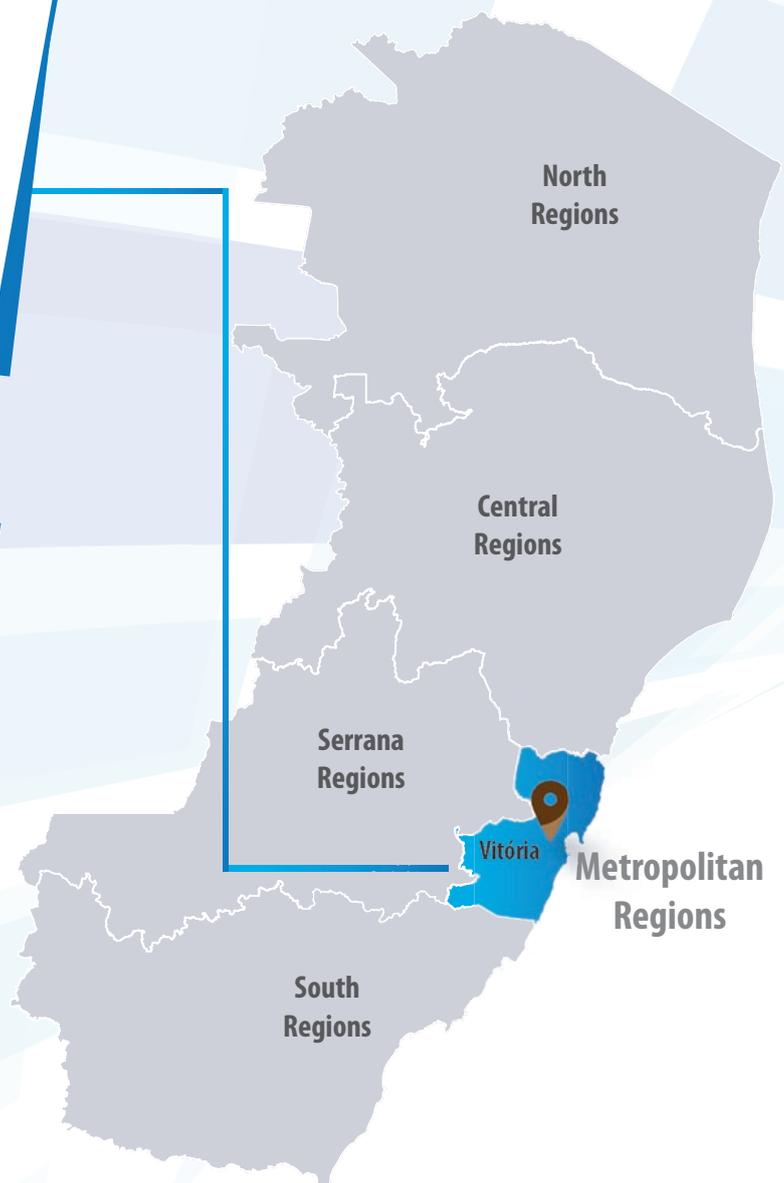
51

## SECTORS, SEGMENTS, AND AREAS PRIORITIZED:

- AGRI-FOOD
- BIOTECHNOLOGY
- COFFEE INDUSTRY
- CONSTRUCTION
- CREATIVE ECONOMY
- DIGITAL ECONOMY
- ENERGY
- ENVIRONMENT
- INFRASTRUCTURE AND LOGISTICS
- METAL-MECHANICS
- NANOTECHNOLOGY
- OIL AND GAS
- ORNAMENTAL ROCKS
- TOURISM AND LEISURE ECONOMY

## REGIONAL SPECIFICITIES

- CAPITAL GOODS
- RUBBER AND PLASTICS



# Sectors Bringing Future Prospect to the State of Espírito Santo 2035

The results obtained through foresight reflection, bolstered on baseline studies and contributions from specialists, provided the identification of the productive sectors, economy segments and emerging areas considered most promising in a 17-year horizon. The project **Sectors Bringing Future Prospect to the State of Espírito Santo 2035** is a guiding principle for strengthening the competitiveness and sustainable development of the Espírito Santo industry. The result of the materialization of different efforts, within the public and private spheres, allowed Espírito Santo to competitively reposition itself both nationally and internationally.

The collective intelligence provided, for each of the five regions divisions of Espírito Santo, the choice of sectors organized under three groups:

▶ **STRUCTURAL**

▶ **EMERGING**

▶ **TRANSVERSAL**

## Structural

Sectors considered to be the pillars of the state's development. They are characterized by the most intense linkages among economic activities. They stand out as employers, for the number of establishments and the generation of wealth.

The selecting criterion employed was the occurrence of prioritization in at least three

panels. These sectors are important in the present and, in a coordinated effort of sustainable industrial development, may be even more relevant in the future.

## Emerging

The emerging sectors refer to economy segments and areas of recent configuration, with no traditional classification of economic activity. The emerging segments and areas have prospered based on scientific discoveries, technological innovations and transformations in society and the biosphere. With an industrial fabric under structuring or constituting themselves from new paradigms of interaction, they bring great opportunities in their midst and comprise drivers of new economic models and of innovative and sustainable dynamics of development for Espírito Santo.

The Biotechnology and Nanotechnology sectors have been prioritized only in the Metropolitan Panel. However, based on meticulous analysis, these areas were included in the state perspective as a result of their external links to the best-evaluated future trends in all prioritized sectors. In other words, the technological trends that may boost the development of the economic activities bringing future prospect to the state of Espírito Santo are linked, by and large, to the contributions of Biotechnology and Nanotechnology.

# Structural

Agri-food  
Clothing, Textiles  
and Footwear  
Coffee Industry  
Construction  
Creative Economy  
Metal-mechanics  
Oil and Gas  
Ornamental Rocks  
Pulp and Paper  
Tourism and Leisure  
Economy  
Wood and Furniture

# Transversal

Digital Economy  
Energy  
Environment  
Infrastructure and Logistics

# Emerging

Biotechnology  
Nanotechnology

## Transversal

This group comprises sectors that have a transversal impact on the remaining sets of economic activities. They are characterized by being essential to the competitiveness and sustainability of industry. They influence the processes of planning, production, distribution

and/or consumption of the most diverse sectors, and may significantly contribute to the solution of bottlenecks and, mainly, the generation of value added. These sectors have been prioritized in at least three panels.

# Regional Specificities

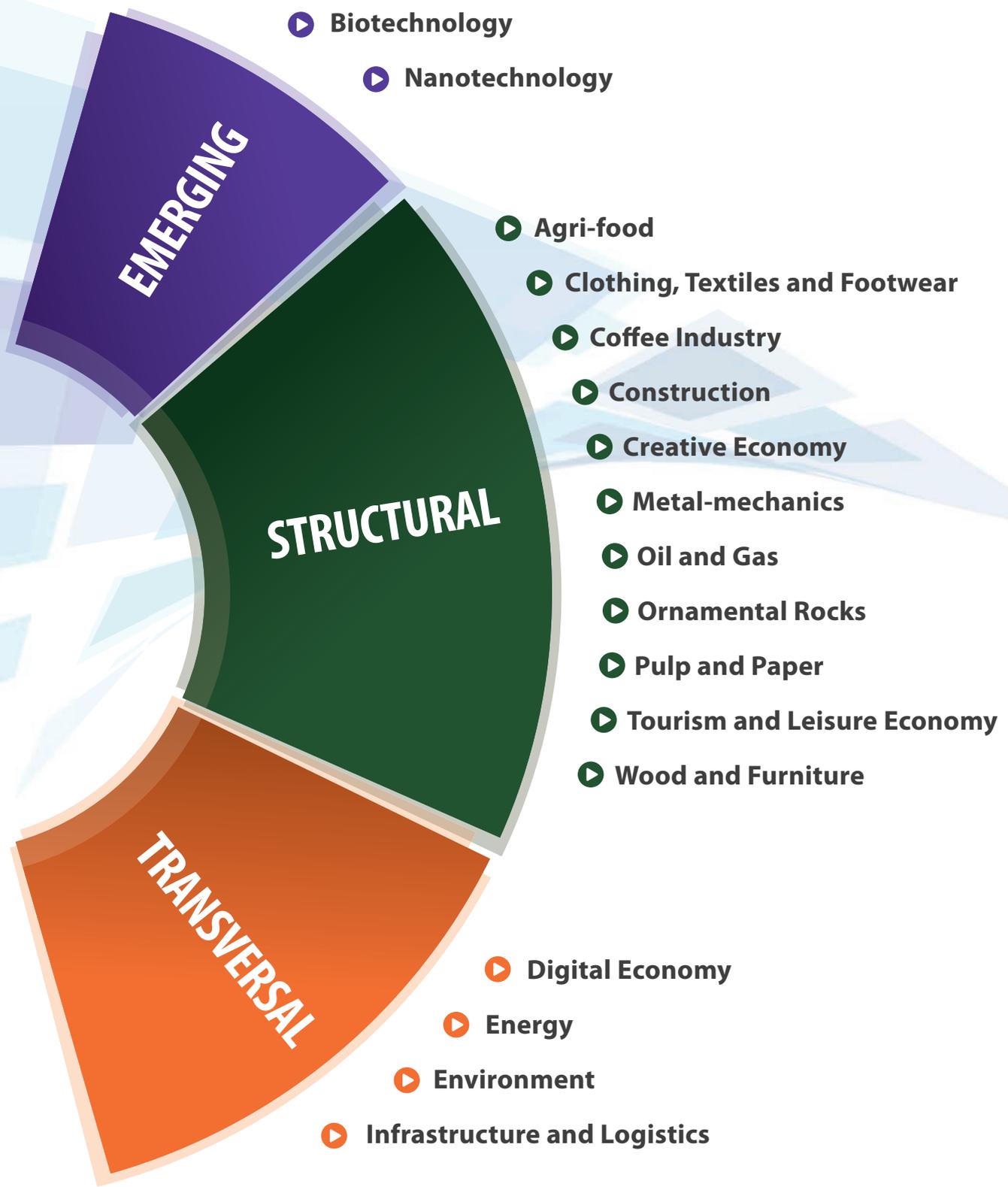
Automotive and Auto Parts  
Capital Goods  
Chemical Products  
Electro-electronics  
Mining  
Non-metallic Minerals  
Rubber and Plastic

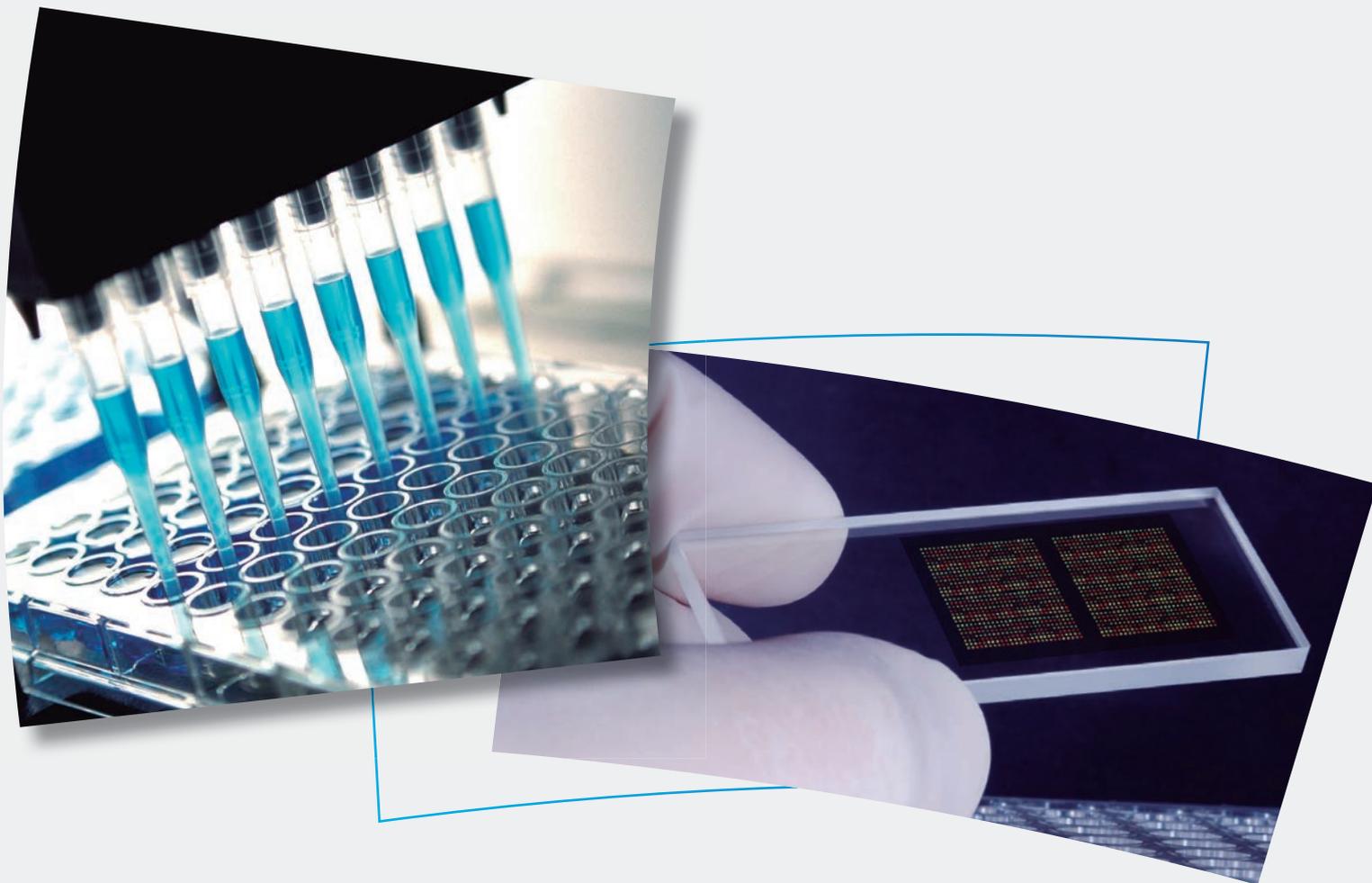
## Regional Specificities

The methodology adopted aimed, initially, to identify sectors which induce development in accordance with the regional specificities and expectations.

Following this dynamic, some economic activities analyzed in this process have shown great relevance only in a number of territories, and were prioritized only in the regions where these industrial activities have potential or are already established.

Therefore, a number of sectors which have been prioritized are not listed as Sectors Bringing Future Prospect to the State of Espírito Santo. However, despite having lower state-wide representation, these are extremely important in the sphere of influence of the regions in which they were prioritized and, therefore, ought to be the object of strategies to amplify or induce development.





**T**he emerging Sectors Bringing Future Prospect have been recently established and do not fit a traditional classification of economic activity. In order to aid comprehension, the definitions of these economic segments are laid out as follows.

**Biotechnology** - field of activity that employs living organisms or their parts in research and development, processes or specialized services. As an economic activity, it distinguishes itself from the classical industry, featuring transversality over various sectors and bearing application in multiple domains, such as agriculture, food and beverages, human health, animal health, environment, and computing, among others.

**Nanotechnology** - field of activity that encompasses the activities that make use of manipulating matter on the atomic or molecular scale aiming to create innovative materials, products and processes. Working of the frontier of knowledge, it operates in convergence with other scientific fields, revolutionizing industry, its processes and products as it provides a high degree of innovation and value addition.

# Next Steps

**F**or the coming years, the perspective for the economic sector is one of intense of technology-induced transformation. In this new scenario, there arise smart factories that utilize information and communication technology for digitalizing and connecting industrial processes, allowing enterprises to reach higher levels of quality, efficiency and scale customization of their products. The level of investment necessary for migrating to the new way of advanced manufacturing production and the challenges during this process will be differentiated for each branch of industry.

The discussion of policies that promote industrial development in Espírito Santo is essential for enterprises to keep up with this new “revolution”. Thus, it becomes crucial to create a favorable environment for innovation, making possible the creation, the development and the access to the new technologies. It is in this context that the synergy and the alignment between industrial policies, of innovation, science and technology are fundamental for the new stage of industrial production. Also, it is important to build knowledge networks and technical cooperation among various economic agents.

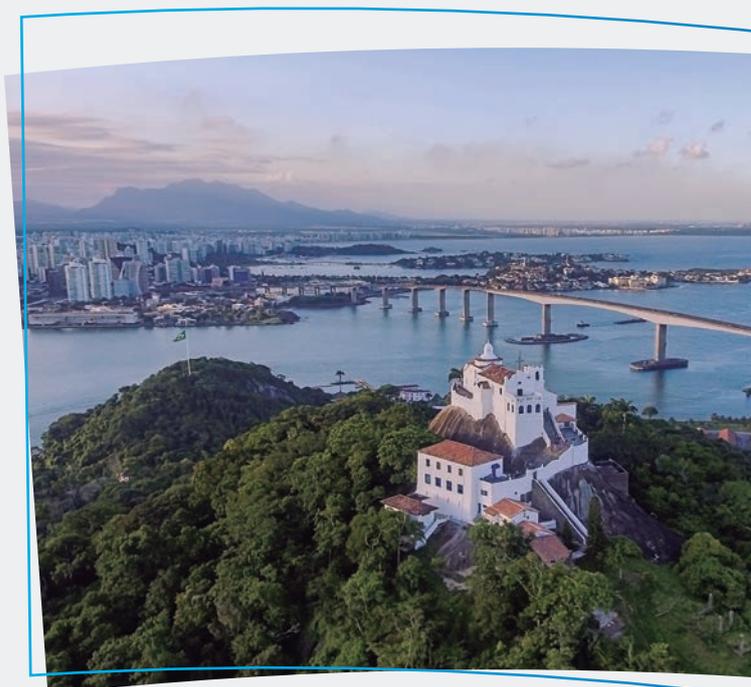
It is worth highlighting that **Industry 2035** has as a priority the liaison with key actors of economic development, from the productive sector, academia, government, non-profit organizations or the civil society. And the Findes System attains its leading role in the development of the productive sector in the state.

The identification of the **Sectors Bringing Future Prospect to the State of Espírito Santo 2035** sets the beginning of a new development, based on the strategic

prospective methodology, advanced for the next seventeen years (2018-2035).

The next step, starting in 2019, will comprise the elaboration of the **Strategic Routes for the Future of Industry in Espírito Santo 2035**. Baseline studies and panels of experts will be carried out with the aim of collectively building the desired future, from visions, identification of barriers and critical factors, and the elaboration of a convergent agenda of actions in the 2035 horizon for the sectors bringing future prospect.

**We hope that in 2035, when we celebrate the 500th anniversary of settlement in Espírito Santo, the benefits from this planning will be harvested by the whole of society.**



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